Paper A

Title:	Online Learning Needs Assessment in Uganda.
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Online Learning Needs Assessment in Uganda

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Abstract — **In this chapter, we report on findings of an online learning
needs survey which was carried out in Uganda in 2014. The survey was carried
out in five regions of Uganda, namely: North, South, East, West and Central.
Data was collected from each institution using questionnaires. Fifty-nine per-
cent (59%) of the respondents indicated that their institutions had no Learn-
ing Management System (LMS) in place due to absence of adequate ICT fa-
cilities, ICT illiteracy, and connectivity problems. The survey revealed that
80% of the institutions implementing distance learning programs were using
print and face-to-face delivery channels (first generation distance education).
The survey established the following needs: institutionalization of pedagogical
ICTs, improvement of the ICT infrastructure, regular improvements in Inter-
net connectivity, regular procurement and maintenance of ICTs, continuous
staff training and development and implementation of ICT/eLearning policies.
Overall, the survey revealed the need to systematically integrate ICTs in differ-
ent pedagogical processes, hence calling for the need to embed different ICTs
into different educational activities.**

Keywords—Online Learning, Distance Learning, Needs Assessment.

1 INTRODUCTION

There is a proliferation of the use of online learning in higher institutions of learn-
ing [1]. Online learning is the use of Internet technology for teaching and learning.
Different technologies have been suggested worldwide for teaching and learning.
New-Media-Consortium [2] suggested the different directions online learning will
take in the next one to two years, including the growing ubiquity of social media
and integration of online, hybrid, and collaborative learning. In three to five years,
data driven assessment will be used and students will be seen as knowledge creators
rather than knowledge consumers. In Africa and indeed elsewhere, there is need
for use of online learning, especially in distance learning programmes. In countries
such as Uganda, the need for online learning in distance education is being man-
ifested in the adoption of non-traditional online learning devices such as mobile
phones because of limited access to a tethered ICT infrastructure [3–5]. However,

the present integration is ad hoc and at the whims of ICT savvy staff. Integration of ICTs in pedagogical processes requires adequate planning and rethinking for cognitive development to occur in any mode of delivery.

Distance learning is increasingly advocated as a new form of education that can help to increase access to flexible education especially in developing countries [6]. Distance learning offers modes of delivery where the teacher and the learners are separated in time and space [7]. At Makerere University in Uganda, only five distance learning programmes host approximately 6000 students. The programmes which are offered by the Department of Open and Distance Learning are: Bachelor of Education, Bachelor of Commerce, Bachelor of Science, Bachelor of Agricultural and Rural Innovation and Diploma in Youth and Development Work. Being a dual mode University, these distance learning programmes are run concurrently with conventional on-campus programmes, commonly known as internal programmes. The total student population, inclusive of distance learners, is over 35000 students.

Increasingly, diff erent departments at Makerere University and other universities are demanding their internal programmes be converted into distance learning programmes. This is coming as a result of the increasing population growth rate, which is making the brick-and-mortar infrastructure inadequate to meet the growing demand for higher education. Research has indicated that distance learning provisions can offer possibilities for the increasing number of students to have access to education [7, 8]. The snag in most universities in developing countries is that the distance learning programmes they off er are still of first generation order dominated mainly by print and face-to-face. Modern distance learning institutions are increasingly adopting ICT in the provision of teaching and learning at a distance. Universities in developing countries need to leapfrog if they are to compete favorably in the global education market. The current Web metrics that rank universities according to performance in the region largely base on the online presence of the universitys activities where online innovations in teaching and learning would make such universities competitive [7].

The Department of Open and Distance Learning at Makerere University, in partnership with the Department Information and Communication Technology at the University of Agder, is running a project to transform the current 1st generation distance learning delivery at Makerere University into 4th and 5th generation distance learning delivery. With funding support from the Norwegian Agency for Development Cooperation (NORAD), under the Norwegian Programme for Capacity Development in Higher Education and Research for Development (NORHED), the

project is titled 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. Hereafter, it is referred to as the Distance Education Leapfrogging Project (DELP).

Distance education is going through a series of generations as learning technology evolves. The first generation distance education is dominated by print technologies and face-to-face sessions. The second generation employs the multimedia model characterized by print, audiotape, videotape, computer-based learning and interactive video. The third generation employs the tele-learning model characterized by audio tele-conferencing, video-conferencing, audio-graphic communication and broadcast TV/radio. The fourth generation employs a flexible learning model characterized by interactive multimedia online, Internet-based access to Web resources, and computer-mediated communication. The fifth generation is characterized by an intelligent flexible learning model with characteristic features such as interactive multimedia online, Internet-based access to Web resources, computer-mediated communication using automated response systems, campus portal access to institutional processes and resources. Simply leapfrogging from first generation to fourth and fifth generation distance education is not enough. In her book, Laurillard [9] argues that eLearning will be successful if we begin with an understanding of how students learn, and design learning technologies putting students learning capabilities in consideration. Hence, an online learning needs survey is necessary for DELP to have a chance of success.

