Unlocking the Stalemate: Multifaceted Learning Solution (MLS) for Inclusive Content Delivery to Basic Level Learners in Kenya

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Introduction

Following the closure of schools as a measure to mitigate the spread of COVID 19, over 1.5 billion learners across the globe found themselves locked out of their learning institutions. Among these were 18 million learners in Kenya (UNESCO, 2020, MoE, 2020) with 15 million of them being basic level learners in early childhood, primary and secondary level. Also affected were 150,000 children in refugee camps and 300,000 teachers among other categories of affected learners. As an alternative to the classroom, the MoE commenced lessons on radio, TV and the cloud through the Kenya Institute of Curriculum Development (KICD), in addition to other numerous online solutions from private providers. However for millions of learners, especially those in remote and isolated areas, the poor and marginalized and those living with disabilities, learning stopped indefinitely due to the challenges posed by these alternatives among them electricity, internet access, cost of smart phones and TV's among others.

With the right to education enshrined in the Kenyan Constitution 2010, the Ministry of Education constituted a committee to look into modalities of reopening schools in Kenya. However without a viable all-inclusive solution, the government opted to pushing the school opening date to January 2021, with a possibility of learners repeating classes and candidates missing out on the 2020 KCPE and KCSE National exams. This needs not be the case. In addition, to mitigate the increasing negative effects of school closure, the government opted for community learning to ensure that both teachers and children are occupied and engaged in a communal set up. However this latest development excludes the academic progression of learners leaving parents disillusioned and does not give hope to learners considering that there is a lot of premium placed on academic progression in the learning model in Kenya. Parents and learners expect a solution that unlocks the stalemate of syllabus completion, sitting of both national and internal exams to facilitate progression and resumption of co-curricular programs managed at the communal level. The community learning program has the potential to address life skills and co curricular programs but excludes academic progress which has led to a huge outcry from both the learners, parents and concerned stakeholders.

There is a case for long term solutions to learning in the event of pandemics like COVID 19 or other similar situations in Africa and other third world countries. While COVID 19 is not the first pandemic in the world, and other pandemics like Cholera in 1817, Fiji measles in 1875, The Russian Flu in 1889, The Spanish Flu in 1918, The 1957 Asian Flu, HIV/AIDS in 1981 and SARS in 2003 (History.com editors, 2020), have existed before, nations still find themselves ill prepared to mitigate their populations against their negative effects. Among these pandemics,

current measures instituted through a directive by the WHO are similar to those that were used to control SARS. SARS was seen by global health professionals as a wake-up call to improve outbreak responses, and lessons from the pandemic were used to keep diseases like H1N1, Ebola and Zika under control. However despite these lessons, challenges of COVID 19 have taken nations back to the drawing board. Kenya and indeed other African countries apart from Congo, Cote devoir and Benin closed schools and children were sent home. Children in these countries are at great risk as parents are unprepared for new parenting roles and governments do not have the capacity to sustain online learning solutions, with limited electricity, poor internet connectivity and out of reach learning devices particularly smart phones. Consequently with most African countries falling in the low and middle level economies characterised by inadequate family resources, these children also risk being used as sources of labour to supplement family incomes. The girl child is at risk of early marriages in communities that look at bride price as a source of income. Furthermore the insecurity is usually high in poor settlements and terrorist prone zones. Children are vulnerable and at risk of rape, abuse and are easily recruited to undertake terrorist activities. Without extra resources for child care, these children are exposed to adverse behavior influence including drugs, incest as well as pornography (UNESCO 2020). There is also the risk of malnutrition and starvation as the most affected usually rely on school for at least a meal a day. Girls while in school benefit from free sanitary pads. It is therefore critical that affected countries identify feasible learning solutions for learning to continue, fully embraced by government for inclusivity and enforced implementation, parenting workshops and strong community based support systems for guidance and home based support, as well as viable economic initiatives for most needy families to sustain livelihoods among other comprehensive long term mitigation and coping measures.

