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Original Article

Extended Learning beyond Physical Schools in Rural Contexts in Uganda; a Case of Kyotera District

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ABSTRACT

The period of Covid -19 pandemic unlocked many lessons and opened up the need to benchmark various interventions in the social setup, more so, the means to manage social services like education. Education is a right enshrined in article 26 (1) of the 1948 United Nations Human rights Declaration, and the Constitution of the Republic of Uganda (1995), particularly articles 30, 34(2) and objective XVIII. Uganda's Vision 2040 asserts that, the education curriculum, examination and instruction methods should always be revised to suit the proposed changes in the education system as well as being responsive to the global demands. The COVID-19 lockdown which took almost two years, introduced non-formal learning through use of internet, radios and televisions but these did not favor rural settings. In Uganda, 55.2 percent of households have radios, 7.2 percent own televisions while 19 percent can access internet with ease. Basing on participatory action design laid on the social learning framework the assumption is that data becomes information only when filtered through a theory of reality that common data is set on the policy environment, yielding diverse political strategies and holding distinct practical programs for implementation if interpreted through different value filters. This intriguing reality led us to visit 25 out of 30 Local Council (LC) one (1) Chairpersons in Kyotera and Kasaali Town Councils and found that each received one copy of learning materials which could be accessed through photocopying yet 10 percent of the beneficiaries could comply. To address the challenge and using these materials, we organized a total of 168 audio lessons for primary one to six; and senior one to three classes which we recorded and saved on memory sticks. We drew a timetable of three hours a day throughout a week and louder speakers were mounted in 11 most rural villages in Kyotera District to deliver lessons. Through interviews conducted on visit of at least one home from a village and from political leaders, testimonies showed that learning took place. Head teachers interviewed [4] also confirmed the same We concluded that through recorded audio lessons, content can well be delivered at any time. We recommend that; Governments, institutions, teachers and other facilitators, should adopt the model to extend learning to beyond classrooms with audio lessons for future use in learning and revisions. This can be through transmission of lessons on simple memory sticks and discs. Stakeholders at all levels of education should be encouraged to appreciate existence of pre- developed lessons and lectures which Amy not require internet connection by teachers - Government Organizations should use the model and fund extension of learning

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in rural villages in order to affirmatively have all learners supplement on learning obtained from classrooms.

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INTRODUCTION

The Post Covid -19 pandemic era continues to unlock many lessons and the need to benchmark various interventions in the social setup, more so, the means to manage good quality of life especially education service delivery. The emphasis about education as a right enshrined in article 26 (1) of the 1948 United Nations Human rights Declaration, and the Constitution of the Republic of Uganda (1995), particularly articles 30 and 34, and objective XVIII of the same Constitution, cannot be underestimated among other legal framework support systems. Over time, the well-known and cherished education system offered across nations is formal education delivered through a predetermined curriculum and a formal system of classes and schools/institutions. Consistently, Uganda's vision (2040) asserts that, the education curriculum, examination and instruction methods should always only be revised to suit the proposed changes in the education system as well as being responsive to the global demands. However, during the COVID-19 lockdown which took almost two years, learning changed to non-formal learning and education outside classrooms as a way of promoting continued learning but this did not favor some rural settings (Ministry of Education and Sports, 2020; NCDC, 2020).

According to UBOS (2014), in Uganda, when it comes to dissemination of information, public communication, appropriate media and mechanisms of reaching to people, households with radios stand at 55.2 percent only, followed by a word of mouth at 19.7 percent, Internet is at 7.3 percent while the television is at 7.2 percent. In a situation where the country was put under the lockdown and all people had been locked down during the months, March, April and May 2020, with restricted movements and curfew. The word of mouth was no longer an ideal means of communication especially when it came to continued learning recommended way of learning during the lockdown (Government of Uganda, March 18th, 2020). Ideally, 69.7 percent of the learners were the ones who could access e-learning in the proposed framework of continued learning during the lockdown. This would worsen the situation since the already existing problem was that about 1 in every 10 children of primary school going age has never been to school in Uganda (UBOS 2016) and more so these are rural based. Disturbingly, 80 percent of all households in the country are involved in agriculture (UBOS, 2018). Also, some studies have as well indicated that in Uganda, rural households engage learners in home chores and as workers in gardens (Balojja and Shaun, 2019).

