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Transforming Education
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Remote Learning among Vulnerable Families during COVID-19 in Rwanda: Opportunities, Challenges and the Potential for Sustainability

A TESF COVID-19 Research Report

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Abstract

At the outbreak of the COVID-19 pandemic, every country proactively adopted measures to protect its citizens from COVID-19 related risks. In different parts of the world, schools were closed and students sent home without well thought plans regarding how learning would continue. Rwanda opted for the mass school shut-down option by closing all schools effective from 16th March 2020. Subsequently, the Government of Rwanda, in collaboration with its education partners, devised strategies to promote remote learning in order to minimize the repercussion of COVID-19 on the Rwandan education system. These strategies included the implementation of remote learning, but this option required online learning infrastructure and related equipment like TVs and radios. The relatively affluent families hired private tutors to help children learn at home, whilst children from poor families went without having access to any forms of online learning. They barely had access to scripted lessons developed by Rwanda Education Board (REB) that were aired on radio and broadcast on TVs. It was an unfortunate situation that exposed pre-existing inequalities in the education situation, and something had to be done to leverage access to educational opportunity.

REB and other developing partners initiated a series of interventions to ensure that even poor families were provided with basic infrastructure and learning materials to facilitate learning during the time school were closed. Against this backdrop, the University of Rwanda through the Transforming Education for Sustainable Futures Network Plus (TESF) procured solar powered Radios that were distributed to vulnerable families to enhance access to scripted lessons and mitigate COVID-19 learning disruptions. This paper reports on this intervention and explores the relevance of this support and education stakeholders’ perceptions about the utility of solar powered radios in the context of school lockdown and beyond. It further analyses the opportunities that were negotiated for children’s smooth learning, and the challenges they encountered during their remote learning. The paper explores potential for sustainable remote learning as an option for addressing inequities to education, especially during COVID-19 and other related pandemics.

Introduction

On 31st December 2019, the Government of China reported a cluster of cases of pneumonia of unknown cause in Wuhan, Hubei Province. A new virus was later identified, and on January 30, 2020, the Director-General of World Health Organisation (WHO) declared the coronavirus disease 2019 (COVID-19) outbreak a Public Health Emergency of International Concern (PHEIC) under the International Health Regulations (IHR) 2005. On 11 March WHO declared COVID-19 a pandemic (WHO, 2020b).

The COVID-19 pandemic had unprecedented repercussions on the economy, health and social service sectors, including disruptions in the education systems. Many countries closed their schools in an attempt to contain the spread of the COVID-19 virus. Consequently, many countries started facing the issue of adapting a system of education that was mainly built around the face-to-face teaching process and physical classrooms (OECD, 2020). To ensure that learning remained relatively uninterrupted during the unexpected COVID-19 crisis, the remote learning was adopted in different countries, but this change required enormous online teaching and learning resources and new skills, especially among teachers.

The COVID-19 crisis has amplified the inequality in education systems based on students' unequal access to convenient learning environments at home, lack of access to supportive devices like TV, Radio and computers (Bryant et al, 2021). However, the crisis has also stimulated innovative approaches to the teaching and learning process (United Nations, 2020) The mass school closure and the strategies adopted for the continuity of learning process had a significant impact on learners from vulnerable backgrounds who were already deprived of convenient learning environments in many education systems. For many countries that had never used the online teaching and learning options, the changes have been implemented with relative success (Meinck et al, 2022). Amidst such an unpredictable learning environment, there have been questions regarding how children from vulnerable families can be supported to have the basic infrastructure to continue learning. In addition, there have been questions regarding how education systems can be equitable and inclusive to the various student populations.

Dealing with COVID 19 crisis in Rwanda education system

Prior to COVID-19 crisis, Rwanda was among countries that recorded substantial progress in terms of access to education (MINEDUC, 2020a). The net enrolment rate of primary-age children had increased year-on-year to near universal enrolment, with a reported rate of almost 95% in 2018/19 (MINEDUC, 2018). Building from the lessons learned from the Millennium Development Goal (MDGs), Rwanda had continued to embrace the Sustainable Development Goals (SDGs) to frame her agenda for development. Whereas Rwanda was set to achieve high results, the school closure imposed by COVID-19 affected nearly 3.6 million children, of which 2,512,465 are primary-age students, including 1,243,469 girls and 1,268,996 boys, 1% of which are known to have a disability or learning difficulty (Kapur, 2020). This implies that school closure has had push back on the achievements and plans to alleviate rampant educational challenges like poor learning outcomes in primary schools.

As part of its health response to mitigate the impact of COVID-19, Rwanda closed schools effective March 16, 2020. According to Rwanda Ministry of Education (MINEDUC, 2020a), an estimated 3,574,070 students were out of school due to school closure, amounting to nearly 30% of the national population. The Government of Rwanda (GOR) immediately placed significant effort into ensuring the continuity of learning. This was through devising other teaching and learning alternatives, most of which had not been used before. These included teaching and learning through radio, television and Rwanda Education Board e-learning portals and social media platforms, as well as telephone helplines and text message services. Although such options achieved relative success, the most vulnerable families did not have any opportunity to learn when schools closed because they did not possess radios or TVs to follow online lessons. According to the Association of the Development of Education in Africa Report (ADEA), 77% of the Rwandan households has radio coverage, and over 70% mobile phone reach, while internet coverage was between 11% and 17% (ADEA, 2020, p.8). It should be noted that having telephones within the household did not translate into children having access to such phones as a means to access scripted audio lessons. In most cases, such telephones are mobile phones, which are owned by family heads and not accessible to children. In the context of COVID-19 and related online learning context, lack of radios, TVs, and other support infrastructure has had negative consequences on children's learning time and skills acquisition.

