DELP 2016 Annual Research Workshop

School of Food Technology, Nutrition and Bio Engineering conference hall

Theme: Utilizing Emerging Educational Technologies to Leapfrog Distance Learning

2nd May 2016
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- On the potential of visualization and simulation tools in open and distance e-learning of mathematics at university level
- Game World Tasks Concepts for Outdoor Education
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# ELP 2016 Annual Research Workshop Program

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<td>8:30 AM - 8:40 AM</td>
<td>Dr. P. B. Muyinda: Overview on DELP: The Ugandan Context</td>
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<td>8:40 AM - 8:50 AM</td>
<td>Assoc. Prof. Ghislain Maurice N. Isabwe: Overview on DELP: The Norwegian Context</td>
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<td>9:00 AM - 9:10 AM</td>
<td>Assoc. Prof. F. M. Masagazi: Importance of DELP and other NORHED Funded Programs in CEE's Development</td>
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<td>9:10 AM - 9:30 AM</td>
<td>Prof. John Didumba Sientamu: Importance of DELP and other NORHED Funded Programs in Makerere University's Development</td>
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<td>Prof. Stefan Rodheim: Keynote Address 1</td>
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<td>Prof. Sven Ake Bjorke: Keynote Address 2</td>
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<td>11:40 AM - 12:00 AM</td>
<td>Paper Presentation Paul Birevu Muyinda &amp; Harriet Nabushawo Mutambo: Converging South-North Online Education Pedagogy at Makerere University: The Emerging Lessons</td>
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<td>Paper Presentation Michael Walimba: Emerging Technologies For Quality Distance Education</td>
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<td>Paper Presentation Ghislain Maurice Norbert Isabwe: Learning Dashboards in Blended Distance Education</td>
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<td>Paper Presentation Aleksandra Lazareva: Tutoring in online collaborative learning courses</td>
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<td>Paper Presentation David Kabugo: Utilizing Design-Thinking to Enable Pre service Teachers Bridge Gaps in their own TPACK: A Case of Luganda Language</td>
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<td>Paper Presentation Dorothy Sebbowa Kyagaba: Transforming Theory into History Education Practice: An Educational Technology mediated Perspective</td>
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<td>Paper Presentation Ninni Marie Hogstad &amp; Ghislain Maurice N. Isabwe: On the potential of visualization and simulation tools in open and distance e-learning of mathematics at university level</td>
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<td>15:40 - 16:30</td>
<td>Evening Tea and Closing Remarks by Prof. Henry Oryem Origa (NIDIC Chair)</td>
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**NOTES:**

The total time for each presentation is 20 minutes. Authors will be required to do their oral presentation for a maximum of 15 minutes, leaving the remaining 5 minutes for chair to moderate questions and or comments from the participants.
PROFILE OF DELP TEAM MEMBERS

Dr. Paul Muyinda Birevu  
**Position:** Project Coordinator,  
Senior Lecturer and Dean, School of Distance and Lifelong Learning, Makerere University  
**Research Interests:** ODeL, mLearning, ICT4E and ICT4D

Dr. Julian Bbuye  
**Position:** Alternate Project Coordinator,  
Lecturer, Department of Open and Distance Learning in the School of Distance and Lifelong Learning - Makerere University  
**Research Interest:** Planning and implementation of distance and online learning Uganda.

Dr. Jessica Norah Aguti  
**Title:** Assoc. Professor - Makerere University  
**Research Interests:** Teacher Education, ICTS for Education, Management of ODEL

Annet Joan Kajura Mugisha  
**Position:** Senior Educationalist, Ministry of Education and Sports  
**Research Area Interest:** ICT and Education Management with special focus on Teacher Issues

Mr. Sam Siminyu (PhD)  
**Position:** Lecturer Department of Open and Distance Learning - Makerere University  
**Research Interests:** Distance Learning

Mr. Godfrey Mayende  
**Position:** Assistant Lecturer Department of Open and Distance Learning - Makerere University  
**Research Interests:** Distance Learning, ICT

Mr. Tito O. Okumu  
**Position:** E-Learning Manager (MUELE) - Makerere University  
**Research Interests:** Use of Educational Technology in Higher Education

Mr. David Kabugo  
**Position:** Assistant Lecturer, School of Education, Department of Humanities and Language Education, Makerere University  
**Research Interests:** On-line and mobile learning design and deployment; Technology Aided Language Teaching and Learning; Information Systems Design and Utilization in Learning

Dr. Ruth Nsibirano  
**Position:** Documentalist, School of Women and Gender Studies, Makerere University  
**Research Interest:** Gender and ICT, Library Science & Services, Information Management, Information Technology, Use of Educational Technologies - eLearning and Online Course Content Development, Women and Gender.

Ms. Abigail Salome Inapat  
**Position:** E-Learning Administrator, E-Learning Unit, College of Education and External Studies  
**Research Interests:** ICTs in Education, eLearning

Ms. Dorothy Sebbowa Kyagaba  
**Position:** Teacher Trainer, History unit - School of Education Makerere University  
**Research Area Interest:** History Education, Harnessing Educational Technologies in Teaching and Learning, Designing and Implementing E-content for online classrooms, Pedagogical perspectives of e-learning and m-learning, Open Educational Resources, Virtual Learning and Distance Education.

Prof. Jude T. Lubega  
**Position:** Senior Lecturer, Makerere University  
**Research Area Interest:** Tracking and Assessment in e-learning, Content Authoring, Multimedia, Multi-Agent Systems, Data Warehousing, Knowledge Representation, ICT for Development (E-Governance, E-Health, E-Agriculture), Mobile Computing, Web-based Systems and Mobile Learning. He has published widely in journal, books and conference proceedings.

Dr. Elizabeth Kaase-Bwanga  
**Position:** NORHED Prog. Coordinator

Joanna Kalagala  
**Position:** DELP Administrator.
Speech by the Vice – Chancellor Makerere University

As you may be aware, the College of Education and External Studies (CEES) through its Department of Open and Distance Learning in the School of Distance and Lifelong Learning is mandated to provide knowledge and skills in Open, Distance and eLearning (ODeL) pedagogy. We have done this since 1991 when the External programme was launched. Currently, CEES offers ODeL pedagogical support to staff at Makerere University that service the various External programmes. Recently, the University Council approved the Open, Distance and eLearning (ODeL) policy which elevated the status of the Department of Open and Distance Learning to the Institute of Open Distance and eLearning (IODeL). The ODeL Policy mandates the Institute to mainstream ODeL into all academic programmes of the University so as to increase access to flexible and quality technology mediated learning as is emphasised in the Makerere University Strategic Plan.

Besides running External academic programmes, the College of Education and External Studies is implementing the Distance Education Leapfrogging Project whose aim is to Enhance ICT Pedagogical Integration and Increase Access to Education in Africa. The timely presence of DELP therefore, will contribute to the realization of the mandate of the Institute of Open Distance and eLearning by Leapfrogging 1st Generation Distance Education into the 4th and 5th Generation Distance Education at Makerere University.

I am therefore, pleased to join you this morning to preside over the opening ceremony of the DELP 2016 Annual Research Workshop under the theme: “Utilizing Emerging Educational Technologies to Leapfrog Distance Learning”. I am also delighted to preside over the same function where research outputs and results are being disseminated. Ladies and gentlemen, research in ODeL is important at this point in time when the education system is moving towards student centered pedagogies and virtual education. More than ever before, the population wishing to study as they work is on a steady increase.

Permit me therefore, to thank the Norwegian Government for supporting Makerere University under its Norwegian Programme for Capacity Building in Higher Education and Research for Development (NORHED) Programme.