Statement of the Problem

During the lockdown for controlling the spread of COIVD -19, Government of Uganda endeavored to fulfill the State obligation as entrenched in objective XVIII (i) and (ii) of the 1995 Constitution as amended. Through the Ministry responsible for education, strategies were developed to deliver

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learning. Some of these were: use of television and radio presentations; and the distribution of learning materials. These strategies however, could not adequately enroll many of the children who were at home in rural contexts. This is because; those in gardens in the morning and mid-morning hours could not access learning over radios and Televisions (for those who had them). On the other hand, those with no TVs and Radios could not access learning from them since many parents prioritize gardening and livestock rearing during the day. Perhaps these could have used the printed reading materials sent to villages through Local Councils but apart from them being inadequate where a village of 300 households could be allocated 10 sets (Museveni, June, 2020; Ministry of Education and Sports, May 2020; -Kakooza, 2020), parents have no time in a condition where children are from gardens and are engaged in household chores like cooking, baby seating and house cleaning (especially the girl child). Worse still, most parents in rural areas are illiterate (UBOS, 2018) who could not ably guide their children in doing the work provided in the learning materials.

Purpose and Objectives of the Study

The purpose of the study was to facilitate effective continued learning in rural contexts of Uganda underscoring Kyotera District and specifically to: 1) assess the effectiveness of government improvised means of non-formal learning; 2) develop electronic lessons easily transmissible to learners through simple audio devices to facilitate learning from home; 2) to mount loudspeakers in central places of a village and relay lessons to mobilized learners supported from homes; and 3) to mobilise parents and older persons at homes to support leaners to attend lessons and attempt assessment questions. The major question we asked is how best can learning be extended to learners in rural contexts given the challenges that come with digital learning used in urban areas? Accordingly, the specific research questions are: Did the printed learning materials provided by government reach learners in villages? What alternative means are available to help learners with no printed materials access learning electronically without use of internet; How do the stakeholders support devised ways of extending learning without use of internet?

Literature Reviewed

According to the Social Learning Framework based on the social practice (Friedmann and Abonyi, 1976), management of learning under situations like the COVID pandemic lockdown required open, flexible learning and adaptation as understanding evolves, in the midst of change. Friedmann and Abonyi (1976) advanced a framework of social learning whose paradigm is social practice. The essence of the approach proposed by Friedmann and Abonyi is its suggestion of a social learning framework for "wicked policy problems" (Abonyi, 2020 p.3) such as continued learning during the COVID-19 lockdown. It is composed of four mutually interrelated and dynamic processes. These are;

- Formulation of a theory of reality, representing decision makers' understanding of the problem environment, i.e. as basis for identifying technically appropriate options;
- Articulation of relevant social values, that guide decision-makers in choosing among alternative options for action, i.e. defining what is seen as socially acceptable;
- Selection of an appropriate political strategy, i.e. picking what is likely to be a stable decision given competing interests in the political game; and
- Implementation as collective action, i.e. practical measures or programs taken by those with a stake in resolving the policy problem.

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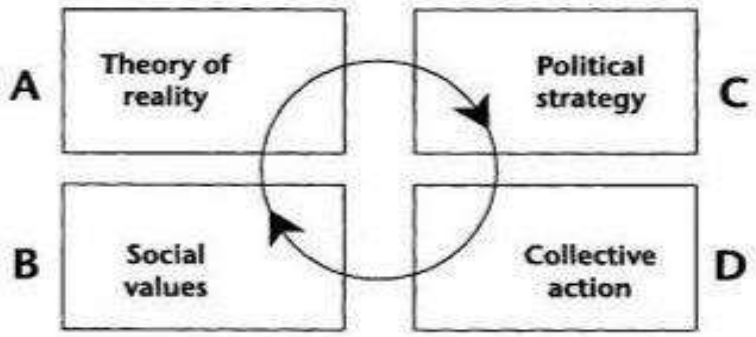
Fig. 1 Social Learning: The Paradigm of Social Practice



The social learning framework rests on the assumption that data becomes information only when filtered through a theory of reality (or world view). Therefore, a common data set on the policy environment can be understood differently (in block A), yielding diverse political strategies (block C), and distinct practical programs for implementation (block D), if interpreted through different value filters (block B).