To provide guidance on how to respond to COVID-19, the Rwanda Ministry of Health through the Rwanda Biomedical center (RBC) developed the COVID-19 National Preparedness and

Response Plan of the Government of Rwanda (RBC, 2020). Based on the RBC's National response plan, The Ministry of Education developed a COVID-19 response plan entitled "Keeping the Doors Open for Learning: Response Plan of Ministry of Education to the COVID-19 Outbreak" (MINEDUC, 2020a). The MINEDUC's plan aimed at ensuring that learning continued through online and other technologically based options. The plan contained five objectives, and the fourth one is to "protect and provide for vulnerable populations, including children with disabilities, girls and children from lower wealth quintiles" (ibid, p. 5). In this document, attention is drawn to the need to support vulnerable children as indicated in its fourth objective and its corresponding rationale, summarized in five points (MINEDUC, 2020a, p.5).

Figure 1: The objectives of the Education COVID-19 Response Plan: Source: MINEDUC (2020a, p.5)

- Objective 1:** Ensure continuity of learning for all students in Rwanda
- Objective 2:** Ensure that schools reopen with appropriate services and measures in place and that students re-enter the formal education system
- Objective 3:** Ensure the health and safety of students, teachers, and other education personnel
- Objective 4:** Protect and provide for vulnerable populations, including children with disabilities, girls, and children from lower wealth-quintiles
- Objective 5:** Prepare the resilience of the education

TESF-Funded Radios for Vulnerable Children

Addressing learning disruptions during school lockdown required inter-sectorial partnerships. As such, the Rwanda Government encouraged individuals, developing partners and the private sector to proactively respond to the various development challenges, including disruptions in the education system. In the same spirit, Rwanda Education Board through its monthly meetings with development partners requested support in procuring radios for vulnerable families so that children from these families could

also have access to online lessons. Transforming Education for Sustainable Futures (TESF), a Global Challenges Research Fund Network Plus (www.tesf.network) heeded this call, and through the University of Rwanda, provided funds to procure solar powered radios. These solar powered radios were provided to vulnerable families with children enrolled within basic education. This came to be the TEF Rwanda COVID-19 project.

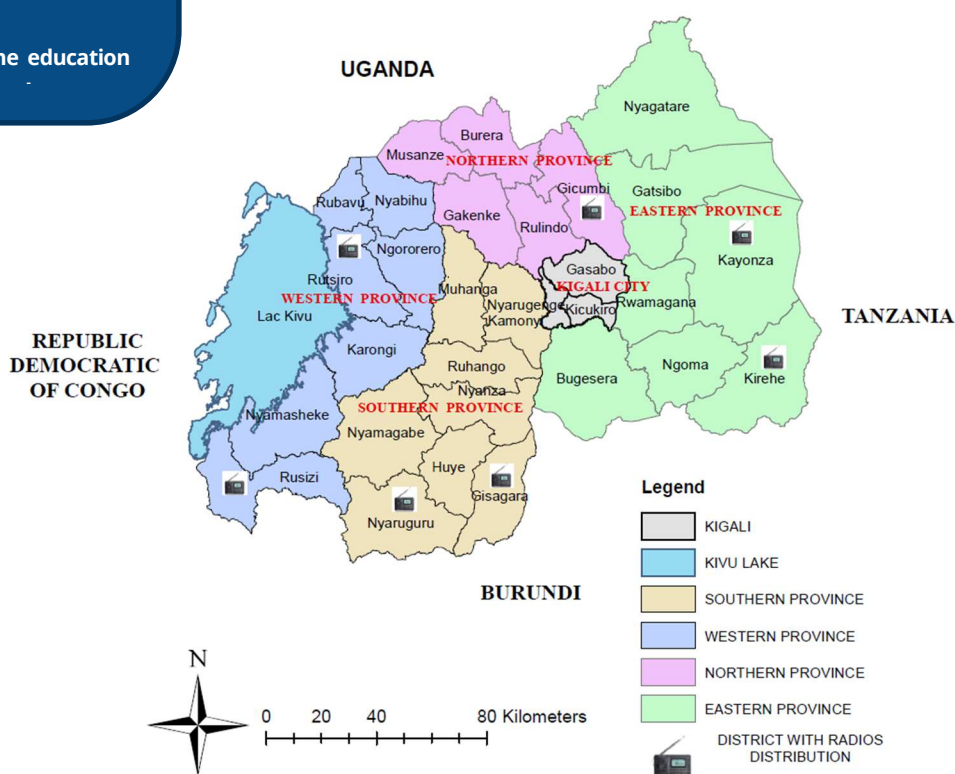
In order to support and capture the learning experience of learners from vulnerable families during COVID-19, the research was divided into two components: the intervention component and the research component.

Research Methodology

Intervention Component: Procurement of Solar Powered Radios

The first phase was a practical intervention to procure solar powered radios which were provided to children from vulnerable families. Children had spent almost a year without having any chance to access broadcast radio lessons. This exercise was spearheaded by the University of Rwanda in collaboration with Rwanda Education Board and the Ministry of Local Government (MINALOC) which helped with the identification of the most vulnerable families in each of the seven districts where the radios we distributed.