In the three years of running, the DELP Project has produced commendable research outputs. In 2015, I presided over the DELP 2015 Workshop in which 12 research papers were presented. This year, eighteen (18) research papers will be presented at this Annual Research Workshop implying a rise in research output on the DELP project. I am happy to note that a number of these papers were co-authored between Makerere University and the University of Agder and with multiple authors. Research is not complete if research findings are not published or disseminated. I look forward to seeing the findings in the papers inform ODeL practice at Makerere University and beyond. I commend the DELP Project for having embedded annual research workshops in their project activities. I look forward to attending the subsequent research workshops under DELP.

Reading from the progress report of the project, the DELP has made a number of achievements including:

1) Sponsoring 3 academic staff for PhD studies in Open, Distance and e-Learning pedagogy
2) Training over 40 academic staff in e-teaching and e-courseware development.
3) Developing curriculums of 2 academic programmes (Bachelor of Youth in Development Work and Masters in Instructional Design and Technology).
4) Infrastructural improvements including the renovation of Nsubuga Block and lecture rooms, remodelling of CEES Lira Centre, acquiring ICTs like video conferencing facilities, interactive smart boards, desktop computers, laptops, projectors, printers, video and document cameras, among others.

With this capacity, the College Education and External Studies through its newly formed Institute of Open, Distance and eLearning, should be able to provide leadership in Open, Distance and e-Learning pedagogy at Makerere University. I appeal to you colleagues to continue being transparent in advancing the cause of the Norwegian Programme for Capacity Building in Higher Education and Research for Development (NORHED).

I also want to take this opportunity to thank the NORHED Institutional Development and Implementation Committee (NIDIC), Planning and Development Department, College of Education and External Studies Staff and Management for diligently executing Project activities. Special thanks go to the University of Agder for the technical support being provided to Makerere University in the DELP Project. I thank the Project Coordinators, Dr. Paul Birevu Muyinda, for Makerere University and Associate Professor Maurice Isabwe, for the University of Agder, for their tireless effort in ensuring the smooth running of the DELP Project. Of course, we cannot forget to thank the Government of Uganda for providing an enabling environment for research at Makerere University.

We build for the future.

Participants
I welcome you all to the College of Education and External Studies (CEES). The School of Distance and Lifelong Learning through the Department of Open and Distance Learning is mandated to provide knowledge and skills in the open, distance and eLearning (ODEL) pedagogy. We have done this since 1991 when the external programme was launched. At the moment, CEES offers ODEL pedagogical support to staff at Makerere University that service the Bachelor of Commerce (External), Bachelor of Education (External), Bachelor of Science (External), Bachelor of Agricultural and Rural Innovations (External) and Commonwealth Youth in Development Work Programme (CYP).

We have long recognized that the support extended to our distance learners and staff has mainly revolved around first generation distance education support mode. This mainly involves print materials, occasional face to face sessions and support at designated learning centres. Under situations of growing demand for higher education and dwindling resource envelop, first generation distance education is becoming untenable. Besides, Makerere University as a premier university needs to adopt modern distance education which employs fourth and/or fifth generation distance education technologies. It is for this reason that the College took a strategic decision to leapfrog its reigning distance education model into the fourth and/or fifth generation distance education with the generous support of NORAD under its NORHED programme.

Allow me to extend my sincere appreciation to NORAD for the support rendered to our College through the DELP project. Further, permit me to most sincerely thank the University of Agder for:

1) Having accepted to collaborate with Makerere University on the DELP project;
2) Providing the technical support to Makerere University on the project;
3) Training our staff on PhD fellowships in different aspects of the ODEL pedagogy;
4) Providing a conducive research environment to our staff on research visitation at UiA; and
5) Always not hesitating to come over to Africa to carry out different activities on the project.

Let me take this opportunity to inform members that with funding from NORAD, we have been able to renovate and remodel spaces including Nsubuga block and lecture rooms and Lira Centre to house computer laboratories and video conferencing facilities. However, these renovated spaces lack furniture and staff. I therefore, take this opportunity to request the University to help us equip the spaces with suitable furniture and staff.

I also wish to thank the Vice Chancellor, Prof. John Ddumba-Ssentamu, for his able leadership that has enabled the DELP project to flourish. I take this opportunity to also appreciate the University Council for appreciating the need to have the ODEL policy and elevating the Department of Open and Distance Learning into the Institute of Open, Distance and eLearning Learning. In relation to this, I would like to highlight the following:

1) On receiving the policy, the Department of Open and Distance Learning developed an implementation plan which was approved by the College Board and is awaiting to be presented to the University Management for discussion and approval
2) On granting the Department of Open and Distance Learning the Institute status, a human resources structure was developed to emanate from the existing staff establishment of the Department. If the Institute is to fully fulfil its mandate, the Institute requires that all the positions in the existing Department establishment be filled and special promotional criteria for academic staff adopted. All these have been proposed and are to be tabled for discussion.

To the different officials of the University who contribute variously to the smooth execution of the different project activities, we say Bravo! Universities World over are adopting open, distance eLearning as a means of increasing access to flexible and quality education. Through the DELP project, Makerere University will for the very first time in its history launch two online/blended learning programmes – one at Bachelor’s and the other at Master’s level. We urge Senate and Council to expedite the approval of these two seed online learning programmes.

Besides offering different knowledge areas to a wide clientele, these two online programmes will provide test beds and centres of excellence from which other colleges and institutions will adopt online education. As such, the DELP project is helping Makerere University to remain in its number one position of curriculum innovation in the country and region.

I wish you all fruitful deliberations.
MESSAGE FROM THE CHAIRPERSON NIDIC

During the development of NORHED project proposals, Makerere University found it right and fitting to setup an institutional structure to oversee the development and implementation of the different projects. The structure setup is known as the NORHED Institution Development Committee (NIDIC). NIDIC draws its membership from across all the units in the University. As the chairperson of this Committee, I want to add my voice to others in welcoming the DELP 2016 Annual Research Workshop participants to Makerere University and for our partners from Norway, you are welcome to Uganda.

As NIDIC, we are proud to see that the projects mooted under our backyard have begun to bear fruits. We are particularly grateful to the DELP project team at Makerere University and at the University of Agder for the diligent work they are doing. You make us walk with our heads high as members of the NIDIC. We pledge to offer more support to you as you continue to implement the project in the remaining years.

I wish to applaud the DELP team for this project result dissemination avenue. Without dissemination even the best of innovations are concealed. You have brought to light the capacities being built by the DELP project to distance education at Makerere University. Makerere University therefore ought to embrace wholeheartedly the results and recommendations coming from this research project. This way Makerere University shall retain its number one position in the country but also in the region not only in conventional pedagogy but also in open, distance and eLearning pedagogy.

I wish you all dear participants’ fruitful deliberations

INTRODUCTION

I welcome you to the DELP 2016 Annual Research Workshop (DELP 2016W). Once again, permit me to provide you with a brief overview of the Distance Education Leapfrogging Project (DELP). DELP is the short title for the Project, Leapfrogging 1st Generation Distance Education into 4th and 5th Generation Distance Education: A Strategy for Enhancing ICT Pedagogical Integration and Increasing Access to Education in Africa. DELP is one of the thirteen (13) projects at Makerere University supported by NORAD’s NORHED Programme. DELP is aimed at increasing access to flexible quality education at Makerere University by increasing capacity to integrate ICTs into pedagogical processes through leapfrogging the current 1st generation distance education provision into 4th and 5th generation distance education provisions. The NOK 18,000,000 Project commenced in July 2013 and is to run for five (5) years till June 2018. DELP is executed at Makerere University by the College of Education and External Studies, School of Distance and Lifelong Learning, Department of Open and Distance Learning in partnership with the ICT Department, Faculty of Engineering and Science, University of Agder, Norway. DELP is built around three (3) work packages, namely: i) Education and Training; ii) PhD and Research; and iii) Institutional Development.