The online learning needs survey was carried out as the preliminary stage of the DELP project. The survey aimed at determining the online learning needs of Uganda in order to get a better understanding of how students could learn, the kind of learning technologies they have at their disposal, which policies are determining their learning, and the human capacities available. Th e survey answered the following research questions: i) What are the current ICT infrastructures in the higher education institutions in Uganda? ii) What are the current modes of delivery of distance learning in higher education institutions in Uganda? iii) What is the level of ICT integration in the teaching and learning in higher education institutions? iv) What are the challenges hindering the use of ICT in the teaching and learning in higher education institutions in Uganda? Th is chapter reports on the findings from these research questions. The rest of the chapter presents the methodology used to undertake the study, findings of the study, discussion of findings, summary and conclusion.

2 METHODOLOGY

The study adopted a survey approach covering five regions in Uganda, namely: South, North, Central, West and East. In each of the five regions, one private and one public university and one tertiary institution (diploma awarding institutions) were randomly selected as follows: in the North: Gulu University, Lira University, National Teachers College Unyama; South: Kyambogo University, Uganda Martyrs University, Kitovu Vocational Institute; East: Busitema University, Islamic University in Uganda, Kaliro National Teachers college; West: Mbarara University of Science and Technology, Mountains of the Moon University, Kabale NTC; Central: Makerere University, Nkumba University, Uganda Institute of Information and Communication Technology (UICT). From each of the selected institutions, ten participants were purposefully chosen based on identifying members who used ICT in their teaching and learning processes. This resulted in 150 responses with 30 respondents from each region. Having a representative participation from the entire country in the survey was vital because distance learning students in Uganda are distributed across all regions.

Data was mainly collected using self-administered questionnaires. Self-administered questionnaires were employed because of the diverse geographical distribution of respondents. Th e questionnaire was designed according to the above mentioned research questions. They elicited information on socio-demographic characteristics, existence of ICT department, existence of distance education, implications of integrating ICT in teaching and learning, existence of a learning management system (LMS), existing capacity building opportunities, existence of quality assurance mechanisms, challenges of using ICT in pedagogy and their corresponding suggestions. Where ICT practices existed, documents/records on use of ICT in teaching and learning were also employed. This documentary analysis enabled the researchers to understand different ICT infrastructure issues in the different organizations.

3 FINDINGS

The survey results are presented in the following sub-sections: social demographic characteristics, ICT infrastructure in higher education institutions, modes of delivery of distance learning in higher education institutions, ICT integration in the teaching and learning in higher education institutions, awareness of learning management system, opportunities for capacity building, quality assurance, and challenges and suggestions in the use of ICT in teaching and learning in higher education institutions in Uganda.

3.1 Social Demographic Characteristics

Figure 1 Part A shows that the majority (69%) of the higher education institutions

were government-owned while 31% were private. Figure 1 Part B shows that 56% of the respondents perceived their higher education institutions as being located in urban centers while 44% felt theirs were in rural areas.
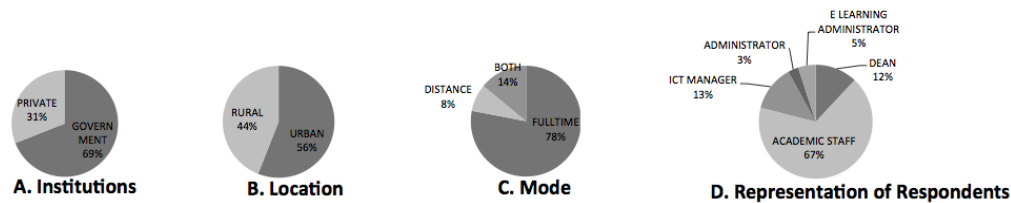

Figure A.1: What is the role of the ICT unit/department in your institution?

The results indicated that (78%) of higher education institutions delivered education through full-time, face-to-face instruction modes, 8% by distance and 14% by both full-time and distance mode (dual mode) as shown in Figure 1 Part C. With respect to study time, the survey findings discovered that 74% of the higher education institutions opened during daytime, 2% during evening and 24% during other times (except day and evening). Figure 1 Part D shows the roles played by the respondents in the higher education institutions: most (67%) were engaged in academic work, ICT managers (13%), deans (11%), eLearning administrators (5%) and administrators (3%). This percentage distribution portrays that majority of the institutions did not have clear established ICT units and therefore the roles of ICT were mostly managed by selected academic staff with some knowledge in ICT.

3.2 ICT Infrastructures in the Higher Education Institutions in Uganda

Existence of an ICT unit and its role: Findings revealed that all the higher education institutions had an ICT unit charged with, among other roles, managing and maintaining ICT infrastructure, planning lectures and teaching, ICT policy formulation and implementation and e-resource centers. These findings were promising for the integration of ICT in teaching and learning since most institutions had people responsible for the institutionalization of ICT activities. Figure 2 shows the extent to which the various roles were completed. For example, the role of ICT units for Internet management standing only at about 2% is an indication that the level of Internet connectivity in most institutions was still too low.