Map 1: Distribution of radios in seven Districts of Rwanda



A local NGO called Inspire, Educate and Empower Rwanda (IEE) also helped with all the procurement related protocol. IEE is a key partner with REB and helped expedite the process.

The Intervention component was organized in October and November 2020. It consisted of the distribution of 2,467 solar powered radios to enhance remote learning and access to public education messages among needy families. These radios were distributed to 2,467 vulnerable families from 7 districts from the four provinces of Rwanda: Kirehe and Kayanza in Eastern Province, Gicumbi in Northern Province, Gisagara and Nyaruguru in Southern Province Rutsiro and Rusizi in Western Province. An equal number of 352 solar powered radios were distributed in each district.

In order to ensure the effective distribution of the procured radios, the University of Rwanda, (UR), Rwanda Education Board (REB) together with Inspire, Empower and Educate (IEE) in collaboration with District officials, established a beneficiary selection criterion and jointly distributed the radios. The process involved the following steps:

- (i) the concerned District designated an official in charge of identification of vulnerable families;
- (ii) the designated person at the district provided the list of eligible families with full identifications to Rwanda Education Board;
- (iii) Rwanda Education Board and University of Rwanda with the support of IEE field staff developed the distribution schedule and delivered the radios to the approved list and developed a schedule to deliver the radios in collaboration with District staff. The solar powered radios were distributed from October to November 2020.

Before receiving the radio, recipients were instructed on how to use them. Parents were given explanations on the purpose of the assistance they were being given, which is to support the education of children within the vulnerable families and parents to listen to messages on how they can support their children's education and other relevant public education messages. In addition, they were informed about the research component of the project that would be implemented later and requested to be involved sharing their experiences on how the radios were used in learning and any learning related challenges.



Solar Power Radio Distribution

Conducting Research on the Intervention

The second phase of the Rwanda COVID-19 project involved conducting research about how the provision of solar powered radios empowered vulnerable children to follow online lessons that were aired on radio stations and to explore how the online learning option can be sustained. The research component was organized in April through September 2021. It was expected that 6 months after receiving solar powered radios, families would

have acquired experience in using the radios to support their children in remote learning.

This research was guided by three objectives:

- To take stock of the educational strategies of empowering vulnerable community members for the sustainability of remote learning;
- To assess the individual and community responses to COVID-19, their impact on the sustainability of remote learning with emphasis on learning of vulnerable groups;
- To identify the education related challenges encountered (during COVID-19 lockdown period or during school reopening and beyond) and lessons learned from those challenges;

In view of the aforementioned objectives, this study sought to respond to the following five research questions:

- What opportunities and challenges do vulnerable communities face as they strive to support their children's learning and also provide basic needs?
- How can existing local community structures be empowered to proactively support children's learning during and post COVID-19?
- How has the formal education system responded to the pandemic, and with impact for disadvantaged groups?
- What is needed for education institutions to promote access to learning among the most vulnerable groups children?
- What lessons can be drawn from this COVID-19 research for future collaboration and capacity mobilization efforts?

Research Methods

A mixed methods approach was used in this study, combining both quantitative and qualitative data. On one hand, there was need for generating quantifiable data to illustrate the trends, but importantly, stakeholder's experiences on various themes from the key research questions needed to be captured. For the latter, this study used key informant interviews. In addition, the research team encouraged a sample of vulnerable parents to freely narrate their experiences relating to their children's access to online learning. Thus, this study involves simultaneously collecting both quantitative and qualitative data, merging the data, and then using the results to make further inquiries to have an in-depth understanding of the strategies of empowering vulnerable communities for the sustainability of remote learning.

Sampling Strategies and the Sample

Considering that this study is limited to the vulnerable communities who have difficulties in accessing education, the target population was of three types: (i) parents from vulnerable families that have school age children, (ii) the teachers and (iii) the local education leaders who are in charge of education in the

area where those school-age children live. The research population therefore consisted of parents from vulnerable families, teachers, local education leaders and located within seven selected districts in which solar powered radios were distributed.

The selection of parents from vulnerable family was based on the following criteria: (i) being a member of vulnerable family (ii) having school-age children and (iii) having received a solar powered radio to support the study of those school-age children during COVID-19. Parents were randomly selected from the original list that was used during the radio distribution exercise. Local education leaders were randomly selected from the Sector Education Officers (SEOs), in the seven selected districts following simple random sampling methods. Teachers and education partners were selected purposely based on whether or not they interact with children who received radios. In total, 268 parents from vulnerable families, 12 teachers, 66 Sector Education Inspectors (SEIs), and 7 District Education Directors (DDEs) participated in the research.

The structured questionnaire was addressed to the parents. An interview guide was developed for Sector Education Inspectors and District Education Directors. Also, a focus group discussion was organized for selected teachers and school Head Teachers. To adhere to Government measures for the prevention of COVID-19, data was collected using telephone and recorded through the field data collection tool, KoBoToolbox. Descriptive statistics were used in data analysis and information sources were triangulated with data from key informant interviews. One workshop was also organised and a range of education stakeholders were invited, including a sample of parents who shared their practical experiences regarding the use of the provided solar powered radios in supporting their children's learning during the COVID-19 school lockdown.

Findings

This section discusses finding from the different categories of education stakeholders including education officials, parents' teachers, and Head Teachers the opportunities and challenges associated to online learning during COVID-19.