EDUCATION AND TRAINING

Under this package, DELP has developed the first ever online/blended learning undergraduate and master’s programmes, namely: the Bachelor of Youth Development Work (BYDW) and Masters in Instructional Design and Technology (MIDT) programmes respectively. Curricula for these programmes are in Senate for discussion and onward recommendation to University Council for approval. All online materials for use in these programmes have been developed and ‘onlinised’. The target facilitators for the different courses on the programmes have been trained in online distance education pedagogy and courseware development.

The BYDW programme is an international programme by descent for it has descended from the Commonwealth Youth Diploma Programme (CYP), a programme originally developed by the Commonwealth Youth Secretariat. The main objective of the BYDW programme is to develop professional youth workers who will steer the energies of the masses of youth towards contributing to development in Uganda and the region.

On the other hand, the MIDT programme aims at equipping learners with the intellectual aptitude, skills, and attitudinal disposition that will help uplift Uganda and the region into 21st Century technology-enhanced education and training by equipping trainees with knowledge, skills and attitudes that will enable them to handle challenges posed by technology-mediated learning in a developing context. Sixteen (16) scholarships (10 for Ugandan and 6 for South Sudanese) will be issued out once the MIDT programme is up and running.
PhD and Research

Under this package, DELP is contributing to the development of Makerere University’s human resource capacity in the area of open, distance and e-learning (ODeL). DELP is supporting three (3) staff from the School of Distance and Lifelong Learning to pursue PhD studies at University of Agder (2 No.) and University of Nairobi (1 No.). DELP has supported several staff to present research papers at international conferences and publish in refereed journals. In 2014/15, DELP supported the DELP 2015W research workshop and is similarly supporting this DELP 2016W research workshop. It will support the 2017 international conference and hosting of an online journal in ODeL and publication of a book.

Institutional Development

Under the Institutional Development work package, Makerere University has and continues to benefit in infrastructural and human resources skills development. In infrastructural development, DELP has procured all the necessary ICTs needed in enabling production of and access to resources for online distance education. These include, among others: 2 servers, 98 desktop computers, 4 laptops, 4 LCD projectors, 2 iPads, 1 mobile phones, 7 Internet modems, 4 interactive smart boards, 2 video cameras, 1 document camera, 1 heavy duty multi-purpose printers, 2 video conferencing facilities, 2 scanners, 2 light duty printers, 2 heavy duty printers and bandwidth support for Lira.

The Project has seen the refurbishment of spaces for hosting modern ICTs for online distance education. Nsuguba block, the home of the newly formed Institute of Open, Distance and eLearning (formerly, Department of Open and Distance Learning) has been refurbished and the ICT laboratory therein expanded to host over 100 computers and their accessories. The former AVU Viewing Room, Control Room and Studio have been revamped to host video conferencing facilities. Equipment for video conferencing has been delivered and is ready to be installed in the AVU Viewing Room and in the remodeled Lira College of Education and External Studies (CEES) Center. The renovations at Nsuguba block and AVU Viewing Rooms are complete and will be handed over to Makerere University on 5th May 2016.

The CEES Lira Center is being remodeled to house a modern computer laboratory (1), video conferencing facilities (1), resource center (1), boardroom (1) lecture room (1) and offices for center coordinator and ICT staff. All the ICTs for populating the Lira Center have been procured. The contractor will hand over the remodeled center to Makerere University on May 28th 2016.

In human resources skills development, DELP is supporting short and medium term skills improvement training programmes. Staff in the Department of Open and Distance Learning have received training/continue to receive training in use of learning management system for teaching and learning, ODeL materials development, ODeL facilitation, using video conferencing in teaching and maintenance of video conferencing facilities. DELP has so far supported 20 out of 40 staff to train in e-Teaching 1 (The International Online Tutor Course and e-Teaching II (E-Course Development and Implementation) courses. E-Teaching 1 and II are tenable online from the University of Agder. The trainees therefore receive real-life/hands-on experience of online teaching and learning.

DELP in the Remaining Two Years

The Project team shall continue to implement the remaining Project activities in the three pillars. Recruitment of students into the BYDW and MIDT programmes will be critical to the for a hundred percent completion of activities under the Education and Training pillar. Completion by PhD studies, award of Postdoc research grant, authoring and presentation of conference and journal articles, holding an international conference and hosting an online journal in ODeL remain critical outstanding activities for accomplishing the PhD and Research pillar. In the Institutional Development pillar, the remaining two years will see another 20 staff completing the e-teaching 1 and II courses. The remaining two years are years of consolidating DELP achievement for sustained implementation of 4th and 5th generation distance education at Makerere University. The period will see the operationalisation of the CEES Lira study center and cascading of the knowledge and skills acquired by staff trained on the DELP to the rest of the staff in the University.

Request to Makerere University

NORAD has built infrastructural and human capacity in eLearning. As counterpart support, Makerere University is required to furnish the spaces with appropriate furniture and staff. The implementation plan of the Institute of Open, Distance and eLearning spells out the staff requirements for the full integration of ODeL at Makerere University. This plan should be approved and implemented.

Challenges

DELP has experienced a delay in approval of its supported academic programmes due to the recent ban slapped on approval of new programmes awaiting the discussion and approval of the Programmes Restructuring Committee Report. With the lifting of the ban, all hopes are that the programmes (BYDW and MIDT) will be approved and recruitment of students done in 2016/17 academic year.

Acknowledgement

On behalf of the DELP team and my own behalf, I wish to thank the Royal Kingdom of Norway for the support extended to Makerere University through NORAD’s Norhed Programme. Special thanks go to the Vice Chancellor Makerere University, Prof. John Ddumba-Ssentamu; the Chairman NIDIC, Prof. Oryem-Origa; the Coordinator NORHED Programme, Dr. Elizabeth Bwanga; the Principal College of Education and External Studies, Assoc. Prof. Fred Masagazi Masaazi, colleagues at the School of Distance and Lifelong Learning, DELP Team Members and all those who make running of activities on the DELP possible, that your support to DELP is making a difference in the terrain of open, distance and eLearning at Makerere University. The support from my colleague Assoc. Professor Dr. Maurice Norbert Isiabwe, who coordinates the DELP at the University of Agder, cannot go unmentioned. Maurice, you have been a force to reckon with in the success of DELP.
Dear students, colleagues, and friends;

It is my great pleasure to welcome you, and thank you very much for your contribution to DELP 2016 workshop.

For more than a decade, the University of Agder is engaged in collaborative activities with Makerere University; and that has been a great experience. Student mobility programmes involving Norwegian students doing research at Makerere, Ugandan students studying at UiA as well as faculty participation in joint research and education activities have benefitted both universities. DELP project presents an opportunity for long-term research collaboration, to support research based education. As we strive to leverage learning technologies in distance education, this workshop will promote the foresight of education that is relevant for the global job market.

I congratulate the organizers, authors, DELP project members and the leadership of both universities for their efforts to leapfrog distance education at Makerere University. Let us keep the momentum for increasing access to high quality education. I look forward to continued collaboration.

Since the DELP project started as reported in last year’s workshop several benefits have been realized by the Department of Open and Distance learning. I can comfortably say that we are moving in the right direction towards the 4th and 5th generations of offering Distance Education. Since last year’s workshop several benefits have been achieved which included:

Human Resources Capacity Building.

Since its implementation several measures have been put in place to develop staff capacity in handling Distance and e-learning programs.