This proposal aims at closing on the knowledge gap created as a result of school closures and the effects noted so far. With schools closed till January 2021in Kenya due to lack of an inclusive alternative learning solution, and the risk of watering down the gains of education so far, there is an urgent need to ensure that learning continues and children are not stagnated in the learning continuum. A report by International Common Assessment Numeracy (ICAN, 2020) released by Dr. Ruto (Peoples Action for Learning Network) indicates that some of the effects of prolonged school closure on learners would include forgetting particularly on foundational concepts. Studies reviewed show that negative effects of learners being out of school include teenage pregnancies, child labor and crime, violence on children, emotional distress among others (Muturi, 2020). Reports have also shown that teachers in Kenya are suffering stress related complications and therefore resumption of a model where teachers will be able to interact with learners would go a long way in mitigating most of these negative effects.

A multifaceted learning solution is critical in ensuring that children in Kenya as well as in other countries continue learning. There is need for parents to be educated on the unique role they have to play as a result of the novel circumstances of COVID 19 as their responsibilities increase tenfold; children at home need to be protected and taken care of, as parents double as teachers for home schooling and have to provide food and other basic necessities to shield the children from taking up odd jobs. Solutions to mitigate these negative effects are key in reducing the strain on healthcare services, knowledge drain if no learning takes place for a long period, economic strain on family resources, general wellbeing of both the boy and girl child affected and their families.

While the WHO (2020) has given guidelines on a safe return to learning institutions, these may take time to implement because of infrastructural logistics (MoE, 2020) as well as the capacity of children to strictly adhere to such guidelines. The decision however to push the school

calendar forward without any fallback strategy for candidates puts the 2020 candidates at a very delicate situation. Consequently without a consulted effort to address this predicament, learners who seek alternative means to cover the syllabus may be disadvantaged if KNEC does not offer exams. This also leaves private candidates at a loss because they did not need schools or institutions for them to be able to do exams yet with KNEC not giving exams the rights of these candidates are grossly violated. It is as a result of this complex scenario that this proposal seeks to propose a comprehensive solution that aims at addressing the challenges faced by learners as a result of school closures.

The ICT Scenario in Kenya

An ICT gaps study by the Communications Authority of Kenya noted that about 5.6 per cent of Kenyans in far-flung areas did not have access to basic mobile services (CA, 2020). Many have to walk long distances to make a voice call, and in cases of emergency, they have to fend for themselves. Telecommunication firms deem the areas commercially unviable while the Universal Service Fund managed by CA and supposed to take ICT services to marginalized areas has been too slow in deploying networks to these areas. Residents in these areas had to grapple with phone calls being disrupted due to poor network coverage. However Through the network of gigantic internet-enabled balloons, a project escalated through an initiative of the president of Kenya, His Excellency Uhuru Kenyatta through a partnership project between Google and Telkom Kenya, supported by 55.2 million subscribers (meaning that even those without SIM cards can easily borrow) and a 91% mobile phone subscription (CA 2020), Kenyans, wherever they are, are now able to access 4G coverage.

Targeting isolated areas previously excluded from voice network such as Iten, Eldoret, Baringo, Nakuru, Kakamega, Kisumu, Kisii, Bomet, Kericho and Narok, the technology has enabled these areas to leapfrog to internet access and residents are able to make voice and video calls, stream live videos, access emails, texts among other internet-enabled applications (CS Mucheru, 2020). Loon balloons work by beaming Internet connectivity from ground stations to an overhead balloon. The signal is thereafter sent across multiple balloons, creating a network of floating cell towers that deliver connectivity directly to a user's LTE-enabled device below. Loon is a project by Google's parent company, Alphabet launched in 2011 to bring connectivity to remote parts of the world by floating solar-powered networking gear over areas where cell towers would be too expensive to build (Standardmedia, 2020). Loon and Telkom in charge of the service provision in Kenya are utilizing a fleet of balloons that are in constant motion in space and are currently maintained in a relatively stable position over the target coverage area. With this technology and the extensive mobile subscriber base in Kenya, it is possible to cover learners from all parts of the country through a simple affordable voice only solution.