Community and family vulnerability vis-a-vis remote learning

Before COVID-19, most Rwandan communities barely knew or heard about remote learning. This was true especially for basic education settings. To the most vulnerable families who already experienced enormous challenges regarding children's

education, the outbreak of the pandemic, the eventual closure of school and the emergence of remote learning were triggers to desperation. To such communities, school offered much more than teaching. To them, school was perceived as a safe zone environment where children were taught but also fed through school feeding programs. Families experienced enormous challenges including poverty, social isolation and child labor (Masters et al, 2020). The COVID-19 crisis became a turning point as it created a context and a situation in which all children were suddenly obliged to move from the old habits of knowledge transmission to the new way of teaching and learning, which, among other things, exposed existing inequality to education access because vulnerable families did not have access to remote learning facilities like radios and TVs. It should also be noted that COVID-19 affected all other aspects of the families' economic wellbeing and parents' attention was focused to finding basic needs like food amidst strained economic activities. Although the Rwandan government efforts to ensure that student accessed remote learning, vulnerable families still faced unique challenges.

Opportunities and challenges for remote learning during school closure

As a short-term solution, the Rwanda Education Board, in collaboration with the United Nations Children's Fund (UNICEF) (Mugiraneza, 2021), World Vision Rwanda (World Vision, 2020) and other development partners, provided scripted lessons for primary and secondary school students. The scripted lessons were elaborated based on the competency-based curriculum (Mugiraneza, 2021) for broadcasting through radio stations, including Radio Rwanda (Houser 2020) and Radio Inkoramutima (Nkurunziza 2020). In Rwanda, most secondary school lessons continued through television with support from Rwanda's education development partners. However, it was not easy for many families to follow the lessons since they do not have access to television. As shown in Rwanda's 2018 poverty report, the ownership of televisions stands at 18% of non-poor household. The situation is more complicated in the vulnerable communities because this report indicates that approximately 1% of poor households have access to television (NISR, 2018). Responses collected during this research show that only 1.23% of the parents from vulnerable families declared to own a TV set in addition to the solar powered radio they received. Therefore, children's access to many remote learning lessons in different subjects was affected by the low rate of television availability among most families.

Table 1: Lessons broadcasted on TV and radio by level of education during COVID-19 lockdown

Level	Subjects
Pre-primary level [From Nursery 1 to Nursery 3]	<ul style="list-style-type: none"> • Numeracy, • Discovery of World, • Kinyarwanda, • Creative Art and Culture, • Language and Literacy, • Social and Emotional Development
Primary level [From Primary 1 to Primary 6]	<ul style="list-style-type: none"> • Social and Religious Studies, • Kinyarwanda, • Science and Elementary Technology • English • Mathematics
Lower Secondary Level [From Secondary 1 to Secondary 3]	<ul style="list-style-type: none"> • Mathematics, • Biology, • Chemistry, • Physics, • Geography, • History • Entrepreneurship, • English, • French, • Kinyarwanda, • ICT, • Literature, • Swahili and • Computer Science
Upper secondary level [From Secondary 4 to Secondary 6]	<ul style="list-style-type: none"> • Humanities: Geography, History, General studies, Economics, Entrepreneurship • Languages: French, Kiswahili, Kinyarwanda, Literature in English • Sciences: Physics, Chemistry, Biology, Mathematics, Computer Science • Teacher Training Centers (TTCs): Foundations of Education, SST, Integrated Science, Languages

Source: Adapted from MINEDUC (2020, a p. 9)

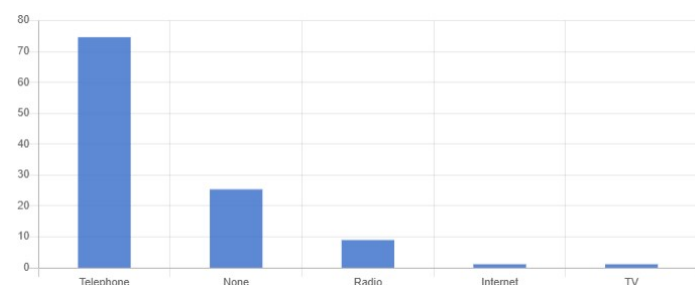
Teachers who participated in the focus group pointed out that pre-COVID-19 conditions created relatively fair and similar learning conditions because children had teachers who attend to them physically. However, they noted that the inequality to opportunities that pre-existed in the education system were amplified by the COVID-19 crisis. As expressed by one school teacher:

"The online learning program worked only in private schools, because it required some materials like computers, smart phones, internet, through which teachers could communicate with the children. Most children from public

schools did not have these. In private schools, teachers could avail learning resources online and recommend parents to download and print them for their children's use.” (School teacher)

The observation of teachers was corroborated by the responses from parents when asked about the kind of facilities they had at the beginning of the COVID-19 crisis. As indicated in figure 2, only 9.87% of the interviewed parents said they had a radio, 1.29 % had a television and only 1.29% declared to have access to internet. On the other hand, 24.18% of the respondents did not dispose any of the tools required for remote learning.

Figure 2: Learning facilities owned by the interviewed families at the beginning of COVID-19



Source: Primary data, 2021

Despite the existence of inequality in learning opportunities pointed out by respondents, it was also observed that the Government’s responses toward COVID-19 pandemic have, unintentionally created different learning opportunities for the children from vulnerable families. For example, interventions like remote learning through lessons aired on radio, learning questions provided through telephone texts, and free access to e-learning platforms were only accessed by families that primarily had these facilities. To the many vulnerable families, children’s education during COVID-19 was halted until the re-opening of schools when significant learning loss had already happened.