1. The Project has fully sponsored Mr. Mayende Godfrey and Mr. Turyakira Nazarius to do PhDs in Distance and e-learning. These two members are progressing very well with their programs. We hope by the end of the project, they will have completed their PhDs.
2. The Staff members from the Department who had enrolled for e-teaching1 and eteaching2 completed successfully and are ready to mentor the staff members teaching on the Distance Education programs. The project has enrolled another cohort of about ten members of staff. We hope after completing the course this team will join the existing team to handle online courses in the Department.
3. The Project has helped in developing an online Bachelors Degree in Youth and Development work. 25 modules have been developed, reviewed and transformed into online materials. This course will start in the academic year 2015/2016.
4. All the staff of the Department have been trained in multimedia pedagogy. This has enhanced capacity of these members in handling Distance and online courses.
5. Because of the support from the DELP project we have managed to onlineise all Bachelor of Commerce External study materials. With the support from the Uganda Development Bank, these materials are going to be worked on further to make them online friendly. This is going to be done by attaching the tutors on the Bachelor of Commerce external to the members who did e-teaching 1 and 2 for more training and guidance.
6. In addition to the Bachelor of Commerce External all the study materials for Bachelor of Education External, Bachelor of Science External Bachelor of Agriculture and Rural Innovations External and Diploma in youth in Development work programs are being worked on and uploaded so that they can be used online. We hope to have transformed all the External programs online by the end of the Project.

Message from DELP Coordinator
UNIVERSITY OF AGDER

Prof. Ghislain Maurice Norbert Isabwe
DELP Coordinator University of Agder

Dear students, colleagues, and friends;

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The DELP Project and the Department of Open and Distance Learning.

Since the DELP project started as reported in last year’s workshop several benefits have been realized by the Department of Open and Distance learning. I can comfortably say that we are moving in the right direction towards the 4th and 5th generations of offering Distance Education. Since last year’s workshop several benefits have been achieved which included:

Human Resources Capacity Building.

Since its implementation several measures have been put in place to develop staff capacity in handling Distance and e-learning programs.

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Message from DELP Coordinator
UNIVERSITY OF AGDER

Prof. Ghislain Maurice Norbert Isabwe
DELP Coordinator University of Agder

Dear students, colleagues, and friends;

It is my great pleasure to welcome you, and thank you very much for your contribution to DELP 2016 workshop.

For more than a decade, the University of Agder is engaged in collaborative activities with Makerere University; and that has been a great experience. Student mobility programmes involving Norwegian students doing research at Makerere, Ugandan students studying at UiA as well as faculty participation in joint research and education activities have benefitted both universities. DELP project presents an opportunity for long-term research collaboration, to support research based education. As we strive to leverage learning technologies in distance education, this workshop will promote the foresight of education that is relevant for the global job market.

I congratulate the organizers, authors, DELP project members and the leadership of both universities for their efforts to leapfrog distance education at Makerere University. Let us keep the momentum for increasing access to high quality education. I look forward to continued collaboration.

Since the DELP project started as reported in last year’s workshop several benefits have been realized by the Department of Open and Distance learning. I can comfortably say that we are moving in the right direction towards the 4th and 5th generations of offering Distance Education. Since last year’s workshop several benefits have been achieved which included:

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7. The DELP project has helped the Department in getting more networks in the world. Last year, it sponsored two members of staff who travelled to Norway to discuss linkages with the BASE project. This project aims at building capacity in the energy sector by using well developed and tested online courses from Norway in the areas of Mechatronics, Subsea technology, Renewable energy, e-learning courses. The BASE project has had fruitful discussions with the ministries of Energy and Education to start training the human resource by end of this year.

**Improvement in equipment**

1. The renovation of Nsubuga block has brought a new face to the Department which is soon turning into the Institute of Open and Distance Learning.
2. Remodeling of Lira centre is in progress and we hope it will enhance in offering online courses in the country.
3. The videoconferencing room is nearing completion. This will help in offering online courses in the country.
4. More forty computers have been purchased in addition to the 58 purchased last year. These computers are now being used by our students for information technology practicals and other related research.
5. The project has provided a smart board with a projector. This has made teaching easy considering that the Department was still using chalk boards and whiteboards.
6. The Project has provided three extra projectors to use in teaching. This has enhanced the use of ICTs in teaching.
7. The Project has provided six laptops to be used in teaching.
8. The project has provided two video cameras to help in recording lectures and other events of the Department.
9. The project has provided two big internet servers to increase on the speed of internet in the Department and help in delivering online courses.
10. The project has provided a multipurpose photocopying machine which produces 100 copies per minute well stapled. This machine will help in reproducing study materials for the Department.

These and more unmentioned resources have come to the Department and the College of Education and External studies and the University at large because of the DELP project.

I can confirm that the Department of Open and Distance learning is on the right truck of being leapfrogged from the first Distance Education generation to the 4th and 5th distance Education generations.

Thanks to all the members who wrote the project, those managing it at Makerere University and University of Agder and the sponsors who put in their money.
Converging South-North Online Education Pedagogy at Makerere University: The Emerging Lessons

Paul Birevu Muyinda & Harriet Nabushawo, Makerere University

Abstract

Traditional print based distance education is fast giving way to online distance education. Similarly, teacher-centered pedagogies are being phased out for student-centered pedagogies. This transformation is being fueled by the continuous emergence of educational technologies with affordances of personalised learning. Furthermore, contact universities are increasingly blending their offerings with online learning methods. As such, teachers are retooling themselves to keep up with the arising need for online course creation and facilitation. At Makerere University, the Department of Open and Distance Learning (ODeL), in the College of Education and External Studies is mandated to provide backstopping support services for open, distance and eLearning (ODeL) pedagogy to all units in the University. This requirement has placed demand on the staff of the Department to be excellently skillful and knowledgeable in ODeL pedagogy. With this pressing requirement in mind, ODeL staff, on their own accord, or through the Distance Education Leapfrogging Project, have enrolled on several online education capacity building programmes from the University of Cape Town (UCT) in South Africa (South) and University of Agder (UiA) in Norway (North). The UCT online education capacity building programmes are at certificate and postgraduate diploma levels while those from UiA are courses at masters level. The UCT programmes are: a five (5) weeks Certificate in Online Facilitation and a Post Graduate Diploma in Education (ICT). The UiA courses are E-Teaching 1 (The International Online Tutor Course) and E-Teaching 2 (E-Course Development and Implementation). This paper uses a comparative analysis method to document the lessons from and learning experiences of staff who attended both capacity building initiatives from UCT and UiA. It as well compares the South-North online learning curricula and generates a hybrid online learning and facilitation capacity development curriculum contextualised to the Ugandan environment. Preliminary findings indicate that both the South and North online facilitation courses are based on Gilly Salmon’s five-stage model for online learning. The model emphasises the need to support the online learner through five stages, namely: Stage 1 - Access and Motivation; Stage 2 - Online Socialisation; Stage 3 - Information Exchange; Stage 4 - Knowledge Construction; and Stage 5 Development. In either curriculum, learner centeredness is emphasised and learning is accomplished through learning tasks and activities. The curricula emphasises social learning through online discussions and meetings. It therefore emerges that a curriculum for an online learning and facilitation course for ODeL pedagogy capacity building at Makerere University should as well be underpinned by the Gilly Salmon’s Five Stage Model and contextualised learning activities.

Keywords

Five Stage Model, Online learning, Open Distance and eLearning

The world changes at an increasing pace, with severe ecological challenges, rapidly increasing populations, competition for natural resources, armed conflicts, changing climates and an explosion of refugees and internally displaced persons. Most decision-makers seem to agree that we need to adapt economic systems and governance to new realities.

“Education is the most powerful weapon you can use to change the world”, said Nelson Mandela. With increasing societal complexities, there is a need for an educational system that can help new generations to handle globalization processes, known and unknown challenges, robotization, intercultural conflicts and net-based communication giving instant global access to anybody. The new generations of digital natives have ways of communicating, socialising, networking and learning that often appear alien to the older generations. The mobile phones and tablets are ubiquitous and taken for granted among teenagers all over the world. The typical teacher born in the previous century, might not be as comfortable with these tools, and might not always know how to take advantage of them in an educational context.