To propel online learning, this attribute will need to be greatly increased. Th is can be done through institutionalizing the ICT units and its corresponding roles by ensuring that there are budgets for ICT infrastructure management and maintenance, increased Internet connectivity, ICT policies development and continuous training for the staff in the ICT units.

To understand how capable the ICT units were in terms of hardware, personnel
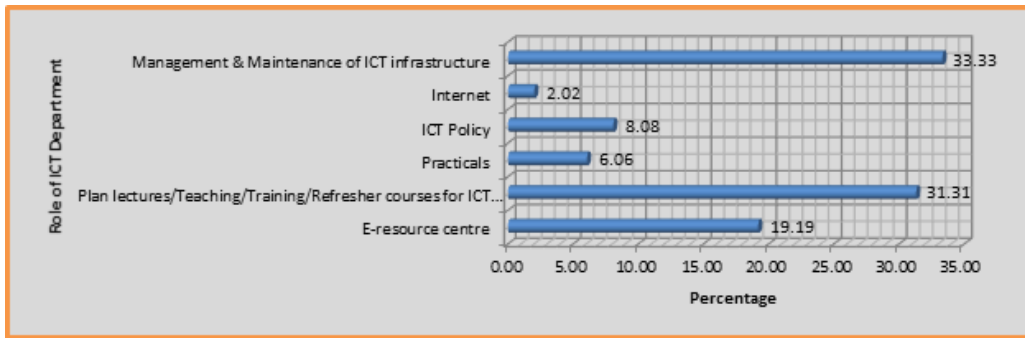
Figure A.2: What is the role of the ICT unit/department in your institution?

skills and motivation, software and support, respondents were asked to give an indication on a Likert scale. Results revealed that 58% of the respondents perceived their higher education institutions to be well resourced, 40% felt their universities/institutions were poorly resourced and 12% did not have any idea. Respondents also described their ICT units to be more involved in academics and supportive roles than administration (see Figure 3).
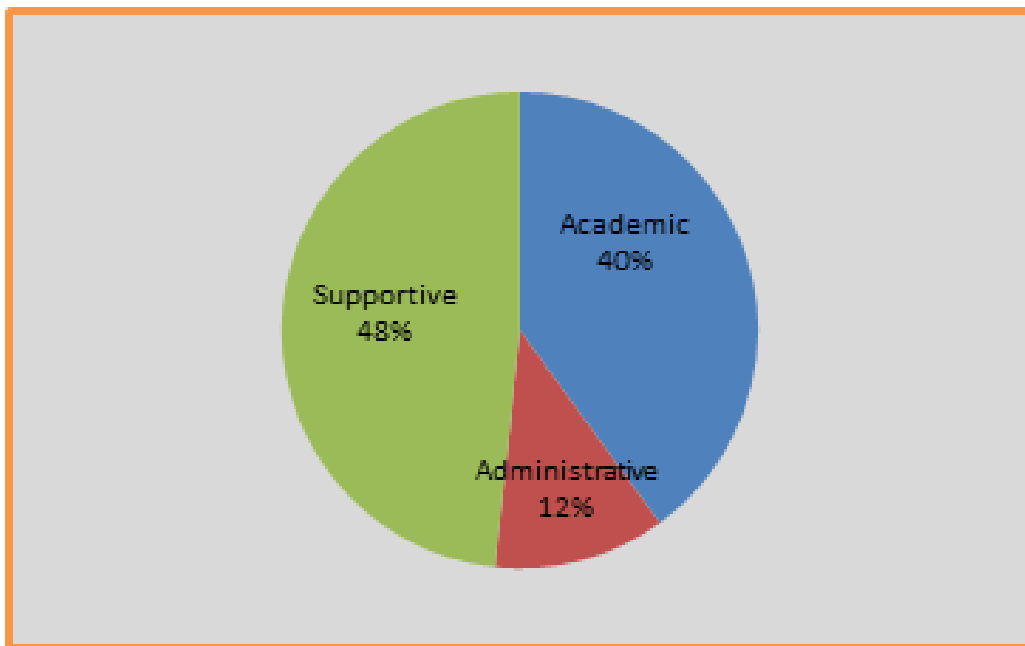

Figure A.3: How best would you describe the ICT unit/department?

This indicates that ICT is mainly used for academic and support purposes, although we did not find out what exact components of ICT were used by academic and support for teaching and learning. Therefore, there is a need to further strengthen ICT integration in teaching and learning to improve and upscale education provision in Uganda.