Telephones and their limitations in the context of remote learning

The Government of Rwanda, through the Ministry of Education, has negotiated with the local telephone operators (MTN and AIRTEL) to allow the access to questions related to lessons broadcasted on radio and television. The students were supposed to dial the USSD code *134# in order to receive the questions through phones. In that framework, 76.12% of parents who answered the questionnaire declared being aware of this opportunity. However, the majority of parents declared that their children have never been involved in the learning activity provided through telephone. In general, data revealed that

75.82% of households own a cell phone. These parents also pointed out that although they could have let their children use their phones, it was difficult because it was often needed for other family businesses, especially in family communication. In most cases, a telephone was owned by a family head and was often not a smart phone. Given that family heads mainly spend their days in the field, the possibility that a substantial number of children may have had access to educational texts is, in itself, insignificant.

Free access to e-learning platforms was never free to the most vulnerable

The Republic of Rwanda and local internet service providers (Airtel and MTN) agreed to enable free access to education content on three e-learning portals: (a) Rwanda Education Board (elearning.reb.rw); (b) University of Rwanda (elearning.ur.ac.rw); and (c) Rwanda Polytechnic (elearning.rp.ac.rw). These portals were supposed to allow learners to continue learning during school closures. The collected data show that 72.54% of parents from vulnerable families were aware of the existence of the opportunity. However, considering the level of internet access for vulnerable families which was 1.12% of respondents, a fair conclusion would be that a significant majority of families did not benefit from this support. In addition, it has been noted that the content of the e-learning portals was not sufficiently interactive to enable engaging and effective learning even for those who have access to internet (Mugiraneza, 2021). During interviews, the majority of respondents declared that they have never taken advantage of this opportunity. Therefore, in view of the aforementioned reasons, the free access to different online learning platforms was never free at the end of the service users, who were, in most cases children from vulnerable families who neither had the facilities, the motivation, nor the skills to use ICT facilities.

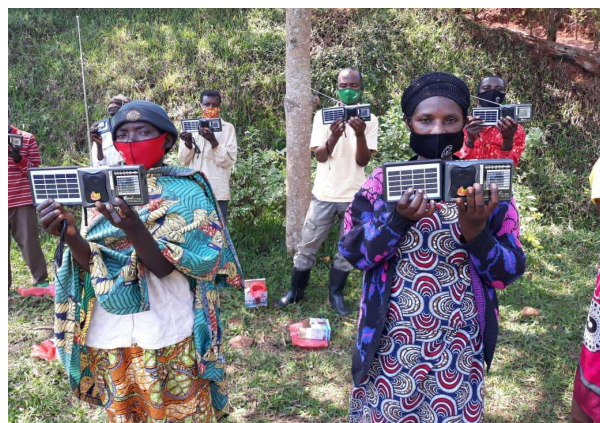
Intensive back to school campaign

The government of Rwanda had made significant achievements in terms of access to the education system. However, the COVID-19 crisis presented enormous challenges in all areas of development. Many experts feared that the “school closure and the loss of some family incomes could keep children out of school indefinitely” (Grahl, 2021). To avoid that, the Government of Rwanda organized a wide back-to-school campaign which included all local leaders. The provided solar powered radios helped them to gather information on the process of school reopening and the requirements for the safety of their children as they went back to school. 94.26% expressed that through the distributed solar powered radios, they received information on the school reopening process and timelines. This helped them

prepare their children for school reopening. In Rwandan context, some other means were also used including: Television, Short Message Service on mobile phones and community mobilizers (*Abahwituzi*). All these alternative back-to-school campaign communication channels helped to mobilize children who had otherwise been affected by prolonged school closure, such as being involved in child labor, teenage pregnancy and lack of physical and psychological safety.

Solar powered radios as an alternative channel for information acquisition

The report elaborated by Laterite research firm (2020) shows that only 43% of teachers in public and government-aided schools were supporting students with remote learning. However, this support was only possible for families that had basic facilities like telephones, and only when the adults were at home. For most vulnerable families, these conditions were barely possible. The Laterite report also note that teachers' support focused on three dimensions: mentoring parents and guardians; answering questions from students via messages or voice calls; and providing guidance on how to use WhatsApp or access learning materials from Google drives (Laterite 2020). Again, this kind of support required internet availability at home which was impossible for vulnerable families.



Parents display solar powered radios

Although solar powered radios did not empower children to access all remote learning materials in different formats such as e-learning platforms, they were an important channel for parents to be familiar with key education messages that were critical in the context of COVID-19. However, during interviews, the beneficiaries of provided radios noted that apart from being aware of the existence of the opportunities as indicated in Table 1, they had never been practically involved in mentoring activities or heard about anyone who has been involved in such activities. To most parents, it would have been better to call a teacher for support, but it would require the parents to be able to help

children after being mentored. Therefore, having received information about such mentorship opportunities and not being able to benefit from it presents another key challenge to vulnerable families. It has been noted that distance learning is perceived as an additional burden on parents or families economically, psychologically, and socially (Laser et al, 2022; Boongaling et al, 2021). Besides, some parents/guardians lack time and show inability to become teachers for their own children by helping them to master the material, and to complete the assignments or tests given by their teachers (Garbe et.al, 2020). In general, radios helped families to access different education related information and other key messages beyond listening to audio lessons.