Our educational systems can no longer be content disseminating static information to be absorbed and regurgitated for an exam. A transformative pedagogy is needed. Information literacy, critical thinking, creativity, intercultural communication and collaborative teamwork are key factors. Training in the management of and applying various tools, methods and heuristics in problem-solving must be main factors in any relevant education in the globalised information age.

In collaborative learning, students are active in building their knowledge and understanding together. Rather than receiving ready answers from the teacher, they are expected to negotiate, explain, argue and defend their claims themselves in order to find a solution. Collaborative learning is a powerful tool to promote deep understanding and skills – in contrast to superficial learning. Collaborative learning in multicultural contexts becomes even richer with the increasing amount of perspectives and experiences from different parts of the world.

Collaborative learning, especially in online contexts, can be challenging for many learners who do not have sufficient experience in such methods. Learners may feel unsure about the steps to be taken in the process of collaboration. They may also be insecure about their understanding and progress. Therefore, they need solid support from someone who is there to keep the discussion on the right track, monitor students’ contributions and prompt their thinking in case of challenges. Efficient online tutoring, the ability to develop rich digital learning environments and choosing the most relevant pedagogical approach for the learners to reach the intended learning outcomes are essentials in any education of the future.
The Integration of Podcasts in Blended Learning at Higher Education in Developing Countries: a case of Uganda

Mwogeza Resty Kamya, Uganda Management Institute (UMI)

Abstract

In the 21st century, there is a large mass of workforce of adult learners going back to institutions of higher learning to improve their skills so as to secure promotions and status without leaving their duty desks. They are interested in studying anywhere and anytime in more relaxed environments. A lot of courses have sprung out to cater for those types of learners however, the level of learner – Tutor – Content interactivity and the pedagogy aspects cannot be guaranteed while they study at a distance. On the other hand, though Mobile learning environments have emerged and are overcoming the restrictions of the traditional classroom but, are focusing majorly on mobility of the learner interacting with mobile technologies such as mobile phones, MP3, notebooks and tablets (wikp). (Olutayo, Antoine, Ngambi (2011). Godwin-Jones, (2003) asserts that mobile technologies alone, cannot improve learner – Tutor – Content interactivity without the first-generation Web tools such as; email, chat rooms, and discussion boards and, the second-generation Web tools such as Blogs (Weblogs), wikis, and podcasts. This research proposed a framework that would streamline integration of podcasts in blended learning in higher Education in developing countries. Specifically, this paper examined the key elements that guaranteed effective podcasting in blended learning. Studied the existing frameworks of integrating podcasts and developed a hybrid framework that enhanced the learner-tutor-content interactions.

Keywords

Technology Integration, Podcasts in Blended Learning, Higher Education

Emerging Technologies For Quality Distance Education

Walimbwa Michael, Makerere University

Abstract

Emerging technologies (ETs) are predominantly being utilized in the delivery of instruction in fulltime, online and distance education provision. A distance education process includes admission, personal contact programs, examination and support issues as activities that lead to the effectiveness and quality of teaching and learning. In this process ETs can play a great role by providing many benefits to both educators and students. ETs can be used to deliver inclusive education and extend learning activities to individuals who are not able to physically be at the educational institution due to various constraints. However, the challenge in the usage of ETs to deliver instruction is on distance learning programs, is in the level of competence for effective operation in this landscape of practice. This paper describes this landscape of practice, highlighting some of the challenges and suggesting some of the strategies to address them so as to realize quality education delivery on distance learning programs.

Keywords

Emerging Technologies, Quality Education, Distance Learning

Sustainable Higher Education (SHE) and E-Learning: Potentials of Distance Learning in Higher Education Sector, Sri Lanka

Asiri D’Vitharana1, Godfrey Mayende2; 1University of Ruhuna, Sri Lanka
2University of Agder, Norway/ Makerere University, Uganda

Abstract

Online learning has become much popular over last years with the given content and flexibility which is known as anytime, anywhere, at Any Phase (3A). Demand of the student based on their life style and the advancement of technology has paved the path towards e-learning environment with social constructivist pedagogy and collaborative learning process. Though Sri Lankan higher education sector has identified the importance of E-Learning, most of the educational institutions are still lagging behind. Academics and experts have identified the potentials of e-learning process yet, it has been constrained by the lack of awareness on the positive outcome of e-learning process, poor structure and teacher centric mind set where the academics still believe in traditional learning process in the classroom. Yet, increasing competition among public and private high educational institutions has enhanced the consideration on providing quality education. Therefore, this paper discusses the potentials of E-Learning in Sustainable Higher Education (SHE) process in Sri Lanka based on literature analysis and in-depth interviews. It gives insight of the possible outcomes in using e-learning as a tool for Sustainable Higher Education (SHE) process. The ability to compounding inequalities in education, cost reduction, challenge the gender divide, accountability, quality assurance, address the needs and skills on global age are identified as possible outcome with introduction of E-learning to Sri Lankan Higher Education System. Paper concludes that higher education sector in Sri Lanka should enhance the capacity of e-learning process towards Sustainable Higher Education (SHE) in Sri Lanka.

Keywords

Sustainable higher education, eLearning, Distance Learning

Realities of Mobile Learning among Smallholder Farmers: A comparative Analysis of two “Mobiles for Development” projects in Uganda

Dianah Nampijja, Makerere University and University of Agder

Abstract

In the field of higher education, emergent technologies like mobile devices have gained momentum and increased popularity as seen from the many researchers and practitioners’ recent engagement with them. Various studies have been conducted in the field of mobile learning, but with less focus on how mobile technologies can support learning in settings outside formal environments. Such environments include smallholder farmers who constitute sizeable proportions of the populations of most African countries. These rely on subsistence agriculture, yet their livelihoods are grossly affected by climate change. Smallholder farmer’s access to mobile phones can provide bridges to support learning for secure livelihoods. Hence, by exploring the nature and type of learning afforded by mobile technologies, this study attempts to explain the mobile learning realities among smallholder farmers in Uganda. Using the community of practice social learning theory, the
study mapped out learning constructs like learning as doing, learning as experience, learning as becoming, and learning as belonging. Methodologically, a comparative analysis of two ‘mobiles for development’ projects was adopted; that is, the Grameen Foundation’s Community Knowledge Worker (CKW) project and the Lifelong Learning for Farmers (L3F) program in Uganda. Qualitative data was collected through informal interviews, participant observations, and focus group discussions. Ten key informants and forty smallholder farmers participated in this study. Based on the findings, it is clear that the two ‘mobiles for development’ projects had reached out to a handful of farmers, leaving the ‘other’ majority wanting. The CKW project uses smartphones while as the L3F program employs small end phones for information access and sharing among farmers. In both projects, mobile phones worked as digital libraries that facilitate both individual and group learning activities. Learning was a socially constructed conversational activity where those with access to mobile phones shared information and knowledge with those with limited or no access to mobile phones. Farmers noted tremendous benefits from these two projects, each with a unique approach to mobile learning. They encountered varying challenges like the breakdown of mobile phones, inability of some farmers to apply the knowledge gained, and intermittent funding. Although all farmers in the projects attested to the increased learning afforded by mobile technologies, other factors like social capital among farming communities influenced the use of mobile technologies. Therefore, there is need to further explore the role of social capital in facilitating and strengthening smallholder farmers’ resilient capabilities when using mobile technologies. In this way, a better understanding on how mobile technologies can support learning for livelihoods will be realised.

Key words
Mobile learning, Smallholder farmers, Community of practice Diana Nampijja

E-mentoring: Closing mentoring gaps during field placements in initial teacher education in Uganda.