This framework underpins innovations through understanding that many rural contexts in Uganda are composed of people who cannot access some means of continued learning like radios, televisions and the print materials distributed (Block A). The social practice is that about 80 percent of the people in rural settings are engaged in agriculture and most parents are illiterate (UBOS, 2018) who cannot ably guide their children for any continued learning programmes. Moreover, Radio, internet and Television coverage constitutes 69.7 percent of all households in Uganda (UBOS, 2014; 2018). Therefore, the political strategies to this effect were; to decide and go for those means of communications which are adaptive to communities like use of loud speakers and memory cards to deliver lessons (Block C). Since the lessons were developed through engagement of expert teachers and modulators, involving political leaders and ensuring that the approved printed materials issued by Ministry of Education and Sports are the ones used to prepare lessons (Block B). The fact that we developed a timetable to be followed, prepared and stored lessons electronically based on approved curriculum, helped to implement the project (Block D).

Dube (May 13, 2020) conducted a study on rural online learning in South Africa especially during the COVID 19 period. He noted that in spite of online learning seeming to be one of the best ways of learning during the COVID-19 period, the innovation is hampered by the unavailability of connectivity in some rural contexts. It should be noted therefore, that learners from rural contexts cannot easily access learning through electronic means which require wireless means. If South Africa, which is a developing nation when compared to Uganda, lacks connectivity what do we expect from rural contexts of Uganda?

Iivari, Sharma, Ventä and Olkkonen (55, December 2020) observes that information management research should better acknowledge children, their digitalized everyday life and their basic education as significant areas of concern. In this, we learn that, we need to base on research to identify the fundamental interventions which would enable learning to take place. In conditions where rural contexts cannot access radios and televisions, and where the majority of parents are illiterates, the option lies in devising mechanisms like the loudspeakers to deliver such learning to the vulnerable rural learners. Arquilla (April 27, 2020) noted that the educational sector was less well developed at the point globally, but the use of networking systems has proved there was a way to continue to educate via distance learning. Although the definition distance learning is more to do with use of internet and via internet, learning is delivered, for the current project, the issue was to use the local loud speakers mounted on poles and or roof tops to deliver the lessons.

DeWitt, Alias, Siraj, Yaakub, Ayob & Ishak (2013), noted that among the many methods of learning innovated is the use youtube. YoTube las audio

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lessons as well as videos which are uploaded and used to deliver lessons. The lessons or lectures on YoTube are recorded first and then stored. Any time a learner feels that there is need to revise one just opens and listen to the lesson. In this, YoTube is a means of delivering a lesson just like the project used the loud speakers. Moreover DeWitt, et. Al, (2013), noted that the importance of using technology other than YouTube is also required and that lecturers needed to pay attention to this new shift. King (2016) who studied audio recording to boost learning handled the matter from the student's side. Findings indicated that among others audio recording sped up the brainstorming process, practice and revision. In particular when it comes to practice and revision, King (2016), observed that,

Even published authors read their writing out loud to check for errors or confusion. At times, we ask students to audio record themselves reading their work aloud as a way to hold students accountable for practicing this important revision step. When students play back their recording, they have a new tool for encountering their text and finding places to revise. With group work, audio recording offers a practice space before final presentations. For example, if students are working on integrating primary sources in a social studies class, audio recording can help them listen for appropriate source introductions (King, 2016 p.1). Although King (2016), argued the case from the students' side, it is as well to appreciate the practice, that even when teachers record lessons, it is easy to use the same lessons to deliver lessons but also help learners to always revise.

Methodology

The design used was Participatory Action Research (PAR) design basing on themes of recording electronic lessons, delivering lessons based on mounted loud speakers and monitoring learning. This design prioritizes the value of experiential knowledge for tackling problems caused by unequal and harmful social systems, and for envisioning and implementing alternatives. PAR involves the participation and leadership of those people experiencing issues, who take action to produce emancipatory social change, through conducting systematic research to generate new knowledge. Basing on tenets of the theory, like involving people who experience the issues to produce emancipatory social change, the study used the teachers to record lessons and these included; 16 teachers selected from 20 best schools in the district (District Education Office Report, 2019). The delivery of lessons was by 11 loud speaker owners who were selected purposively basing on expertise in delivery of locally recorded information on memory sticks in the 11 villages. The monitoring of lessons was by 11 Expert teachers [retired but from those same villages] who as well assessed learning but observing the SOPs. The target population of learners was the 11 villages hosting the learners of Primary one to senior three. The sampling and selection of the villages was purposive based on the statistics obtained from the population section of the department of Planning of Kyotera District and the Education Office reports. To observe confidentiality learners participating from the study were not recorded but observed by the expert monitors. The lessons were based on a timetable outlining subjects which are taught in the different classes.