Connectivity: Eighty-two percent (82%) of the respondents agreed that their higher education institutions were connected to the Internet through fiber optic cables (38%), modem (34%) and leased lines (26%). However, several challenges of connectivity were cited as shown in Figure 4.
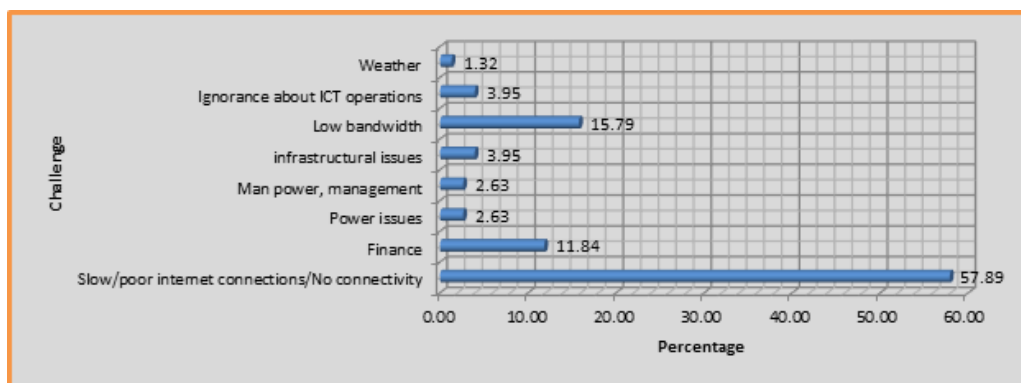

Figure A.4: What challenges does your institution face in connectivity?

Fifty-eight percent (58%) of respondents associated the challenges to slow connectivity/ poor Internet connectivity/no connectivity. This was true for rural based institutions since good connectivity is still available in the Central region.

Connectivity is an integral attribute of online learning. With the coming of the optic sub-sea cable for Internet in East Africa we are hoping for increased Internet connectivity in Ugandan higher education institutions. However, higher education institutions should budget and pay for bandwidth to increase ICT use in teaching and learning. Th ere is also need for more investment into the infrastructure of optic cable in Uganda to effectively implement online learning platforms. When asked what they used ICT for, respondents made indications to the various uses provided. Figure 5 below presents the findings:
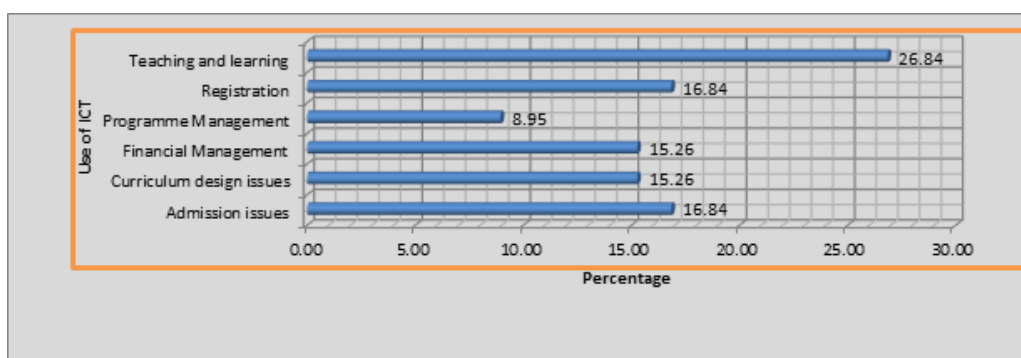

Figure A.5: What do you use ICT for?

Figure 5 shows that ICT was used for various interventions ranging from teaching and learning (26.84%), registration and admission (16.84% each), financial

management and curriculum design issues (15.26% each) and program management (8.95%). All the above uses affected in a distinct fashion the way students used them. Half of the respondents were positively impacted by helpful influence on school operations, research and record keeping while other respondents felt they were negatively impacted through the inability to access Internet and the low usage levels of the available ICT resources. This leads to time wastage and contributes to illiteracy/poor ICT skills. The positive indication of use of ICT in teaching at 26.84% is an encouragement of supporting online learning. Such results give a promising direction to focus on when leapfrogging distance education at Makerere University. Accordingly, more emphasis will be needed in supporting admission issues, curriculum design issues, and registration, which are key components of supporting distance learning students.

Th e survey also sought to establish the frequency of use of ICT and the respondents participation in usage of ICT. Findings are presented on the Likert scales in Tables 1 and 2 below.

Table A.1: Frequency use of ICTs in day to day work (survey data)

ICTs	Never	Irregularly	Once a week	2 - 3 times a week	4 times a week	5 & above times a week	Daily
	%age	%age	%age	%age	%age	%age	%age
Internet	11.9	18.6	1.7	1.7	3.4	5.1	57.6
Mobile Phone	3.4	8.6	0.0	0.0	0.0	3.4	84.5
E-mail	6.7	13.3	10.0	5.0	3.3	11.7	50.0
CD ROMs	20.0	45.5	10.9	3.6	3.6	5.5	10.9
Computer based office applications e.g. Word	7.0	8.8	3.5	5.3	0.0	14.0	61.4
Radio	21.8	27.3	9.1	7.3	1.8	1.8	30.9
TV	21.8	14.5	1.8	0.0	1.8	10.9	49.1
Projectors	9.1	36.4	7.3	12.7	10.9	3.6	20.0
Smart boards	64.2	24.5	0.0	3.8	1.9	1.9	3.8
Average	**18.4**	**21.9**	**4.9**	**4.4**	**3.0**	**6.4**	**40.9**