Rovinca Najjuma, Department of Foundations and Curriculum Studies, Makerere University

Abstract
Improving the quality of teacher education requires the exploration of technologically supported approaches to mentoring. This paper examines the nature of interactions and experiences afforded to teacher trainees on the use of the edmodo e-mentoring platform during school field placements and whether or not its use supports mentoring effectiveness. Drawing on Anderson’s levels of interaction the author explores how mentoring support was enabled through online interaction on an edmodo platform. The researcher collected entry logs on the platform for over four months as well as, interviews, and a survey. Platform data reveals the experiences of pre-service teachers using the edmodo platform as a mediating tool for teacher trainees and teacher educators to share resources, providing real time feedback on teacher trainees’ questions and enabling interactions between and among teacher educators and teacher trainees. The results of this research suggest that the use of an edmodo e-mentoring platform opens spaces for provision of effective mentoring support, as well as shortening the mentoring distance. The results seemed to be qualitatively different than those observed among teacher trainees that were not using the edmodo mentoring platform. Implications related to the benefits of combining both face-to-face and online spaces and tools for mentoring are discussed.

Learning Dashboards in Blended Distance Education

Ghislain Maurice Norbert Isabwe, Department of Information and Communication Technology, University of Agder, Norway

Abstract
The use of learning management systems (LMS) and other learning technology tools is increasing across all levels of education. Students and teachers can get more engaged without necessarily being tied to physical boundaries and time constraints. Online, ubiquitous, distance education is becoming more popular. This has opened opportunities to undertake learning activities in varied contexts. The affordances of learning technology tools, learning content media, timing and the physical locations of learners are some of the context elements that can vary quite often. Students can learn from face-to-face lectures, virtual learning environments (VLE), simulators, gaming equipment, augmented and virtual reality technology solutions and web based resources such wikis, blogs and other open educational resources. A student’s learning experience comprises of various cognitive processes, activities and interactions through which s/he gains new knowledge, skills and change in attitudes. One of the challenges is that students may not be able to track and consolidate all of their learning experiences. They have limitations to understand and eventually improve their learning performance based on relevant data. Furthermore, teachers may not know what students have achieved across different learning contexts. It is difficult for teachers to provide appropriate support to students if there is no sufficient data on the learning experience, with indications of what might be the source of low performance. Given current learning contexts, with some of the courses involving tens of thousands of students, it is challenging to track, record and analyse each student progress. That would generally require the use of artificial intelligence technology to collect, analyse and present data on the learning experience of individual students. One of the popular approaches is the use of portfolio, a collection of items which indicate students’ activities and achievements in LMS. There are also tools that collect, measure, analyse and report data from VLEs, for example based on students visits to the VLE, contributions to group work & forums, access to digital learning resources and test-based performance. This approach, commonly referred to as ‘Learning analytics’ has a potential to generate information that could help teachers to provide more appropriate support to students. This work discusses students learning experience and learning analytics with a focus to distance education. Since students tend to learn even outside the provided VLE, there is a need for solutions which could cater for learning contexts beyond a VLE. The learning experience application programming interface (xAPI) specification was developed to allow tracking and recording students learning experiences from various learning contexts. This specification can be supported in LMS and learning content authoring tools. Even though the portfolio tools and xAPI promise to solve the issue of lack of sufficient and appropriate data on students learning experience, usability of such data remains a challenge too. There are indications that many teachers and students are not aware of the available solutions, and in some cases, solutions such as “Learning dashboards” are either not easy to use or perceived as not effective.

Keywords
Learning experience, Learning analytics, xAPI, Distance education
**Increasing Interaction for Learning in Open and Distance Learning: Experiences of students with MUELE at Makerere University**

Department of Open and Distance Learning, Nabushawo Harriet Mutambo, Makerere University

**Abstract**

One of the main barriers to learning in Open and Distance Learning (ODL) at Makerere University is inadequate interaction among students in a learning environment. This is mainly attributed to isolation among students who are usually geographically dispersed from their peers and therefore have no opportunity to engage into meaningful interactions. The ODL programmes at Makerere University have been mainly using students' study groups to promote interaction among students for learning purposes. However, due to dispersed nature of students these efforts have not been effective in fostering the intended interactions for learning: It is anticipated that the utilization of emerging technologies like Learning Management Systems (LMS) and mobile phones can assist in increasing interaction. The study therefore set out to find out whether MUELE can be utilised for increasing interactions among ODL students since they can access it on their mobile phones. The affordance analysis e-learning design methodology was used to undertake this study to increase interaction among CYP students at Makerere University using MUELE. This design was chosen because it could help in matching tasks with technologies (Bower, 2008). The course unit was designed with corresponding tasks and activities and uploaded on MUELE. The findings of the study indicated that MUELE has potential to increase interaction among ODL students who are dispersed geographically because of its ability to provide media, temporal and navigational affordances. Students were able to interact using the discussion forum on MUELE by posting their responses to the activities given which enriched their understanding of the content. The study concluded that MUELE through its affordances can assist in increasing students' interactions and consequently learning outcomes. The university should therefore build capacity in online facilitation among both staff and students so as to benefit from this mode of study.

**Keywords**

Learning Interaction, Learning Management system, Open Distance and e-Learning

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**Tutoring in online collaborative learning courses**

Aleksandra Lazareva, Department of Global Development and Planning
Faculty of Social Sciences, University of Agder, Kristiansand, Norway

**Abstract**

In collaborative learning, students are active in building and deepening their knowledge through the processes of inquiry, discussion and argumentation. This implies a change in the teacher's role. The teacher becomes a facilitator promoting students' collaborative interactions and guiding them when they are unsure about their understanding and progress. Online collaborative learning provides even more opportunities for knowledge building as it allows students to participate across time and space. However, many students experience challenges when they enter the world of online collaborative learning. These challenges may have various reasons, for example lack of social presence, unfamiliarity with technological tools, cultural differences, or lack of prior experience in collaborative learning. Online tutoring is a way to provide support to students. The online tutor usually does not teach, but instead guides their students through the activities designed by the course instructor. At times, online students experience lack of confidence in their approach to a task, understanding of course material, or general progress in the course. Therefore, the online tutor's continuous monitoring and timely feedback becomes crucial. The role of the online tutor is to support online students by facilitating both metacognitive (i.e., helping students plan and regulate their learning activities) and content-specific cognitive activities (i.e., promoting students' acquisition of domain-specific knowledge). Moreover, computer-mediated communication is often perceived as impersonal as it mostly happens by means of text and is often lacking non-verbal cues. Therefore, another crucial role of the online tutor is ensuring a safe learning environment where students feel connected and encouraged to share and discuss. The online tutor encourages students to express individual perspectives freely, which is important for a successful collaborative learning process. Online tutoring involves multiple and diverse processes. It is challenging to identify a common profile for online tutors, as the tutor's roles depend on particular courses, contexts and groups. Online tutor trainings have been delivered in different ways. It has been suggested that novice online tutors should have the opportunity to observe the model (i.e., experienced tutors). Research findings demonstrate that tutoring actions of experienced and unexperienced online tutors differ in terms of both quantity and quality. For example, experienced tutors were found to intervene more frequently to scaffold specific activities and prevent dysfunctional phenomena in the group. Experienced tutors also were found to rate long-term planning and organization more important than novice tutors. One of the critical questions is whether experienced tutors act based on their intuitive understanding of their daily practice or whether they develop more structured theoretical and empirical knowledge to base on. Better understanding of the roles of the online tutor in particular online collaborative learning contexts is crucial for providing effective learner support in such environments.