Data was analysed through use of qualitative analysis methods. This depended on the themes and the content generated from each of the themes. The themes were; the electronically generated themes, the timetable for relaying lessons, the delivery of lessons to communities and the monitoring of the learning process. In each of these themes, sub-themes which guided the generation of content were as well developed. Results were obtained and presented according to the themes and sub-themes. Eventually conclusions were drawn hence the emerging implications were established basing on the knowledge blocks and the recommendations made. Ultimately, a recommended model of learning for rural contexts during strange periods like lock downs was generated. This was derived from the processes which were followed using the themes to establish the blocks and the arrows until we arrived at the framework that describes the model.

Results from the study.

These results are based on developing of lessons, coming up with the timetable, delivery of lessons and monitoring of learning.

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Developing lessons

A total of 20 teachers were purposively selected by the District Education office based on their previous performance especially under the LALA project (Kyotera District report, 2019; Kyotera District Annual Inspection Report, 2019). The selection depended on class and subject of interest but more so the exhibited performance in that area. These teachers had exhibited extra-ordinary performance and thus they were selected basing on such competencies. These were provided with copies of print materials prepared by the National Curriculum Developed Center through the Ministry of Education and Sports (Ministry of Education and Sports, May 2020). One expert modulator was selected to modulate every teacher while recording lessons using a recorder but behaving as if he or she was in class. Pictures 1, 2, 3 and 4 show some of the teachers recording lessons.

Figure 1*. Teacher Annet Nakalanzi recording an SST lesson for Primary six as modulated by the Senior Education Officer, Kyotera Mr Lawrence Sekyondwa*

Figure 2: *Teacher Sennono Mwanje, the 2019 best teacher in Uganda, recording one of the Primary six mathematics lessons*

Figure 3: *Teacher David Ngobya recording One of the Primary Five lessons*

Figure 4 *Teacher Edwig recording a one of the Primary three English lessons*

Lessons were developed spiced up with content, songs, illustrations and user-friendly flow of lesson development as can be demonstrated by the gestures in Pictures 1, 2, 3 and 4. A total of 168 lessons were recorded for the Primary section as shown in table **1** while 126 were for senior one, two and three as indicated in table 2.

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Table 1: Showing the lessons recorded per class and subject:

Subject	Primary one	Primary Two	Primary Three	Primary Four	Primary Five	Primary Six	Total
Mathematics	**8**	**8**	**8**	**8**	**8**	**8**	**48**
English	**8**	8	8	8	8	8	48
Literacy	**8**	8	8				24
Social Studies				8	8	8	24
Science				8	8	8	24
Total	**24**	24	24	32	32	32	168

Source: The electronic storage on computer and memory cards * Primary seven was not considered since government contemplated having them go back at the time the project was developed (Presidential Address on COVID-19).

As table 1 indicates, teachers developed 8 lessons for each of the subject using the print materials distributed by the National Curriculum Development Centre to communities through District Local Governments as guides. This approach was adopted because in the same villages, it was these same materials which children used to learn. For classes; Primary one to Primary three, there were 24 lessons, while classes four to six, there were 32 lessons each. Mathematics and English were the subjects most taught with a total of 48 lessons each since these are taught right from primary one unlike science and SST for upper primary and literacy for the lower primary levels. A total of 168 lessons were prepared the Primary school learners ready for editing.

Lessons for the Secondary School level were also prepared as shown in Table 2. These were for Senior one, senior two and Senior three. The subjects were; Mathematics, English, Geography, History, Biology, Chemistry and Physics. The reason behind was that these are compulsory subjects whose examinations learners must sit for at Uganda Certificate of Education examinations. Whereas such subjects were being taught through Radios and Televisions, for the rural contexts, these were left out. As an affirmative action, the project prepared these lessons also.

Table 2: The Secondary schools' lessons generated electronically through use of recorders by Model Teachers and stored in computer and memory cards:

Subject	Senior one	Senior Two	Senior Three	Total
Mathematics	6	6	6	18
English	6	6	6	18
Geography	6	6	6	18
History	6	6	6	18
Biology	6	6	6	18
Physics	6	6	6	18
Chemistry	6	6	6	18
Total	42	42	42	126

Source: The electronic storage on computer and memory cards * senior four was not considered since government contemplated having them go back at the time the project was developed (2^{Th} Presidential Address on COVID-19).