Objectives of the proposal
1. Propose use of a simple affordable and accessible on net teaching model for inclusion of all learners as a COVID 19 emergency learning solution
2. Ensure learning at all levels take place and the 2020 syllabus is covered for all learners
3. Propose modalities of conducting practical lessons and the 2020 National exams through community based schools and examination centers
4. Provide a long term solution of access to education for learners excluded in remote and marginalized areas, terrorist prone zones as well as learners with disabilities

On-Net Learning Solution

On-Net teaching particularly uses voice to ensure that all parents irrespective of their financial status are roped in. Using simple voice only phones that cost less than Ksh1000 shillings[1] and partnering with MNOs where pricing targets affordable learning, learners in Kenya who have missed school for the last 6 months are able to resume learning, reignite their low spirits and give them hope in their academic progression. The On-Net model in particular closes the exclusion gap; however other models including community learning, sibling teaching, self-driven revision and learning as well as online based models reinforce the standardized content delivered through the model where possible. Nevertheless, use of the other models will only be an added advantage considering access challenges experienced across levels of learning; on affordability, access to data and know how among others. This leaves the On-Net model combined with community learning which affords learners access to facilities like science labs for practical lessons and examination centers among others as a suitable solution to close in on the gap that has kept learners out of school during the COVID 19 disruptions.

The On-Net and Community Learning Solution Combined

The On-Net solution is a simple model that leverages on the extensive voice network in Kenya to ensure inclusive content delivery to all children registered in a school. Every class will be required to follow a timetable and register where all learners are accounted for. The model uses simple voice technology where a teacher using a simple phone calls all pupils either one by one and merges the calls or uses an application that calls all numbers at once. Pupils pick the calls and get into the class from anywhere in Kenya. Then using voice he/she proceeds to conduct the usual class asking pupils questions and learners answering as required. The teacher also interacts with pupils by asking them to repeat after her. These lessons are based on the class texts where the teacher moves from topic to topic giving assignments and instructions for children to write notes during and after class. Content is delivered On-Net and students requiring practical lessons attend the nearest registered school mapped to offer practical lessons as per the schedule of lessons. All practical lessons are synchronized for uniformity in delivery. Every school ensures that all their learners are mapped and attend class without fail and venue for practical's allocated. All communication on practicals is done during the on net lesson. Teachers in every school teach their classes and the timetable is followed to ensure that the syllabus is covered. Upon completion of the syllabus, all candidates are mapped to the nearest registered school to sit their exams. Exams are then conducted in line with WHOs COVID 19 mitigation measures. This is feasible considering that all other learners are at home creating enough space outside and inside classes. Monitoring of the candidates to ensure washing of hands and sanitizing is also adhered to. Once exams are over, learners easily get home within the locality with clear guidelines on social distancing. On the other hand continuing learners are tested on a continuous basis and performance aggregated to facilitate transition to the next class.

Partnerships

Crucial partners in the offer of this model include telecommunication companies that will provide SIM-CARDS for teachers to deliver content and to learners. An downloadable application consisting of a simple universal dashboard managed from a phone for dialing and merging calls, monitoring of pupils attendance and participation enabled for all phones used to deliver content by teachers. The Ministry of Education for approval and implementation of the model in basic

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[1] Bulk purchase will considerably bring this cost down

education level institutions to ensure uniformity and monitoring. Community leaders for mapping of learners and support for community based initiatives.