**Keywords**

Tutoring, Online learning, Collaborative Learning

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**From Instructivism to Social Constructivism:**

**Experiences of e-tutoring using Blogs at a Higher Educational Institution in Uganda**

Joseph Watuleke, Dianah Nampijja & Philemon Kirunda Mukisa, Department of Adult and Community Education, Makerere University

**Abstract**

Online education platforms can increase participation and collaboration among learners and tutors beyond what traditional instructivism can do. Although rarely researched in intra-mural environments where most courses rely on face-to-face instructivist pedagogies, we strongly claim that online learning environments offer avenues for increased collaborations and information sharing among learners and tutors in on-campus courses. This can be achieved cost-effectively through use of emergent online learning platforms like blogs. To advance the debate, we aim to describe the effectiveness of blogs as instructional tools to increase students' engagement and learning. Pedagogically, blogs are free tools, with open access, simple to use and easily accessible even on mobile technologies. We present interim findings of a case study conducted at the Department of Adult and Community Education in Makerere University, by three tutors on the course. The study involved 100 third year students of Bachelor of Adult and Community Education who undertook a course in Workers' Education for Semester One 2015/2016 (August–December 2015) using a blog. Using blog group analysis, focused group discussions, students' course evaluation comments, and informal interviews with selected students, we explored the learners' experiences in using blogs. Employing a social constructivist approach, collaborative
learning, team work, connecting knowledge to day-to-day life, active learning, and placing learning in the learner’s context were elements envisaged during course delivery. Study findings suggest that learner’s used myriad of ways to access the course blog. Learners indicated that this was a great opportunity and first of its kind to express themselves online outside the ‘lecture room walls’. Many got to know and interact with other course members for the first time through the online platform; which is characteristic of social constructivist approach to learning.

Even when support (both online and face to face) was available to increase students’ participation, some still did not participate. Conversely, majority were in position to express their ideas and offer constructive feedback and support to their peers; an indicative of how blogs can facilitate learners’ participation and contribute to collaborative learning. This study is a pilot of its kind from the E-teaching course offered by University of Agder and funded by Distance Education Leapfroging Project. Much as these generated lived experiences come from an intramural perspective, some findings can apply to distance learning.

Key words:
Blogs, Instructivism, Social constructivism

A Model of Utilizing Design-Thinking to Enable Preservice Teachers Bridge Gaps in their TPACK

David Kabugo, Department of Humanities and Language Education, Makerere University

Abstract
Although educators at teacher-training institutions in Uganda and beyond are increasingly exploring and utilizing different instructional strategies to cultivate Pedagogical Technological and Content Knowledge (TPCK) among their preservice teachers, gaps in preservice teachers’ TPCK continue to widen. Anecdotal evidence indicates that the instructional strategies (such as modeling and mentoring), which are predominantly being utilized, are disenabling rather than enabling the creative power of preservice teachers to actively contribute to their own TPCK development. Whereas effective use of some instructional strategies such as Design-Thinking has potential to bridge TPCK gaps among preservice teachers, educators’ use of such strategies remains constrained owing to a dearth of sound models and guidelines. Sound models and guidelines for bridging TPCK gaps among preservice teachers need not only be informed by preservice teachers’ experiential learning artefacts, but also need to be based on robust pedagogical theories and methods of conducting research in authentic Educational Technology-based contexts. In this article, I report on a two-semester-long (34 weeks) study, in which I followed a Design Based Research (DBR) approach and deployed qualitative techniques to design, test and iteratively refine a model for utilizing the Design-Thinking to enable Luganda language preservice teachers at a public university in Uganda to bridge gaps in their own TPCK.

In this paper, I present insights that I obtained out of a discourse analysis of data (preservice teachers’ learning artefacts) which were created during the testing and refinement stage of the designed model.

Key words:
Design-Thinking, Technological, Content and Pedagogical Knowledge

Prominent features of MTD distance/e learning ongoing module development: A case of three MTD Reviewed Modules

Juliana Bbuye

Abstract
The influx of a variety of technologies in the teaching and learning arena, has ultimately changed the outlook on what a facilitator at University should do when facilitating. Gone are the days when the tutor was the sole source of knowledge. This was the philosophy behind the introduction of MTD blended programme at Makerere University. Behind the scene of a Lecture room, the participants have gadgets that they operate almost on a daily basis and of recent those gadgets have been turned into teaching/learning instruments for the benefit of both the tutor and the students. A study of three modules that are currently being developed was carried out with the objective of identifying how the teaching and learning elements an were being managed and what the roles of the participants would be. A case study approach was used with the three modules being used to authentically the findings and in those three modules, the researcher carried out an in-depth study with the objective of finding out the extent to which the module was participatory, by what means the participation was to be carried out and with what expected effect. The researcher used an observation checklist and carried out in-depth interviews with the authors. The findings were supplemented with literature review on online teaching and learning. The findings show enhanced skills of constructivism, interactivity, connectivity and collaborative learning as key features in the MTD distance/e learning ongoing materials development. The researcher concluded that the authors made a stride to introduce various ways to make the students participate and demonstrated a paradigm shift from tutor centred to learner centred teaching within MTD distance learning modules.

Keywords
Distance Learning, e-Learning, Module Development

Transforming Theory into Education Practice: An Educational Technology Mediated Perspective

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Abstract
While a number of Educational researches have been conducted, they have often been divorced from using theory to inform authentic pedagogical practices. As a result, the ‘new generation of learners’ often find the learning of certain disciplines particularly history useless and irrelevant to their daily needs (Haydn, Stephen, Arthur & Hunt, 2015). This research sought to occupy this great niche by collaborating with researchers and teachers as practitioners to explore the nature of the identified pedagogical challenge while suggesting possible solutions to overcome it. Drawing on the Gadamerian Hermeneutics theoretical perspective, the study advocated for a fusion of horizons between the past and the present mediated by an educational technology. That said, the main objective of this research was to investigate how history is constructed on an educational technology among pre-service teachers at Makerere University. Underpinned by Educational Design Based approach, a case study of 20 pre-service teachers (participants) was employed and hence guided by interviews, observations and blog entries as the main data collection methods. Data analysis was informed by the hermeneutic cycle driven analysis focusing on the whole and the parts (Gadamer, 2004). Consequently,
the key research finding revealed that, historicity is constructed through dialogical conversations between the past and the present aligned to learners’ contemporary situations afforded by educational technology.

**Key words**
Historicity, Dialogue, Gadamerian Hermeneutics Theory, Educational Technology

### Doing more with much less: Reflections on Open Educational Resources usage in Continuous Professional Development of Teachers in Uganda

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**Abstract**

Over a three-year period, Makerere University was contracted by the British Council to upgrade the knowledge, skills and attitudes of Ugandan teachers engaged in the Schools Partnership Project with schools in the UK. This experience of Continues Professional Development (CPD) provided an opportunity for reiterative action research aimed at improving outcomes for successive cohorts of participants. Through consultative meetings with the project participants and managers, and by benchmarking with countries that had done this before, training needs were established, a training curriculum outlined, and participants identified. Given that participants were drawn from all over Uganda and it was ill-advised to host all these practicing teachers and school managers at a central location for long periods, it was resolved that the CPD course would run over a four-months period as a blended course. Print-based home-study packages and weekend face-to-face sessions and e-mail support were the strategies adopted to deliver the course. The challenge lay in how to prepare the home-study packages in the limited time available, on a shoe-string budget, and to the required standards. To assess the effectiveness of the materials developed, participants were observed as they engaged with the materials, and their records on assessment and their feedback were evaluated both quantitatively and qualitatively to establish the performance of the resources developed for the programme. It was established that the diversity of the curriculum coverage called for varied expertise that could not be easily mobilised in the time and on the budget available. Various OER repositories became the reliable sources of quality training materials. But they too came with challenges, which are the subject of these reflections. Amalgamating and versioning resources initially developed for varied audiences proved a challenge. So did the different intellectual rights regimes that governed the various resources brought together. Ultimately, what IPR regime would govern the resultant product? The experience provided lessons for those who opt to base their learning on collections of diverse OER.