Table 1 shows that on average, more than half of the respondents had used ICT more than once in a week against 18.4% with no mention of any ICT used. Mobile phones are the most used on a daily basis (84.5%) which is in confirmation of the increased use of mobile phones in education by students today [3, 5, 10]. Internet on a daily basis was used by 57.6% of the respondents. However, the majority of the Internet users were from urban higher education institutions. Many respondents (64%) have never used smart boards, which was more worrying since these are

new technologies used in teaching and learning. There is a need to train and buy the smart board infrastructure to encourage the use of technology in teaching and learning. Fifty-five percent (55%) of the respondents use projectors at least once a week; a positive indication of integrating ICT in teaching and learning. This shows that projectors are being integrated in teaching and learning in higher education institutions.

Table A.2: Participation in ICT usage (survey results)

	Strongly disagree	Disagree	Agree	Strongly agree
	%age	%age	%age	%age
My university regularly organizes ICT training courses	13.11	49.18	34.43	3.28
My university adequately publicizes any basic ICT refresher training courses on offer	18.97	48.28	31.03	1.72
I usually apply for ICT refresher training courses advertised by my University	28.57	46.43	17.86	7.14
I usually attend ICT refresher training courses organized by my University	17.54	38.60	35.09	8.77
I usually apply for ICT refresher courses advertised by agencies other than my University	17.24	37.93	29.31	15.52
I usually attend ICT refresher courses organized by agencies other than my University	16.95	28.81	40.68	13.56
Should my University organize an ICT training courses within the next 12 months, I will attend it	1.72	3.45	27.59	67.24
Should an agency other than my university organize an ICT training course within the next 12 months, I will attend	1.72	8.62	36.21	53.45
I am willing to incur the costs of undertaking an ICT course that I deem necessary for my work or career	1.72	8.62	50.00	39.66
Average	**13.06**	**29.99**	**33.58**	**23.37**

Table 2 indicates that the majority of the respondents do not get training on ICT courses and their universities do not organize ICT trainings. Almost all (95%) agreed that they would attend training of ICT if it is organized by the University within twelve months, and the majority (90%) would attend if it is organized by other agencies. Most respondents (90%) were willing to incur the cost of undertaking the ICT courses. This shows that there is strong interest from scholars for training and retraining but there is need to provide training opportunities for all staff to multi-skill and up-skill their ICT competence. Teaching and learning in the 21st century require teachers and learners to be ICT competent in order to counter demands and challenges of this era [11]. Such willingness among staff is a big motivation for online learning in Uganda, and a move towards achieving the 21st

century skills.

Existence of ICT guides: Respondents were also asked of what guided the use of ICT in their higher education institutions. Th e majority (41%) revealed that their higher education institutions had guidelines in place, followed by policy (37%) and individual computer laboratory attendants (22%). Figure 6 presents details of key issues addressed by the guide.
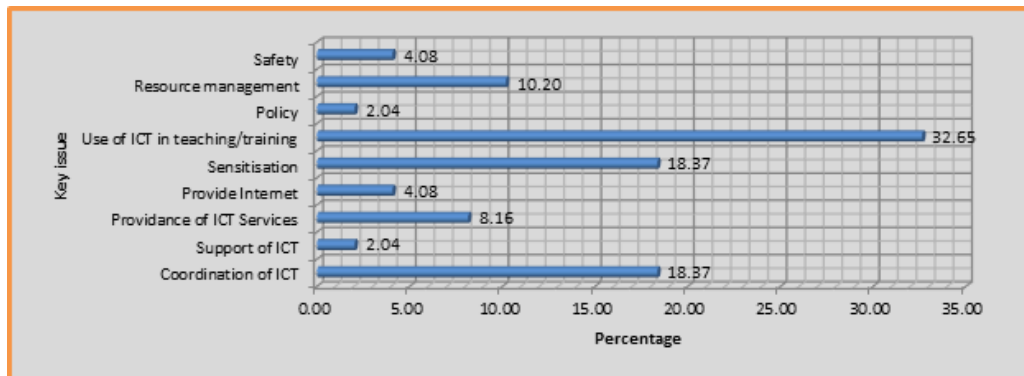

Figure A.6: Key issues addressed by the guide

Opinion on the use of online learning Respondents were required to give their thoughts on the use of online learning environment with regard to expanding curriculum to students, providing remedial courses, increasing class size and flexibility. Analysis using the Likert scale revealed that on average, 86% of the respondents agreed to the statements deducing online learning to be a good strategy to address academic improvement initiatives. This elevates necessity to avail online learning courses by the DELP project in the region.