On -Net Teaching Model

>Pupils receive calls
>Repeat after the teacher >
> Answer questions > write notes

1. Teacher initiates calls to deliver content to pupils
2. The teacher can select a pupil to ask a question
3. Gives assignment via voice and text.
4. Teaching is interactive as pupils can repeat after the teacher

Teacher may teach from Home or school
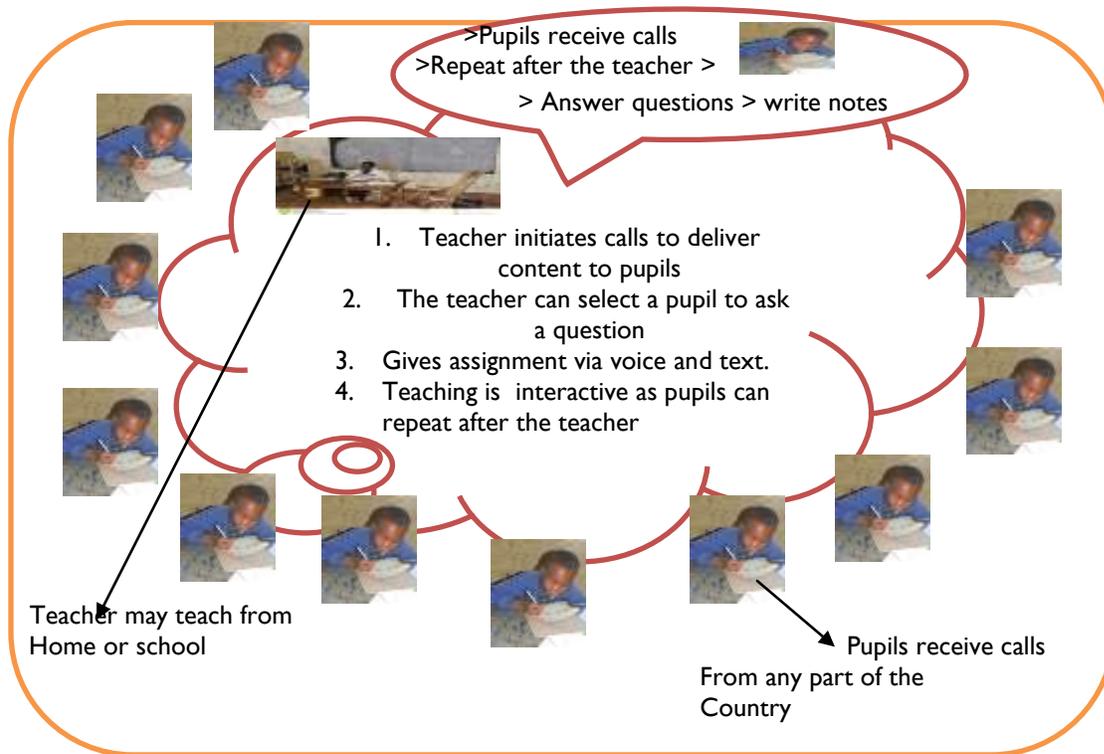
Pupils receive calls
From any part of the Country

Figure 1. Design by the author and learner and teacher from online sources

On Net Model discussion

Considering the challenges Kenya is facing as a result of numbers (MoE, 2020) in public schools and the challenge of social distancing, the model is suitable as it uses voice technology that is extensively available in most parts of Kenya (CA, 2020). Adoption will be swift since no new skills are required to competently participate (Rogers E.M, 2003, Davis, F.D. 1989) and it is affordable in that cost of delivery is on the school and parents do not have to incur credit to participate. It uses devices that users already have and can be acquired locally and affordably. Consequently content will be delivered by teachers who are conversant with learner's competence levels and entrusted with pupils by the Ministry of Education (Davis, F.D 1989). However parents may need to purchase a simple phone for their children if they do not have one which will need to be charged as required. This can be done early in advance and where there is no connectivity charging can be done from centres where the last mile connectivity is available as well as using solar panels in rural areas popularly referred to as M-kopa[2] a partnership between Safaricom and m-kopa (www.m-kopa.com) that allows customers to pay daily instalments for solar power through small m-pesa transactions.