From table 2, it is indicated that a total of 42 lessons were developed for each of the classes namely; S.1, 2 and 3. In each of these classes, a subject carried six lessons making it 18 times a subject was prepared. A Total of 126 lessons was therefore prepared. A team of 17 expert teachers/inspectors/Associate assessors was assembled and teamed up with the teachers who recorded the lessons according to the areas of expertise and according to classes. These edited the work recorded and critiqued it accordingly. Some teachers were made to record other lessons while some lessons were completely dropped. The test score was designed professionally to represent a

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clear lesson delivery. It was based on two items namely; content delivery scoring 75 percent and audibility rated at 25 percent. The pass rate was put at 70 percent considering the different panel teams grouped according to class (Primary) and Subject (Secondary) teams. Lessons which passed the test, based on the checklist as shown in table 3 were arranged and allocated time on the designed timetable.

Table 3: Checklist for approving a lesson:

	Technical Item	Considerations	Score	Performance
1	**Content Delivery**		**75**	
a	Masterly of content		25	
b	illustrations		20	
c	flow		5	
d	punctuation		5	
e	methods		15	
f	Language use based on the learner		5	
	Subtotal		**75**	
2	**Audibility**		**25**	
a	Articulation		05	
b	Voice clarity		15	
c	Environmental concerns		05	
	Subtotal			
	Total			

Source: Primary data

Table 3 shows the template for items and the scores used to assess performance of the different teachers who recorded lessons. There were two broad categories of criteria used namely; content delivery and Audibility. The former had attributes which included; masterly of content, illustrations, flow of content delivery including logic, methods applied and language use depending on the level of a learner while the later had articulation, voice clarity, and environmental concerns. Performance of the 20 teachers is as shown in annex 2.

Developing a timetable to follow the teaching and learning process:

There are 16 competent teachers whose lessons passed and formed the basis on which a timetable was developed. The flow of lessons began from Primary one to senior three. Progressively, lessons were allocated time according to the content which befits a particular class. Primary one was allocated 20 minutes while senior three was allocated 40 minutes as table 6.4 illustrates. Allocation of time depended on the content as was provided and segmented by the NCDC in the printed materials.

Table 4: Lesson allocation Time in minutes for each class during lesson delivery:

Class	P1	P.2	P.3	P4.	P.5	P.6	S.2	S3	Total time spent on lesson delivery
Minutes per lesson	20	30	30	35	35	40	40	40	260 minutes/4.3 hours

Source*:* Recorded and timetabled lessons

From table 4 it is noted that Primary one lessons were allocated 20 minutes each every day, Primary two and Primary three had 30 minutes allocated while Primary four and primary five had 35 minutes allocated each for every subject in the timetable. For the higher classes, that is, primary six, Senior Two and Senior Three, each lesson was allocated forty minutes in the timetable. This brings it a total of 260 minutes of teaching allocated on each day, translating in 4.3 hours a day. The designed timetable is attached as annex 1 but figure 6.5 shows the timetable for day one

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Figure 5: Model image of the timetable developed

TIMETABLE FOR LOUD SPEAKER LESSON DELIVERY IN SELECTED RURAL AREAS IN KYOTERA DISTRICT

DAY	Week day	Date	TIME	CLASS	SUBJECT	Lesson number per class
1	Tuesday	6/30/2020	2:00-2:20 Pm	P.1	Maths	1
			2:20-2:40 Pm	P.2	English	1
			2:40 - 3:00 Pm	P.3	Literacy	1
			3:00-3:30 Pm	P.4	Maths	1
			3:30 - 4:00 Pm	P.5	English	1
			4:00 - 4:30 Pm	P.6	Maths	1
			4:30 - 5:10 Pm	S.2	English	1
			5:10 - 5:50 Pm	S.3	History	1

As figure 6.5 shows, the first column indicates the number of days for lesson delivery, followed by which day of the week it was, then the date and the then the time at which the lesson was to be relayed for which class and which subject. The last column speaks to which lesson number is it out of the 8 days, a lesson was expected to be delivered. So since this was day one it is day one and lesson one. Total of 168 lessons were arranged and edited according to the table and these were stored in the laptop and hard drive backup. These lessons were installed on memory cards every after three weeks of lesson delivery.