**Keywords**
Reflective, Open Educational Resources, Continuous Professional Development

### On the potential of visualization and simulation tools in open and distance e-learning of mathematics at university level

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**Abstract**

Current educational technology offers several opportunities to reach students on and off campus. However, it is more challenging to teach mathematical subjects using educational technology because that requires a lot of symbolic notations, simulations, visualizations and interactivity to support communication of key concepts. This work presents SimReal, one of the tools that can address this challenge. SimReal is a digital tool used in teaching and learning mathematics (and other subjects such as physics and computer science) at university level. The tool is offered free of costs online. It works in most web browsers and can be supported on some of the mobile platforms. SimReal contains video lessons where the teacher explains mathematical topics, live streaming of lectures, simulations for using in lectures, mathematical exercises and applications of mathematics. Figure 1 shows one of the interfaces of the tool.

**Keywords**
Reflective, Open Educational Resources, Continuous Professional Development
provides immediate feedback, which can show for example, the effect of changing values in a mathematical function.

Research about how students communicate during problem solving using SimReal is being conducted. A part of SimReal, called Sim2Bil is being offered with mathematical tasks for engineering students to solve. Figure 3 shows the interface of Sim2Bil. Students can simulate two moving cars by inserting velocity functions for each of the cars. Students are given tasks to find different velocity functions for the cars so that they run with different trajectories to fulfill different requirements (e.g. finishing at the same time).

Findings from an observation of a case study of three engineering students indicate that the students use a variety of visualizations (including gestures) to communicate about mathematical representations (symbolic, graphical and verbal description) and applications (kinematics) to solve the tasks.

Keywords
Mathematics education; simulation; visualization; e-learning

Abstract
Not enough teachers integrate new technology into their teaching process today. This poses a real problem due to the rapid development in the field of education. The use of technology has become more and more important in schools, but the digital competence among the educators has not developed in the same way as this competence among the students. To improve this situation, we looked into problems regarding the integration of technology and found that many tools do not meet the needs of the teacher nor the students. Further analyses led to the discovery that there are several teaching practices that are commonly used [1]. Among them are task design and distribution. In addition, teachers stated that it would be highly motivating to use technology if it can increase the frequency and quality of communication and feedback between the students and the teachers. The concrete use case is outdoor education. In this environment, environmental factors play a huge role during the teaching process. Those can be measured by mobile technology and wearables by using sensors. The measured information can enhance the teaching process by supporting task design and distribution. The idea to use gamification, the use of game elements in non-game context, to solve the motivational problem of integrating more technology into teaching, lead to the idea of borrowing working game concepts as gamification elements. We know that humans enjoy playing games and that they motivate us. The link between tasks presented in games and actual tasks used in higher education might have more in common than we think. The gamification of tasks might help students approach them in a different way as well as being more motivated for the tasks [4]. In addition, it gives the teacher new means for communication and feedback. Analysis proves that the tasks are actually an area where elements of gamification work [5]. This article looks into the possibility of reproducing the flexibility and key components of game tasks in actual tasks in higher education. What are the challenges and limitations and how do we go about doing so. Therefore, we analyze the concept of quest-logs in games, look into the structure and its connections to the game world. There is more than one way to integrate games or game elements into a more serious context such as higher education. One way, and the most obvious way, is to make use of games to transform the education into a game or use games as a motivational element. The other option is to use game aspects as a useful mean to solve certain real world problems. Deterting et al. [2] defines the use of game elements in non-game context as gamification. The utilization of gamification is not always successful. It is stated that underlying game dynamics and concepts (Freedom to fail, Rapid Feedback, Progression, Storytelling) are very important and not just achievements, badges and game looking graphics [3]. The starting point was to analyze how the game world works when it comes to tasks. We want to include different ways to trigger tasks. As having seen in games, tasks can be picked up by the player (through for example talking to a person (quest giver)), tasks can pop up when specific events occur based of different variables and having completed a task can automatically trigger the next one. Tasks can be distributed to the students manually, which is the classic approach in teaching. The teacher designs a task in an earlier stage to give it to the students later, or creates tasks based on what the environment can offer. On the other hand environmental variables can be measured by sensor devices. The idea is to have the manual tasks, the automatic tasks which trigger after having completed another task as well as event triggered tasks. In skiing possible events to trigger tasks include: location, time, weather (air pressure, humidity, light/darkness, and temperature), passing another student/ the teacher, measuring of performance. The idea is to have the manual tasks, the automatic tasks which trigger after having completed another task as well as event triggered tasks. In skiing possible events to trigger tasks include: location, time, weather (air pressure, humidity, light/darkness, and temperature), passing another student/ the teacher, measuring of the user’s technique to pursue different tasks (curving, edging, stopping) and many more. Those triggers can be pre-defined by the teachers; therefore it is not an automated teaching process out of the teachers’ control.

References
Experiences and use of online learning groups in distance learning courses at Makerere University

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Abstract

The proliferation of ICT in teaching and learning has created new possibilities for supporting collaborative and cooperative learning. Learning groups have been preferred for propelling interaction and learning. Based on the social constructivism theory of learning, we argue that online learning groups can enhance effective learning and student centredness in distance learning. Learning groups have been promoted in distance learning at Makerere University. This has been done by giving group assignments which help in the formation of the groups. This has been used mainly in first generation distance learning at Makerere University. In this paper we assess the use of online learning groups in distance learning courses at Makerere University. Qualitative research methods were used for this study. Interviews were conducted among distance learning students. The students were randomly selected from the distance learning courses. We also observed the online interaction logs from the online courses. Interviews were conducted among three distance learning facilitators. Finally, analysis was made on the recent reports from the eLearning unit about eLearning environment (MUELE). The results reveal that group assignments helped learners to form learning groups in the traditional distance learning mode. All courses running in the first generation distance education used this method to encourage group work. However, there was a challenge of monitoring of individual participation on these assignments. Secondly, there is limited participation of groups in online interaction. The learners mainly used the platform for accessing notes. Interestingly, the teachers understand the importance of online learning groups, but are limited with both technical support and instructional design skills. Therefore, it becomes the legit in making sure that teachers need to be trained in the use and systematic integration of online learning groups in their courses, which can enhance effective learning and student centredness in distance learning. The study identified the following challenges: 1) Lack of policies that support online learning 2) Lack of training in teaching and learning online 3) Lack of ICT skills 4) Lack of knowledge in online course design and online instructional design skills 5) Student teacher ratio is very big (1:300 teacher: students). We conclude that facilitators of distance learning understand the importance of online learning groups but they hindered by both online learning technical support and online instructional design skills. Therefore, the need to ensure that teachers are trained in the use and systematic integration of online learning groups in their courses.

Keywords

Online learning groups, distance learning, eLearning

An online learning design rationale for improving critical reading skills among pre-service language teachers

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Abstract

The emerging benefits of the digital age such as instant connectivity, virtual engagement and community building are steadily transforming higher education and teacher education in particular through online learning. Online learning as a virtual method of accessing educational information is steadily providing student teachers in higher education institutions with opportunities to carryout self-learning and improving their knowledge base. Reading and critical reading in particular is increasingly becoming a requirement if student teachers are to benefit from the knowledge available on electronic media. Critical reading is rooted in the spirit of critique necessary for understanding texts. Amidst the increasing availability of electronic materials, the pre-service language teachers at Makerere University do not read, internalize and critique recommended readings to improve their knowledge, skills and values to enable them become effective teachers at the end of their programme. Basing on Dabbagh & Bannan-Ritland's Integrative Learning Design Framework (ILDF) for online Learning and its methodological process of exploration, enactment and evaluation, the researcher developed a rationale (storyboard) for improving critical reading among pre-service language teachers. The outcome indicated that the rationale can help pre-service teachers search and read materials, identify ideas from the text, and interrogate content. However, it did not show much success in as far as comparing two or multiple texts is concerned.

Keywords

Online Learning, Learning Design, Critical Reading
Members from Balaji Agricultural Castings, Arch Designs, University Estates, and CEES in Lira Site Meeting

Renovated Institute of open distance and e-learning