Table 2: Parents' awareness of educational opportunities in Rwanda during COVID-19 crisis

Opportunity	Total respondents	Respondents who are aware	% of respondents
Lesson provided by REB on Radio	268	260	97.01
Questions provided through the USSD code *134#	268	204	76.12
Information on back-to-school campaigns	268	254	94.78
Nutrition support through school feeding programmes	268	233	96.94
Distribution of school materials	268	164	61.19
Educational Support to vulnerable people	268	180	67.16
Free access to REB e-learning platforms through telecommunication companies (MTN & Airtel)	268	199	74.25
REB youtube channel	268	167	62.31
Mentorship activities for parents and guardians	268	201	75
School social platform (WhatsApp, facebook, etc.)	268	183	61.19

Source: Primary data, 2021

All the aforementioned key messages were critical during school lockdown and post lockdown. It should also be noted that having information about the activity and engaging in the activity may mean two different things. For example, whereas having information about school re-opening and related conditions may have helped parents and children prepare and hence proved to be practical information, knowledge about WhatsApp

opportunities may not have had practical relevance to their situations.

Education stakeholders' involvement in remote learning during COVID 19 school closure

Until the onset of COVID-19, remote learning was not a common form of learning in basic education. For uptake of this new innovation, it required that different education stakeholders in their respective positions and capacities got involved. This study sought to understand who was involved in remote learning and how.

As it was noted by teachers who participated in focus group discussion, the purpose of the online learning was to keep the children in the mood of school spirit and also for students to make modest progress on the curriculum content so that they were not completely lost when school re-opened. The responses from teachers indicated that community members (parents, children, local leaders, etc.) perceived the need for online teaching-learning as the main option for continuation of learning but also noted that it was practically difficult due to lack of support facilities.

The collected data show that children were at the forefront in demanding opportunity for continued learning and keeping parents on pressure for support as indicated by 44.4% of parents who expressed that they got involved in remote learning process because their children asked them to assist. Data also show that other members of the community were highly concerned with the disrupted learning of children from vulnerable families as they encouraged parents to intervene and provide support. These include Village Leaders "Imidugudu" (21.27%), the teachers who teach in local primary or secondary schools (20.52%), the Head Teachers of local primary or secondary school (19.78%) and executive secretaries of Cells "Utugari" (15.3%).

That encouragement was found to be vital since some of the parents, due to their limited level of education (33.48% of respondents declared that they did not attend school, themselves) and availability, were not conscious of the extent to which their involvement can affect their children's learning process. Therefore, they needed to be motivated and encouraged to contribute to the learning process regardless of their individual capacity and availability.

Meanwhile, collected data indicated a low involvement of other local leaders as their frequency of intervention was below 10%. They include but are not limited to Sector Education Officers (8.21%), Executive Secretaries of Sectors (6.34%). The District

Education Officers (Including District Education Directors and District Education Officers) recorded the lowest score with 5.6%. The issue of local education officers' involvement was confirmed during an interview with Sector Education Officers (SEOs). Nine out of sixty-six (13.6 %) SEOs who were interviewed declared that they did not have time to follow up the remote learning in their respective Sectors. When asked the type of assistance they have provided to children from vulnerable families, forty-two out of sixty-six (63.6%) interviewed SEOs declared that they have never provided any assistance. In the meantime, all interviewed District Education Directors declared that they closely monitored the situation although they did not personally conduct field activities of assisting the learning process of children from vulnerable families.

Table 3: Categories of education stakeholders who motivated parents to support children during remote learning

Educational stakeholder	Frequency	Percentage of respondents
Children	119	44.4
Teachers who delivered lessons on radio & TV	74	27.61
Village Leaders	57	21.27
Teachers who taught children at local primary or secondary schools	55	20.52
Head Teachers of local primary or secondary schools	53	19.78
Executive Secretaries of Cells (Administrative Unit-Akagari)	41	15.3
Sector Education Officers	22	8.21
Umuhwizi w'Umudugudu (Village education Councillors)	20	7.46
Sector Executive Secretaries	17	6.34
District Education Officers	15	5.6

Source: Primary data, 2021

Some parents (27.61%) reported that apart from being motivated by their children who were increasingly asking for assistance or the local community members, they were also encouraged by the teachers who provided lessons broadcasted on TV or radio. In fact, at some points, the teachers providing lessons on radio and TV could ask the children to write something in their notebooks and show the results to the person around them or they could ask children to pronounce some words and let the person around them to correct their pronunciation. In that case, a certain number of parents (3.28 % of the respondents) reported that the situation was sometimes embarrassing, as they could not have the required skills and competences that enable them to get fully involved in their children's remote learning process.

In addition to those initiatives and support provided, there was also the government's hand, through its partners, which reinforced the new teaching-learning that was in place. For instance, in the country status report on delivering education at home in Africa member states amid COVID-19 pandemic, Rwanda reported that development partners were supporting all aspects of the MINEDUC and REB COVID-19 response. The Rwanda Education Board (REB) was:

“working with development partners on a ‘keeping doors open’ for schools in Rwanda, a part of which is the TV/Radio programme. Parents and community are engaged through government directives from the Ministry, REB and other government ministries, including the Ministry of Health,” ADEA (2020).

This clearly shows how much effort was deployed to make sure that teaching and learning did not stop because of the COVID-19 pandemic. It also illustrates how teaching and learning cannot be successful unless all the key stakeholders actively play their respective roles in supporting it.

Forms of learning support provided by vulnerable families during the lock down

Collected data shows that the majority of parents from vulnerable communities do not have required skills, competences and knowledge to assist their children during the remote learning. Many of them (32.46%) did not attend formal schooling at all, meaning that they do not know how to read and write. The majority of those who attended school did not go beyond primary education (59.33%) and these too don't have skills to provide substantial support. A few of the parents attended secondary education (4.85%) and technical & vocational training (2.99%). In most cases, this lack of skills was compounded by extreme poverty and lack of basic needs so much so that prioritization of education issues during COVID-19 was not common.