Relaying of lessons to communities through use of loud speakers:

Lessons were planned to be relayed every Monday and Tuesday of the week i.e. two days a week. The reason was basically to allow learners to conceptualize and revise the content learnt through use of parents, elder siblings and the expert teachers assigned in each of the eleven villages of the project. The owners of the loud speakers were expected to play the sensitization message first and move using a motor cycle through the village passing on the message and mobilizing the learners and parents to prepare for the learning. This activity could start 7:00 am every morning of the day of learning and it could extent up to 8:00am when the lessons started. The owner of a loud speaker could then mount it on poles installed in the center of a village and then start the lesson delivery. Lessons began with those of primary one and extend up those of Senior Two. Some children could stay at home while others were always encouraged to move nearer to the loud speakers with masks and their learning materials. They observed social distancing and were easily supported. Pictures 6 and 7 depict the learning conditions in some of the villages visited.

Figure 6: *An expert teacher guides learning in Nabigasa*

Figure 7: *Siblings learning from home through aKijonjo LC1 Kasasa Subcounty loud speaker mounted in Katana villaae*

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In Figure .6, learners of Kijonjo Village are seen attending to one of the lessons. A distance of two meters from each of the learners is maintained and clarity is given by the expert teacher attached to that village. In Picture 3.7, two learners are attending to a lesson relayed from a distance of about three hundred meters to the mounted loudspeaker.

Monitoring Learning

From interviews conducted with some of the participants in these lessons, learners testified that learning took place although they missed the teachers' physical assessment and marking of the exercises given. In fact, one P.6 learner observed that "*Lessons are good and the content is clear but I miss marking of my work whenever the teachers leave us with assignments* **Learner [1].** The other learner from senior two noted that "*When teachers come back for other lessons, we start with corrections but I am not motivated since the teacher does not tick my work himself and he does not give me any comment about my performance* **Learner [2]**

For the parents and the community, the exercise was such a good intervention for it helped their children not to miss what they had learnt from school, the children were ever kept busy and even adults benefited from learning since many were illiterates. One Chairperson Local Council one, observed that some of the village members attested to the fact that they themselves learnt. He said that *"This type of learning has not only helped children in school only…. No no… it has even assisted some of the adults who missed out on simple arithmetic to learn.!!!! Can you imagine?"* He exclaimed **Community Leader [1].** For one parent who had children in Primary five, six and senior three respectively, one of whom is girl and two are boys, it was all praises with remarks that

> *"If it was possible, this learning could even be maintained when the schools open. How I wish it can even be the order of the day during holidays because it awakens our children's learning and tune them to the love for study"* **Community Member [1]**.

Discussion of Findings

The discussion of findings is based on the three objectives of the study namely; the preparation of pre-recorded lessons, the delivery of lessons using loud speakers and the monitoring of learning. The study results show that the innovation of coming up with recording lessons which could be delivered through record players was possible and since it does not need internet such a method can be used in nay environment. This innovation is well supported by Reimers, et. al, (2020 p.2) who stated that "For educators, the COVID-19 Pandemic is a quintessential adaptive and transformative challenge, one for which there is no pre-configured playbook that can guide appropriate responses". Reimer continued to note that "Education leaders must swiftly design responses – and with specific contexts in mind – as the pandemic runs its course" (Reimers, et al, 2020 p.4). This implies that depending on the context, education leaders ought to think out of the box and find those appropriate means and ways how to enable continued learning extend to all learners irrespective of their location.

The study findings indicated that recorded lessons can be used in different ways as long as one accesses a tool that can be played to produce sound. We found that print materials government had distributed did not work well because of the high illiteracy levels in rural areas (UBOS, 2014-2018; Balojja and Shaun, 2019, Balojja, 2017), children are subjected to home chores (Balojja and Shaun, 2019, Balojja, 2017), and that the materials had not reached out to many children in rural contexts (The New Vision, May 2020). Above all, in these rural areas of Kyotera like it is in others across the country, digital network is a challenge hence use of internet was a challenge. This is not news in Africa as well since E-learning is affected due to lack of digital network. Dube (May 13, 2020) conducted a study on rural online learning in South Africa especially during the COVID 19 period. He noted that in spite of online learning seeming to be one of the best ways of learning during the COVID-19 period, the innovation is hampered by the unavailability of connectivity in some rural contexts. Note that South Africa is in advance stages of development than Uganda (UNDA, 2017).

