

Minding the Digital Gap; A Segmented Peer-Groups Learner-Support Approach for Digitally Under-Connected Online Distance Learners – A Case of Busitema University, Eastern Uganda

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Abstract

The massive shut-downs of face-to-face educational institutions occasioned by the COVID-19 pandemic in the year 2020 forced most educational institutions, especially Higher Education Institutions (HEIs) to inevitably switch to online distance learning (ODL)¹ to ensure continuity of learning despite not having prepared adequately for such a switch. Busitema University located in rural Eastern Uganda is one such HEI. In Uganda, the digital gap in terms of ICT access for education is substantial with many learners unable to afford gadgets for online connectivity, low or no internet bandwidth, unaffordable internet connectivity rates, and intermittent or no power supply to run the IT gadgets. Asking such learners to follow an ODL programme was an uphill task calling for massive learner support (LS) to handhold the learners through the programme.

This paper documents how Busitema University found itself in the ODL provision conundrum and quickly realised that while LS was direly needed, conventional modes of LS like email and phone were either non-applicable or unsuitable in the present context. Using an action research design to systematically determine the best interventions and reflect on their effectiveness, the study sought to determine the best strategies for supporting under-connected learners to effectively continue their academic programmes at a distance, online. This paper demonstrates how a segmented approach that bears in mind the digital access differences among various learners, and the use of non-conventional learner support methods like peer-grouping have been instrumental in recording some acceptable level of success in the online distance learning programmes at Busitema University.

Key-words: Online Distance Learning, Learner Support, Digitally under-connected learners, segmented peer-groups

Introduction

Uganda like other countries in the world was hard-hit by the Covid-19 pandemic, which led to the abrupt closure of different organizations including academic institutions. This negatively affected the continuity of the teaching/learning process for learners that were initially admitted on face-to-face mode of learning, and were not ready to switch to the “new normal” of continuing their studies online, due to some challenges at hand. The digital connectivity gap among learners in Uganda, like in many other developing countries, is substantial; many cannot afford the high costs of connectivity gadgets like smartphones, tablets etc and/or the expensive internet bandwidth connectivity charges, commonly referred to as data. Additionally, challenges of low or no internet bandwidth in many rural areas of the country and the intermittent or no mains power supply leave a substantial section of the learning population with hardly any chance of connecting to the Internet.

When such an under-connected learner population is forced to take on online distance learning as the only available option for continuation of learning, the chances of giving up and dropping out of the academic programmes are very high; making access to education a privilege to a few.

In a bid to counter the aforementioned challenges, a specialized Learner Support strategy that advocates for “education for all” was adopted in order to have a successful Online Distance learning(ODL) programme. This approach is geared towards ensuring that education (normal or emergency) is in line with the SDG 4 (quality education- inclusive Education to enable upward social mobility and reduce poverty).

This paper is a report from an action research carried out by the Open, Distance and e-Learning (ODEL) unit of Busitema University in Eastern Uganda to find the best strategies for supporting full-time university undergraduate students who had to change to online distance learning as the only available option for continuation of their studies. The university stretches over six rural-based campuses with most of the student population hailing from this same

¹ Although the acronym ODL is commonly used for Open and Distance Learning, in this paper we use it to refer to Online Distance Learning, signifying learners who are admitted under conventional (non-open) university systems but end up having to pursue their programs online, at a distance.

rural catchment area. When the COVID19 pandemic led to the closure of all educational institutions, including Busitema University, and with the end of the lockdown uncertain, the University Management tasked the ODeL unit to fast-track an already ongoing programme for onlinisation of the university courses. Among the many prerequisites that needed to be put in place, the unit agreed that the need for an effective learner support framework was paramount. The unit engaged in action research as a way of systematically identifying necessary interventions, applying and learning from them.

As highlighted in Ilonga et. al. (2020), ODeL allows flexibility in access to education and training without limiting learners to time and space. More so, ODeL has been noted as one of the most effective modes of teaching and learning since it employs approaches and techniques that result into active learner engagement, making learners generators of knowledge under the guidance of their Instructors/facilitators (Almendingen et. al., 2021). For ODeL to succeed, however, learners' needs have to be given priority, through provision of learner support services. Well-structured Learner support systems enable various levels of timely interactions that include learner-learner, learner-study materials and learner-facilitator interaction, which minimizes the feeling of isolation created by distance, and motivates learners throughout their course of study leading to minimal or no dropouts (Boyle et al., 2012). According to Mayanja et.al. (2019), having ICTs introduced in students' learning and support at different phases of the students' life cycle improves online distance education by building learners' confidence in the study programmes they are undertaking. This translates into higher retention rate of learners under the ODeL mode of study. The ICTs include the Learning Management System(LMS), web-based applications for registration and accessing results by learners.