3.3 Modes of Delivery of Distance Learning in Higher Education Institutions in Uganda

Presence of Distance Education programmes Findings pointed out that 68% of the universities/institutions did not have distance education programs. In the 32% of the universities/institutions where distance education programs were said to run, the delivery mode was mainly through accessing module notes (50%), holding face-to-face sessions (30%), and e-learning sessions (10%). Respondents also exhibited uncertainty about knowledge of the exact numbers of distance education programs at their universities, thereby making it hard to state with assurance the various student populations for each of the distance education programs. This points to the increasing number of distance education programs in many higher education institutions in Uganda. By implication therefore, ICT through distance mode of delivery can be the best option to increase education access in the region.

Content Creator and Method of delivery An investigation into the few uni-

versities/ institutions where distance education programs were in operation revealed that respondents (who were largely academic staff and ICT managers) did not clearly consider themselves as content creators. However, there were a variety of delivery methods with majority (35%) of the respondents asserting that correspondence and multimedia were ways through which created content was delivered. Sixteen percent (16%) declared interactive flexible learning mode as an additional delivery method for created content. Th is can be an indication of the lack of capacity in creating online content for distance education programs.

3.4 ICT Integration in the Teaching and Learning

To date, ICT inclusion is considered an indispensable part of the academic improvement plan for many universitiesinstitutions. In the same way, the survey was interested in establishing the status of ICT inclusion, how important ICT was in impacting on academic programs as well as changing the way students learn, and seeking views of respondents on increased use of ICT in teaching and learning.

ICT inclusion and its impact: Results revealed that 87% of the respondents agreed that ICT inclusion was part of their institutions academic improvement plans backed up by the fact that 98% of the respondents attested to ICT usefulness in their learning processes. Th e usefulness had been in the form of an improved learning environment (46%), information access (19%), research enhancement (14%) and accessibility (9%) among others. Figure 9 below details the importance of ICT usage to the institutions academic programs. What is clear was that some institutions were still inadequately facilitated and in some instances, ICT illiteracy still prevailed (7%).
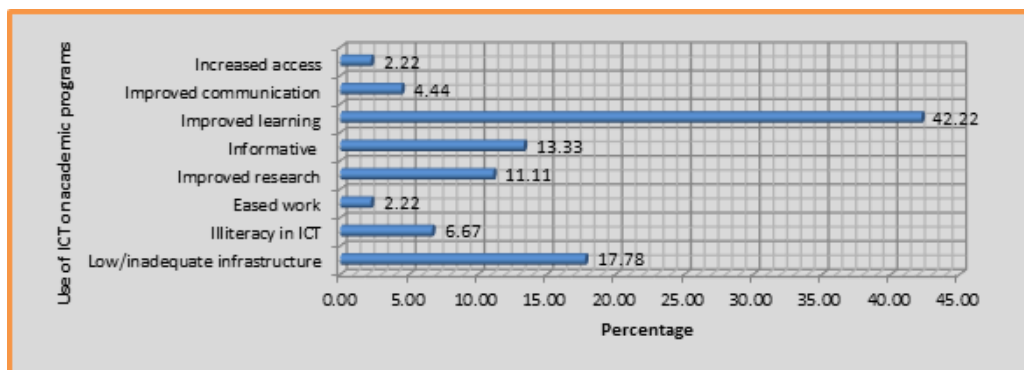

Figure A.7: ICT importance in academic programs and perceived hindrances

ICT was perceived to greatly change the students way of learning through the use of innovative approaches that offered easy learning and teaching in an interactive environment. The Internet was also used to ease research and access to information.

Views on increasing the use of ICT in teaching and learning Respondents agreed to support and increase ICT use in teaching and learning. Th is support was based on the current global trends in ICT and the fact that ICT was a better mode of delivery in enhancing access to more information in a timely manner.

On how ICT would be integrated in the curriculum design, respondents advised that provision of accessible and affordable ICT infrastructure is needed to take center stage. Th is being an ICT era, the need to undertake ICT training and ensure that there is availability of freeaffordable connectivity is paramount.

Th e majority of the respondents (85%) testified how ICT use had changed the way students learn, as well as transformed teaching at their universitiesinstitutions. The respondents further advocated for increased use of ICT in learning and teaching as well as its increased integration in curriculum design as shown in Table 3.

Table A.3: Use of ICT and its impact (survey results)

Use	Strongly agree	Agree	Not sure	Disagree	Strongly disagree
	%age	%age	%age	%age	%age
The use of ICT in the university has changed the way students learn	37.29	38.98	18.64	5.08	0.00
The use of ICT in the university has transformed the way teaching is done	27.27	43.64	20.00	7.27	1.82
There should be increased use of ICT in learning and teaching	71.43	26.79	3.57	0.00	1.79
There should be increased integration of ICT in curriculum design	61.54	34.62	7.69	1.92	1.92
Average	**49.38**	**36.01**	**12.48**	**3.57**	**1.38**

3.5 Awareness of Learning Management System (LMS)

Understanding: Results revealed that while half of the respondents claimed to understand the LMS concept, there was little or no knowledge of which LMSs and course units prevailed in their institutions. Fifty-nine percent (59%) of the respondents portrayed that their institutions had no LMS and this was perceived to be attributed to the absence of adequate ICT facilities, ICT illiteracy and connectivity problems. This points to the lack of streamlined ICT budgeting in such institutions, coupled with no policy adoption regarding ICT use.