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Comparatively, the rural contexts of South Africa are better than those of Uganda. Dube (May 13, 2020) noted thus, that "in the context of COVID-19, and with particular reference to rural learning in South Africa, there is need for conditions that would emancipate learners and promote social and learning conditions". In view of the above, recording electronic lessons comes in handy and wherever possible, one can use any transmission means to relay lessons. Such means may include; Tape recorders, whoofer speakers, USB discs and speakers and loud speakers. The best option to learning under such unusual conditions as advanced by Reimers, et al, (2020) would be among others, the use of internet through established Websites like the TED-ED in United Kingdom and the NearPod in Australia. TED-ED provides curated content including video-based lessons organized by age and subject, video series organized by topic, and blogs. Reimers, et al, (2020) thus state that,

Learners can sign up for a daily lesson plan that span all subjects and groups. Lessons are self-paced and pre-designed. Lessons are organized into categories - watch, think, dig deeper, discuss. From the site: To support the millions of students, parents and teachers affected by the COVID-19 pandemic, TED-Ed is working with expert educators and TED speakers throughout the world to create and share high-quality, interactive, video-based lessons on a daily basis, for free. Teachers and students can enter their email to have a handful of engaging lesson plans organized by age group that span all subjects delivered to your inbox every day (Reimers, et al, 2020 P.2).

This approach to learning is the best in such conditions like those faced during the COVID-19 pandemic lockdowns. However, in a rural context like Kyotera villages, learning was only possible through prerecorded audio lessons to support continued learning. Children in such remote villages given the environment, have no accessible to internet while those using smartphones are as well few (UBOS 2018). Therefore, accessing learning through internet even with such provisions like TED-ED, would not be possible.

Reimers et al, (2020) also suggest another mechanism called Nearpod which would be ideal in these conditions. They note that,

Nearpod is an instructional platform that merges formative assessment and dynamic media for collaborative learning experiences. It is designed as a platform for teachers to create interactive online lessons that can be taught in a synchronous or asynchronous space. It integrates smoothly with many LMS including Canvas, Google Classroom, EdPuzzle and Seesaw. It provides teachers with student engagement dashboards for every lesson. It has multiple resources for teachers to create lessons. Students can easily access the lessons created by the teachers and can collaborate with each other in synchronous and asynchronous ways. There is a bank of ready-made lessons other teacher have created (Reimers, et al, (2020 p….).

This approach is internet-based only accessible when students have access to internet both in terms of the hardware capacity and the software capacity. However, the rural contexts of Kyotera do not have such a favour. The interesting area of convergence with this approach to learning it keeps a bank of readymade lessons teachers create as the current study suggests. It is therefore possible and advisable to prepare lessons and record them as it is under Nearpod.

A total of 168 lessons were arranged and edited according to the table and these were stored in the laptop and hard drive backup. These lessons were installed on memory cards. Iivari, Sharma, Ventä and Olkkonen (55, December 2020) observes that information management research should better acknowledge children, their digitalized everyday life and their basic education as significant areas of concern. We should understand them as well as allow them to shape the education we offer...we should also aim at influencing the basic education of the young generation – for the purpose of equipping them with important skills and competencies for their digital futures but also for the purpose of arousing their interest in this important field, maybe even as a career option. These electronic lessons are such an innovation which can be used electronically in any environment. Therefore, the lessons are available to help learners to gain knowledge in

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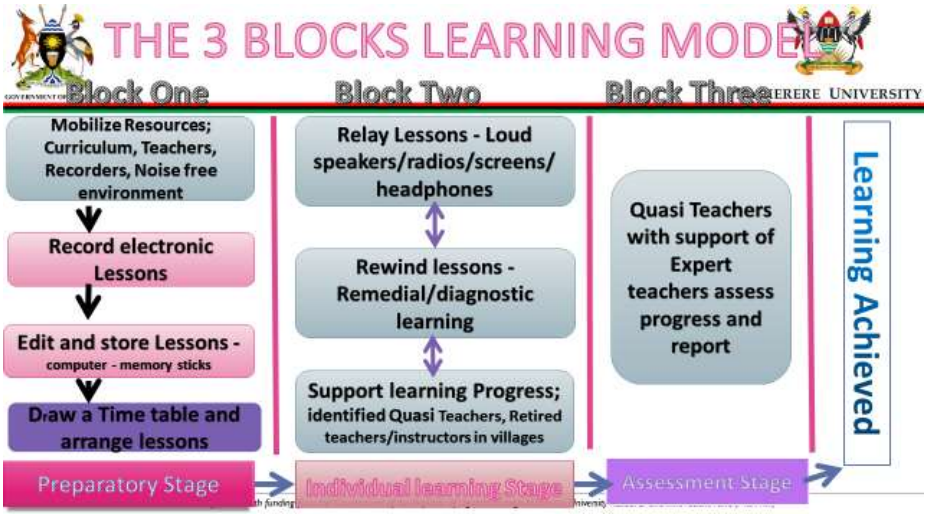
addition to what teachers and other resources can provide. Learning took place although they missed the teachers' physical assessment and marking of the exercises given. The exercise was such a good intervention for it helped their children not to miss what they had learnt from school, the children were ever kept busy and that even adults benefited from learning since many were illiterates