While the existing literature is clear on the usefulness of learner support, including technology-enabled learner support, to increase completion rates of online distance learners, it takes on a presumptuous position that these technologies are actually accessible by the learners. In the case of Busitema University, we learnt early in the study that the majority of our learners are under-connected, in the sense that they had very limited (if any) access to the internet. We therefore set out to determine how best we could support such under-connected learners to continue with their academic programmes. The purpose of this study was therefore to determine the best strategies for supporting under-connected learners to effectively continue their academic programmes at a distance, online.

Online and Distance Learning; its usefulness and challenges

Distance learning has been in existence for more than a century, with modifications being done as time goes by to improve its performance but the noble cause of providing education to the underprivileged and those who cannot afford being at the institutions physically all the time still stands (Abdrahim, 2018). Distance Learning began as correspondence learning in the 19th century, and is presently enabling interactive online learning (Li, 2018). The interactivity is supported by the advancement in technology that has brought several technological tools in existence, which have seen education shift from merely face to face to other modes of either blended or purely online learning. However, the crisis brought about by Covid-19 pandemic proved that most developing countries still lack the readiness to fully use the present technology to efficiently enrich the teaching/learning process during the lockdown. Lack of gadgets for online connectivity, low or no internet bandwidth, unaffordable internet connectivity rates, and intermittent or no power supply to run the IT gadgets are some of the prevailing challenges to learners in Higher Education Institutions (HEIs) for most developing countries (Zarei & Mohammadi, 2021).

When distance learning is enabled by Internet technologies, the greatest challenge to online distance learning, especially in developing economies like Uganda, is the lack of connectivity to the Internet. Gillwald et. al., (2019) observed that Uganda has one of the lowest (14%) Internet penetration rates of the 10 African countries surveyed by Research ICT Africa (RIA) as part of the Global South "After Access" Survey conducted between 2017 and 2018. The paper further mentions that the lack of electricity and underdeveloped ICT infrastructure are the primary causes of huge discrepancies in urban-rural Internet use and mobile phone penetration rates in Uganda. Only 18 percent of households in Uganda have an electricity connection, with an urban-rural electricity gap of 85 percent. Half of those who do not use the Internet (86% of the total population) have no Internet-enabled devices such as computers and smartphones. Broadband coverage in Uganda is minimal, even compared to many other least developed African countries, with 65 percent of the population covered by 3G and only 17 percent covered by LTE/4G. Another report by International Telecommunication Union (2021), has mentioned that globally, people in urban areas are twice more likely to use the Internet than those in rural areas. In Africa the gap is greater: one-half of urban dwellers are online, compared with just 15 per cent of the rural population. And in the Low Developed Countries, urban dwellers are almost four times as likely to use the Internet as are people living in rural areas (47% versus 13%). This contrasts heavily with the situation in the developed economies where connectivity is close to universal and the urban-rural

gap has almost disappeared with the 89% connectivity rate in urban areas only 4% points higher than in rural areas. It is therefore noteworthy that learners in the connectivity-challenged contexts will have difficulties in following online programmes from their homes.

Existing Learner Support strategies

In a general perspective, there is already existing Learner Support mechanisms that have been designed to curb the challenges faced by online distance learners. These mechanisms address both the administrative aspects like guidance on online registration, guidance on how to access learning resources, availing local learning centres, etc., and subject support aspects that allow learners to discuss and exchange ideas with facilitators and classmates on the discussion board provided or through other channels of communication. In both instances asynchronous and synchronous tools have been used complementarily. Synchronous tools include Online Chat, Instant Message, Virtual Learning Environment (VLE) under Asynchronous tools consist of Wiki, Web-blogs, E-Forum, etc. (Chatpakkarattana & Khlaisang, 2012). The aforementioned tools greatly contribute to learner support, but are unable to address fully the challenges of learners in digitally under-connected areas, especially in times of lockdown.

Learner support has been viewed from different dimensions by different scholars. According to McDougall (2019), learners receive support and guidance from either their lecturers, fellow learners, or online resources. Though emphasis has been put mostly on Lecturer support, Learner support yields significant output if well nurtured. Despite the ability of learners informally gaining knowledge and skills from fellow learners, Bates (2015) explains how instructors can formally take on this phenomenon by designing collaborative learning activities and group work that greatly elicit learners' interest in learning process.

Most literature has limited the concept of 'mentoring' to only 'formal mentoring' where a lecturer is taking lead in guiding either individual learner or a group of learners, ignoring the fact that mentorship may also arise from learner groupings (Boyle et al, 2012). These groupings result in higher learner retention rate, if the criteria of forming them is well informed by the overall study objectives.