The parents' ability to support depended on multiple factors. The findings identify a range of strategies which families used as described below:

Learners' self-supervision during remote learning

Strategies devised to ensure continuity of learning during school closure necessitated learners to play a role in their own learning with or without the support of teachers, guardians and or parents while undergoing radio, TV-based learning, or when using printed materials.

In this study, it was established that during remote learning there were three situations in which self-supervision (equated to self-regulated learning) was applied.

- i. When the learners felt that the lesson was not difficult and they did not need assistance
- ii. When the family members were not available to provide the needed support
- iii. When the family members did not have the required skills and competences to support the learners

When asked how they assist their children during lessons broadcasted on TV and radio, the majority of parents (64.55%) indicated that their children organize themselves at home and work individually. Also, 33.58% of the parents said that their children learn with guidance of another person who could be a family member, a teacher in their neighborhood, or a neighbor. This means that learners' self-supervision during remote learning does not rule out the need for the physical presence, guidance and support of a teacher, parent, guardians, and peers. As earlier indicated, such support systems are uncommon, especially in rural settings where most of the concerned families live.

Parental support during remote learning

Various stakeholders including parents and guardians as key stakeholders had a role to play in ensuring that their children continue learning despite being away from schools. Borup et al (2014), Feng & Cavanaugh (2011) highlight the contribution of parents to the success of learners in a virtual learning environment. On the other hand, parents are challenged by the new and unfamiliar roles and responsibilities they are required to take up in supporting their children's learning (Liu et al., 2010). In this study, parents' practices, struggles, and experiences in monitoring their children during remote learning were explored.

Results indicated that majority of the parents (73.13%) reported to have supervised the learning process of their children even when they did not understand the content of subjects that were being taught. This is in tandem with Selwyn et al (2011) who point out that some parents consider supporting their children's learning as an additional burden. The key challenges experienced by parents as revealed by Sorensen's (2012) include keeping their children focused on learning activities by creating learning space and time.

Parents stated that they were aware that even if they could not provide appropriate pedagogical support, at least their presence was necessary in ensuring children's concentration, discipline and

attention during remote learning in the absence of teachers' physical presence. Parents reported that the motivation to support their children during the radio or TV broadcasted lessons was mostly encouraged by their children who kept asking for assistance (44.4% of respondents), and by the teachers who provided lessons on TV or radio (27.6% of respondents). However, some of the respondents noted that they could not use this strategy, either because they do not have time to supervise their children (14.5%) or simply because they do not have the required competences and skills (19.03%).

Reports from other studies, including those by development partners intervening in education such as Building Learning Foundations program (BLF 2020) and Soma Umenye program (Mugiraneza, 2021) point out that some children got support from their parents and others could not. The reports observed that one of the most important forms of support required by children during lockdown was ensuring the availability of required materials for lessons that were being broadcasted through the radio and the television. However, the same reports noted that many children could not receive this support in addition to the much-needed assistance on learning activities during lessons and homework (Mugiraneza, 2021).

Family members and teachers support remote learning

Responses from parents on how family members and teachers supported children during remote learning varied depending on the nature of existing family set ups. In some cases, family systems involve older children who are at the advanced level of education (Primary, Secondary or University). The majority of the parents (62.31%) expressed that their children were assisted by the family members while 36.57% declared that their children had never received assistance from any family member. This situation exemplifies how a significant number of children may not have received any form of support during lock down even after receiving radios.

A teacher's physical presence creates human bonds that are essential for successful learning hence cannot be replaced with virtual presence (Benlounissi, 2020). The study findings indicate that during remote learning, parents asked teachers from a local school to assist their children during remote learning. Laterite (2020) notes that compared with older teachers, the *“younger teachers were more likely to provide support with home-based learning”*. However, this was often done in the form of private coaching at a fee that most families may not have afforded. Data collected shows that only 10.07% of parents from vulnerable families noted that their children were provided with the

assistance of the teacher from the local school while 87.31% have never received such an opportunity.

Some teachers found it difficult to adapt to online teaching so abruptly due to lack of adequate digital skills hence a loophole in the quality of online teaching across schools (OECD, 2020). During interviews, it was noted that the teacher's monitoring of remote learning was not planned and systematic. In many cases teachers who were involved in such activities had family relations with the learners whom they supported free of charge or charged a coaching fee. It is therefore fair to conclude that teacher support to vulnerable children during school lockdown was insignificant, or non-existent to many vulnerable families.

Community mutual support during remote learning

Despite the COVID-19 context, it was observed that mutual support from the community was paramount. From the interviews conducted with parents, 40.67% reported that before receiving the radios, their children could follow lessons on neighbors' radio. Similarly, 63.43% of interviewed parents revealed that after receiving the radios, their children started inviting their neighbors' children to follow broadcasted radio together. In fact, solar powered radios fulfilled multiple roles. Adult family members had access to other national socio-economic programs. It is quite common among deprived families to visit each other just to listen to news and in so doing develop social relationships beyond listening to the news. In the context of Rwanda this builds social cohesion that is much treasured.

Parents' voices vis-a-vis radios, remote learning and access to information

Juliet, mother of two children



Beyond facilitating access to remote learning, this solar powered radio allowed me to listen to messages that transformed me and my disabled child. I am a single mother but I feel I am going to support my children achieve their dream irrespective of the challenges.