The other finding was that all the expert teachers who were assigned the duty of helping on learning in the villages, none reported below 50 percent, an indicator of good performance. These teachers helped in guiding the learners on assignments and sometimes marking these assignments. As Reimers, et al (2020) note, learning is best done with guidance of teachers even if this kind of learning takes place in a digital way. Accordingly with support of local expert teachers, the learners confessed that learning took place and the assessment also proved this. Also parents confirmed to us that learners and parents could contact the expert teachers on their mobile telephones and sometimes physically cognizant of the standard operating procedures of preventing the spread of the coronavirus and COVID-19.

Conclusions:

The project intended to extend continued learning to rural contexts during the COVID-19 lockdown in Uganda underscoring 11 most rural villages in Kyotera District. This learning happened through use of customized electronic means of recording lessons, arranging these lessons according to a designed timetable, lessons were stored on a computer and regularly, these were transmitted to memory cards which were used to relay lessons using loud speakers. Learners attended the lessons according to their classes but some even enjoyed the content from other classes. Adults also took advantage to remind themselves on some content like arithmetic. Learners from a distance of over a kilometer moved closer to where they could listen from and sat observing the standard operation procedures for prevention of the spread of COVID-19. Also, this learning helped on sensitization of masses on prevention of the pandemic since learning started with sensitization messages by teachers. Memory cards installed into user friendly electronic gadgets like small telephones popularly referred to as *"katouch"* or small radios as cheap as ten thousand Uganda shillings since some of the owners of the loud speakers used "*katouch*" phones which they connected to amplifiers and loudspeakers to relay the lessons. One can therefore listen to recorded lessons any time during free time. Recorded lessons stand the test of time and can be even used in refresher courses to sharpen performance of teachers in content delivery, mastery of content, illustrations and motivation of learners. This approach to learning is cost-effective and leaner friendly since it does not involve buying radio or Television airtime yet these have other interruptions and limited time committed to consistent learning. In this the law of readiness in learning is affected. Ultimately the project developed a model of learning that can be used to support learning even when schools are in session or not. This model is shown in Figure 7.1 below

Figure 7.1: The 3 Blocks Learning Model



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From figure 7.1 the 3 blocks learning model is hinged on block one which is the preparatory Stage, block two which is the Individual learning stage and block three which is the assessment stage. Preparatory stage involves activities which coherently lead to drawing of a timetable for delivery of lessons. It starts with mobilization of resources like teachers, the curriculum, recorders and a free environment. In the preparatory stage also, lessons are recoded, edited and assembled according to the timetable. Once the preparatory stage is completed the individual learning stage sets in where tools which facilitate relaying of lessons are assembled. The activities depend on one another as the lessons are delivered. These activities include: relaying electronic lessons using tools like loud speakers, radio recorders, headphones and others one may opt to use. The listener has an option of rewinding the voice at free will and support from elders like the retired teachers, parents and quasi teachers. The last stage is assessment and here, teachers especially those who have retired and quasi ones like secondary school leavers from the community are used to assess learners and provide feedback to learners and schools.

Recommendations:

- Government should adopt the model to extend learning to rural contexts where it is not only illiteracy that is high but the interest for learning is low. Whereas other approaches would be good, there are challenges of the energy to be used. For example, for radios, it is easy to have one but the head of the family restricts it to only listening to news. So children may miss out on learning.
- Parents, learners and schools should buy these electronically developed lessons for future use in learning and revisions since the content therein and another which may be added on was developed based on the curriculum.
- Makerere University Research and Innovations fund, should support the extension of the project by funding the recording of term three lessons for lower classes since these may not return to school until next year. This may involve even helping the villages already in the project to have their children learn more.
- Kyotera District Local Government, should mobilise the Non-Government Organisations within the District to fund extension of learning in rural villages in order to affirmatively bring them on board too.

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