Advantages of MLS

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[2] *M-KOPA* Solar in *Kenya*, provides solar energy to off grid customers on a 'pay-as-you-go' model making it possible for poor Kenyans to access solar power in their homes

The proposed On-Net model does not require internet which has been the greatest challenge to online learning. On Net teaching is particularly feasible because parents will only require buying a simple phone popularly known as 'Mulika Mwizi' in Kenya if they do not already have one and a line. The TSC has indicated readiness to support Kenyan learners with their over 240,000 teaching staff. The proposed model limits contact of learners with either the teacher or fellow learners and teachers may teach from their homes or if need be the staffroom if spacious enough as they are in a position to adhere to the COVID 19 guidelines as well as share phones. It is also possible to make arrangements for teachers to use their personal phones from home. With the community learning concept, and in line with COVID 19 protocols, learners are then mapped to the nearest schools for practical lessons as well as examination centers for the 2020 candidates.

Required

Telecommunication Company
1. A subsidized tariff to enable teachers deliver content
2. Provide Sim-cards for all learners and teachers
3. Facilitate bulk calls for the content delivery lines so that the teacher can call several learners at once and reduce the time of accessing learners and the cumbersomeness of calling each pupil

Parents
1. Parents will pay an initial cost of purchasing a simple phone at a cost of less than Ksh 1000 popularly known as 'Mulika Mwizi' in Kenya.
2. Charging of phones

Outcomes
1. Children at the basic education level will be taught by their real teachers and complete the syllabus
2. Children will not repeat classes and for that reason avert catastrophes like suicide that have been witnessed before after parents asked their children to repeat
3. Candidates will be well prepared to sit their national exams from examination centers close to their homes and observing social distance and other measures through the community learning initiative
4. Proper transition from class to class will avoid a crisis at the time normal learning resumes
5. Practical lessons for secondary schools will be conducted by mapping candidates to the nearest schools
6. Teachers will be able to guide the learners appropriately as they know their weaknesses and strengths
7. Parents are not required to pay money towards delivery of content and therefore children have no reason to miss class
8. Kenyan teachers who are currently not in school will be able to resume teaching and avoid stress related complications
9. The learning institutions will not be disserted and facilities will be not wear due to negligence
10. The model can be used to address teacher shortage as well as learning in hostile environments like terrorist prone zones as well as learning for special groups that include teenage mothers and learners with disabilities ensuring equity

Sustainability

1. Over 300,000 teachers will subscribe to the subsidized education tariff per day which will be used to teach many lessons
2. The solution will continue post COVID 19 as this sorts out challenges of syllabus completion and revision that usually takes place during holidays
3. Learners in areas with teacher shortage or teachers leave due to terrorist hostility will no longer be disadvantaged as learners can be mapped to a Centre where teaching is done

Conclusion

The negative effects of school closure are enormous. Keeping children out of school may lead to loss of already acquired knowledge. Reports of early research on effects of COVID 19 on school going children include teenage pregnancies, child marriage, sibling sex, child labor, child crime, drugs among others. In addition statistics show that repeating of classes causes emotional distress in children and suicide cases have been reported in Kenya. Teachers have also been reported to suffer stress related complications. While parents with resources have opted for online classes and other solutions and will definitely have their children complete the respective syllabus in the current class and therefore have their children proceed to the next levels, children whose parents may not afford alternative learning solutions may find themselves at a disadvantage. Consequently parents with candidates in 2020 and who may have opted for the alternative solutions and their children have completed the syllabus may find themselves in a dilemma if KNEC fails to conduct the 2020 national exams. It will be difficult to persuade learners who have completed the syllabus to repeat classes, and if a solution is not found, these children may lose interest in learning. Our solution has the potential to avert this situation as well as provide a long term solution to access challenges that have led to the education gap in remote areas, terrorist prone zones, refugee camps, learners with disabilities and the poor. We therefore, humbly prevail upon the Ministry of Education to embrace our solution, put back learners to class and restore hope in Kenyan children.