Among those who knew and used the LMS, the majority (81%) of the respondents declared that they used it for purposes of accessing notes and coursework (62%), registration (14%), administration (14%) and communication (10%).

Frequency, Mode and Convenience: Eighty-two percent (82%) of the respondents reported to access the LMS anytime on a daily basis during the course of their work. These felt more comfortable to access the LMS during the morning and

afternoon sessions of the day rather than the night.

Challenges: In using the LMS, some of the respondents had faced several challenges with the most established being slow/unpredictable Internet. Other notable challenges were illiteracy levels due to insufficient training, low bandwidth, unstable power supply and poor attitude towards embracing ICT interventions.

Suggestions: Respondents advised that increasing training and refresher courses for students and staff , ICT infrastructure and bandwidth, coupled with provision of Internet and power generators would go a long way in improving the LMS.

3.6 Opportunities for Capacity Building

In order to establish if institutions surveyed had proficiently trained staff, respondents were required to indicate their perception on the role of content development, participation in ICT training, preferred method of training and motivational factors to participate in ICT training.

Using a Likert scale, findings revealed that 71% of the respondents generally agreed that their ICT education staff play roles that cut across disciplinary lines through being content developers, graphic designers, support staff , quality assurance and teaching staff . Few (16%) were in doubt while 13% disagreed. Nonetheless, capacity-building gaps still existed as 64% of the respondents reported the lack of ICT professional capacity building programs. Th is fact is further explained by the high desire of over 90% of respondents to participate in various ICT training courses like ICT skills competence course, Internet and e-mail, use of technology for teaching and learning, e-learning applications and computer aided design. Figure 8 below presents the various levels of desire to participate in ICT training.
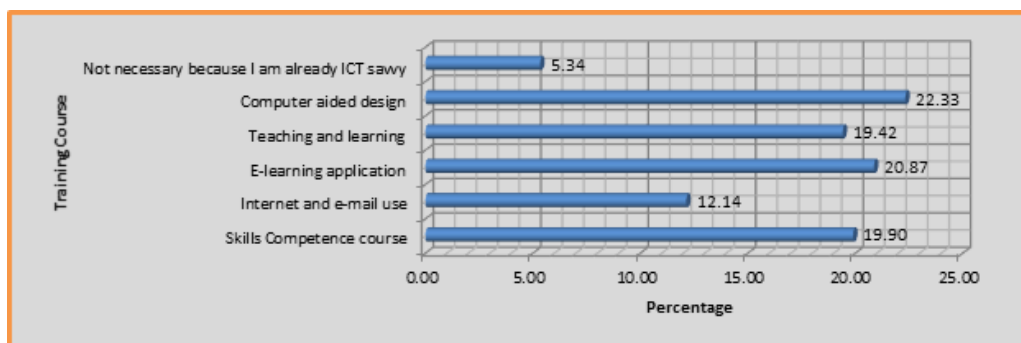

Figure A.8: ICT training courses respondents wished to participate and train

On asking respondents what method of teaching they preferred, results indicated that 39% loved the blended learning approach followed by face-to-face training (25%), workshops/seminars (23%), full online (8%) and lastly distance education (5%). Respondents also mentioned that their motivation to engage in ICT training courses was driven by among others, the desire to learn more, the global village

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effect, prior knowledge of ICT basics, relevancy of the course, adequacy of ICT infrastructure and personal interest.

3.7 Challenges and suggestions in the use of ICT in teaching and learning
Under this category, the survey sought to establish the obstacles to online learning in various learning institutions as well as possible ways to improve ICT use in education.

Based on the statements contained in Table 4, respondents were asked to best describe how various obstacles limited the use of online learning.

Table A.4: Obstacles limiting use of online learning

Obstacle	Strongly agree	Agree	Not sure	Disagree	Strongly disagree
	%age	%age	%age	%age	%age
Lack of familiarity with distance learning technologies	45.76	30.51	6.78	8.47	8.47
Appropriateness of course content for a web based course	30.36	37.50	19.64	12.50	0.00
Lack of technical support	42.59	33.33	11.11	9.26	3.70
Time to develop course	16.67	38.89	11.11	31.48	1.85
Intellectual property issues	17.31	28.85	21.15	30.77	1.92
Time commitment compared to traditional lecture course	32.08	37.74	9.43	15.09	5.66
Lack of encouragement by administrators	33.93	26.79	10.71	19.64	8.93
Lack of appropriate hardware	35.09	38.60	7.02	15.79	3.51
Lack of appropriate software	35.09	38.60	5.26	19.30	1.75
Don't know how to grade	20.69	10.34	24.14	27.59	17.24
Average	**30.96**	**32.11**	**12.64**	**18.99**	**5.30**

Table 4 shows that 63 of the respondents agreed to the statements therein while 24% disagreed and 12% were not sure. Other striking obstacles mentioned included inadequacy of ICT infrastructure, slow network, limited time, the high costs involved, illiteracy as well as absence of adequate numbers of trainers.