Methodology

The main objective of this study was to determine the best strategies for supporting under-connected learners to effectively continue their academic programmes at a distance, online. We used a qualitative case-study approach to get an in-depth understanding of the problem at hand in its existing context. In order to systematically determine the best interventions, reflect on their effectiveness and use the knowledge gained to modify later interventions, we chose to use an action research design. According to Reason and Bradbury (2007, p2), "action research is a participatory, democratic process concerned with developing practical knowing in the pursuit of worthwhile human purposes, grounded in a participatory worldview ... [and] seeks to bring together action and reflection, theory and practice, in participation with others, in the pursuit of practical solutions to issues of pressing concern to people". Action research is in this sense was the most viable design to enable us systematically develop and implement urgently needed interventions while reflecting on their effectiveness.

We adopted the 5-stage Action Research Cycle (Susman, 1983; as cited in O'Brien,1998) comprising of 1. Diagnosing (identifying or defining the problem); 2. Action Planning (Considering alternative courses of action); 3. Taking Action (Selecting a course of action); 4. Evaluating (Studying the consequences of an action); and 5. Specifying Learning (Identifying general findings). The process is supposed to be repetitive and cyclic, although in our case we only managed one cycle because with the easing of COVID 19 restrictions, the learners returned to their campuses and resumed full time face-to-face learning.

In stage one we used results from an online survey of all students of Busitema University regarding their preparedness for online learning, now published in Biira et. al. (2021). We also used a Focus Group Discussion (FGD) composed of a team of 5 lecturers conversant with online learning to analyse both the implications of the survey results and the weaknesses in the survey method used, which led us to specifying the problem and proposing possible interventions. The FGD was used to critique the suggested interventions leading to a selection of a suitable intervention. The intervention was then implemented on a set of second year undergraduate students pursuing the Bachelor of Science Education (BSE) and Bachelor of Language Education (BLE) programmes. We followed up the online engagement of students in the EDU 2201 - ICT in Education course which is a cross-cutting course offered by all the 196 students in the two programmes. Second year students were deemed more representative as they were neither too novice nor too experienced in the affairs of the university. Data was extracted from the Learning Management System showing the engagement levels of the learners, before and after the intervention. Engagement

was measured by the ability to post at least one contribution in the introductory discussion forum. The students were also asked through a feedback forum on the learning management system (LMS) to mention the usefulness to them of the peer-groups support system. The outcomes of the intervention were analysed and discussed in a FGD and the main learning points documented.

Findings

We implemented one phase of the Action Research Cycle. It was not possible to progress this study through a second cycle because lockdown restrictions in the country were eased and the learners under study resumed fulltime face-to-face learning at the university campuses. The findings from this study are presented below, sectioned according to the different stages of the Action Research Cycle.

Stage 1: Diagnosis

We took cognisance of results from an online survey carried out of all Busitema University students regarding their readiness to study via the ODeL mode (Biira et. al., 2021). 900 students were able to respond to the questionnaire out of an expected 3893 students; representing a 23% response rate. Some of the key findings from the survey are summarised in Tables 1 and 2.

Table 1: Readiness of Busitema University students to study via ODeL

Attribute	Percentage of positive responses	Percentage of undecided and negative responses
Conversant with computer use	83.1	16.9
Conversant with internet browsing	74.7	25.3
Availability of a stable internet connection near residence	45	55
Availability of stable mains power at residence	47.2	52.8
Ability to spend at least UGX 1,000 (equiv. To US\$. 0.27) per day on data	30	70
Prior experience with online learning	23	77

While a reasonable number of respondents (more than three quarters) expressed ability to work with computers and the Internet, less than half had access to a stable internet connection or mains power. A much smaller percentage of residents (less than one third) could afford some basic data for connectivity on a daily basis, while less than one quarter had some previous experience with online learning.

Table 2: Learner access to connectivity gadgets

Connectivity gadget	Percentage having access
Laptop	30.7
Smart phone	84.6
Tablet / ipad	6.7
Desktop computer	1.3
None	4.9

Most of the respondents had access to at least one gadget through which they could connect to the internet, with the majority having access to a smart phone.

We observed that the majority of the students did not respond to the questionnaire which most likely meant that they were unable to access it, and that even for those who responded, connectivity is hampered by lack of internet signals, power fluctuations, lack of affordability and little or no prior experience in studying online. We concluded that the major problem to be tackled was how the under-connected learners would follow online courses.

Stage 2: Action Planning

In the Focus Group Discussion, we categorised the learners' ability to access the internet on two scales – access to a stable internet connection and affordability of data for connectivity. The categories are summarised in the matrix in Figure 1.

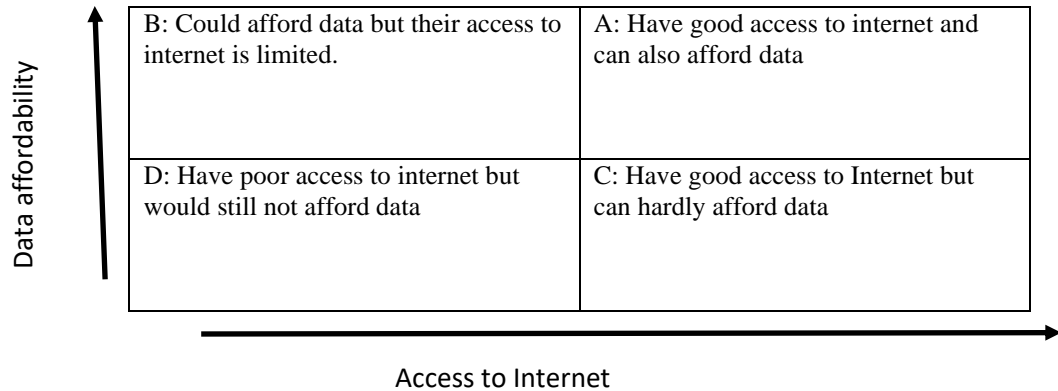


Figure 1: Categorisation of online learners according to access to internet and affordability

We concluded that while The LMS has inbuilt learner support mechanisms like sending email and chat messages to designated support staff, such support would only be helpful to category A learners. Category B, C, and D learners would need a different type of support which is available to them as and when they need it. Further investigation showed that nearly all learners could be reached by voice phone call or SMS message most of the time. Using these for the subject teachers or learner support officers in a class of nearly 200 students would be an impossible task. This led us to devise a peer-groups support mechanism where learners could reach their peers via phone call or SMS and update them on any current matter on the course page e.g. new materials or assignments posted. The learners would then endeavour to find some form of internet access to update their course pages.

Stage 3: Taking Action

The online course EDU 2201 was developed for asynchronous use and notifications sent to learners through available WhatsApp groups about the availability of the course online. Initially the number stagnated at just about 40 active participants. We used voice phone calls and SMS messaging to reach most learners (180 in number) in the course and obtain from them basic information about their access to the internet and affordability of data. Using this information, we segmented the learners according to the four categories in stage 2. The percentage of learners found per category is shown in table 3.

Table 3: Learner connectivity segments

Learner Connectivity Segment	Percentage of learners
A	14.2
B	16.4
C	20.4
D	40.8
Uncategorised	8.2

From this distribution, we formed peer groups of 5 to 6 students each, with each group comprising approximately 2 segment D students and 1 student from each of the other segment. Our attempts to cater for geographical proximity were not successful as we found a lot of spatial separation among the learners, and yet with lockdown, physical interaction was hardly possible beyond short walkable distances. Instructions on how to support each other were sent by email with learners informed on how to support one another, starting with disseminating the peer-grouping information.

Stage 4: Evaluation

Information about the peer groups circulated very first among the learners with the A segment students helping in ensuring that their less advantaged peers received the information. The total engagement on the course which had stagnated at 40 learners for nearly two weeks, quickly increased to a level of all the categorised learners registering engagement on the LMS. The unreached students (about 8%) remained out of the class throughout the period. From the feedback given by the learners, the segmented peer-groups support system had been very useful or somehow useful (88.6%). The other 11.4% felt that it had not been useful. Most of these were segment D students who must have failed to find any possible way of accessing the online courses. We therefore concluded that the intervention had been successful in supporting segment B and C students but may not have helped segment D learners much. Moreover, the unsegmented learners were not helped in any way by this intervention.

Stage 5. Lessons Learnt

From the study we learnt that:

1. Most of the learners in the developing world context will lag behind in online distance learning programmes, unless specific measures are taken to address their technological challenges.
2. The Segmented Peer-groups learner support intervention is an effective way of getting learners to support one another to overcome some of the technological barriers.
3. There is no silver-bullet in solving the problem of the digital divide among learners in the developing world context. A combination of interventions is necessary to ensure that no single learner is left behind by virtue of their already disadvantaged technological situation

Conclusion and Recommendations

In this action research, we were confronted with an existing problem where a large number of learners had no way of continuing their studies by ODeL due to disadvantages leading to under-connectivity to the Internet. We set out to determine how best such under-connected learners could be supported. We developed and implemented an intervention we called the segmented peer-groups learner support system to enable the more privileged learners support the less privileged ones. The intervention was largely successful in enabling most of the disadvantaged learners cope with online distance learning, but still left out a significant number of other learners.

We recommend that:

1. The Segmented Peer-groups learner support system be tried in other institutions with a similar context to further prove and refine its usefulness.
2. Other interventions need to be developed to cater for learners who remain locked out of online learning programmes due to technological barriers.

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