On the question of how to address these hurdles, respondents suggested to improve ICT infrastructure to adequate standards, regularly improve on the Internet connectivity, develop a policy for online learning, incorporate ICT in schools curriculum, and avail ICT training for all staff . Structures to sensitize and mobilize masses need to be developed if the use of ICT in education is to be improved.

4 DISCUSSION

This section describes the key findings for enhancing online learning in Uganda. This discussion connects to the DELP projects aim of transforming first generation distance learning into 4th and 5th generation distance learning. The following are

the key issues that need to be addressed for effective use of ICT in teaching and learning processes.

Institutionalizing 4th and 5th generation distance learning. Th e demand for higher education in most developing countries exceeds what educational provisions can provide. This is witnessed by the high numbers of applicants joining university education [7]. Distance learning can off er possibilities to support the overwhelming numbers of students.

However, the current state of affairs puts distance learning in a very difficult position to operate. Th ere are no policies that can help the operationalization of distance learning in these higher education institutions. Th e higher education institutions in Uganda not only lack distance learning policies but also lack policies on ICT which are key to the operation of 4th and 5th generation distance learning mode. Th ere is need for other policies in the university to have special recognition of distance learning. For example, by promoting policies of distance learning, practitioners and developers of distance learning content could solve the current demand for higher education amid limited infrastructure.

Connectivity. For online learning to be effective, there is need for constant and good connection to the Internet. Currently there is little done in terms of connectivity infrastructures and bandwidth. Higher education institutions should invest in connectivity infrastructure and bandwidth. Makerere University has secured funding to work in this direction of improving the infrastructure, although more focus is needed for maintenance of these infrastructures.

Staff development. Online learning needs well-trained staff in the provisions of the online learning environments. Th ere is need to train technical, administrative and academic staff in the provision of online learning in Uganda. Higher education institutions should provide funding for these trainings.

Learning management system. Th ere is need to introduce units that manage the learning management systems. Many of the institutions do not have these units and those with the units are not well positioned in institutions established structures.

ICT integration into teaching and learning. Th ere is need to systematically integrate ICT into the teaching and learning in higher education institutions. Staff need training in the provisioning of ICT into teaching and learning. ICT contextual considerations should be emphasized to avoid moving with the hype that might not work in the Ugandan context. Th ere is need to develop appropriate tools to support collaborative work of learners considering their ICT context.

Academic staff motivation. Th e survey shows that academic staff s are highly motivated regarding the integration of ICT in teaching and learning. Th is was

shown in the survey where 86% of the respondents agreed that online learning would be a good strategy for the current and future academic initiatives. Th is is an interesting trend that we need to exploit in integrating online learning in the higher education institutions in Uganda.

Th e present integration is ad hoc, while integration of ICT in pedagogical processes requires adequate planning and rethinking for cognitive development to occur in any mode of delivery including distance learning.

5 SUMMARY AND CONCLUSION

Online learning and its integration into the teaching and learning curriculum is very much rooted in the constructivist school of thought, where learners active participation is emphasized. It is presumed that learners are active contributors of knowledge and help in creating and designing instructional artifacts that aid learning. From the needs assessment survey, active participation in ICT integration in teaching and learning processes was minimal in most universities. And yet, if such integration is not well streamlined, online learning in Uganda will remain a dream. Inadequate levels of ICT infrastructure, poor or no Internet connectivity, high illiteracy levels, absence of adequate numbers of ICT trainers, limited financial resources allocated to ICT in teaching and learning, and financial resource limitations are the most striking challenges pointed out by the survey. Considerable efforts should therefore be geared towards addressing these challenges so as to partake in online learning benefits.

Educational technology specialists believe that the use of technology in education is increasingly being perceived as a major catalyst in changing the way universities perform their core functions [9, 12, 13]). Universities in Uganda need to fast track the change in teaching styles, change in students approaches to learning and change in the way information and educational materials are accessed.

Universities therefore have the duty to guarantee an academic culture that promotes the use of ICT in teaching and learning. Th is process calls for increased ICT training to fight ICT illiteracy, creation of distance education programs, break away from the traditional chalk and talk method of teaching to a more blended online method that would facilitate ICT integration into instruction and learning.

Th e survey findings confirm that the DELP project is timely and essential for Makerere University. Among other activities, the project will develop online courses, increase staff competences through training and refresher courses (lecturers and ICT support team), update ICT equipment, as well as facilitate policy development in ICT and distance learning in the University. All these will contribute to a

better learning in higher education institutions. Because the DELP project is scaling to meet many educational needs of youths and adults, availing distance education programmes will help many multi-skill and up-skill to meet the global educational demands and work towards achieving broader 21st century skills.

6 ACKNOWLEDGMENTS

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