To be honest, life was difficult during COVID-19 lockdown. I had two children in school who one day came home and told me school had closed! What followed was confusion and helplessness. One day, they went to a neighbor's home and told me the neighbor's kids attend classes broadcast on TV. They asked me "How are you going to study without a TV?" For a few times, they continued going to the neighbor's house and then movements between neighbors were later prohibited. They were frustrated but I told them to be patient even when I knew I had no solution. At first, I told them God knew and HE was going to do something for us. As days went by, I told them the government was thinking about us. You know, my home is in a District that borders Uganda. Many children ran to Uganda because school in Rwanda had stopped. I was so worried that my child would also cross to Uganda. I have a child with disabilities and he told me that he is going to run there too. I told him to be patient. During this uncertainty, I received a call from the Sector Officer informing me that I was selected amongst people to receive a radio for children to attend classes at home. Listen! I praised God and said, "God you are Good and thanks to our government". We went and picked up the radios and went home. I told my kids that from then, we had a radio and that we should focus and study. I told them I was going to give them enough time to study and they really were excited and focused.

During COVID-19, they attended lessons on the Radio I was given. I was no longer worried that my disabled kid would cross into Uganda. He is in Grade 5 and when schools finally re-opened, I was surprised he came 7th in ranking yet, he attended classes at home through the radio. He used to be the 11th before. The other one who is in Grade 4 ranked 3^d in class.

My disabled child was ashamed of studying because of the school environment that was not very welcoming. Did you know that we used to listen to a radio program on how disabled children study and how they should be helped? Even when I was away from home, he would tell me that he heard on the radio that children with disabilities have to study too. He would tell me that they are teaching children with sight disability, hearing disability and would say, "How can I fail to study when I only miss one arm?" This program changed the way he perceived himself and his disability. He really became positive. Beyond facilitating access to remote learning, the messages broadcast on these radios empowered my child to be confident.

Listening to the Radio, I was able to know the COVID-19 situation in my country. I knew which Districts were closed and which were

accessible. I listened to an educational drama series about reproductive health, hygiene and development. I have a daughter with two kids. She got pregnant and dropped out of school. Kids would say to me after listening to reproductive health education messages "Musekeweya' Mother, if we had heard a radio and listened to these messages, we think Esperance (my daughter) would have had problem? The radio was useful to me and my family.

Powered radio allowed me to listen to messages that transformed me and that of my disabled child. I am a single mother but I feel I am going to support my children achieve their dream irrespective of the challenges. They have access to education and that is all I would wish them.

Emmanuel, father of five



We used a small phone to listen to the news and that is when I was home. When I left home with the phone, children never followed the radio. Finally, when we got the radio, I gave children the freedom to listen to it and hear what the teacher was saying.

I am Emmanuel from Rusizi District. Before we received the radio, we were not able to listen to the news. We used a small phone to listen to the news and that is when I was home. When I left home with the phone, children never followed the radio. Finally, when we got the radio, I gave the children the freedom to listen to it and hear what the teacher was saying. The first thing I taught them is how to turn it on and off. When I left home, I used my phone and they used a radio.

The radio helped children follow their classes and not be tempted to look for other tempting sources of money. They didn't fall back when schools re-opened because I put in effort and made sure they followed the studies every morning instead of taking them to the farm with me. As a family, we gained important knowledge

by listening to news from other places. In general, we knew how the country was in terms of COVID pandemic or other development programs. If I were to measure the impact of these radios on learning, I would say my child's performance on learning increased by 20% because the one who got used to get 60% at the beginning of the year gets 80% now.

The Solar Powered Radio: Beyond enhancing remote learning to empowering families

During interviews, beneficiaries reported that after they received the solar powered radio, life in the family changed. This tool instantly became the center of the family attention and was not only used for educational purposes, but in many other uses such as entertainment, listening to the news and serving as a source of light in the night (the distributed radio had a torch). In some cases, parents reported that it has encouraged all members of the family to stay around their children as they were waiting for the end of learning programs so that they can use the radio to listen to other radio programmes of their passion. This implies that the presence of elder family members near the children pursuing radio learning programme might have created a positive means of sustaining children's attention span control and focus on lessons being aired rather than being distracted by other things in the surrounding. The solar powered radio was indeed the best fit for learners from vulnerable families because its use was not associated with any other additional cost such as payment for electricity or radio batteries. Hence, it became the most fit and cost effective.

Sarah, mother of four children



It was difficult to discipline as they moved aimlessly in the neighborhood. We tried to tell them to read their book but I think they got bored.... Somehow, one day, they called us to come and receive radios. We invited their children to our home, but we would jointly allocate time to all parents whose children came to follow lessons.

My name is Sarah. After COVID-19 outbreak, children started to wander because they didn't have anything to do. Schools were closed and so was learning, especially for us who did not have facilities for remote learning. It was difficult to discipline as they moved aimlessly in the neighborhood. We tried to tell them to read their book but I think they got bored. My child asked me how he could review books without a tutor. Somehow, one day, they called us to come and receive radios. We signed for the radios and children began to study and follow Rwanda Education Board's lesson. My neighbors would come too and we alternated helping children to the best we could. We had neighbors who did not have radios. We invited their children to our home but we would jointly allocate time to all parents whose children came to follow lessons. Say, one parent would spend time guiding 30 children on Monday; another would do the same on Tuesday and on. We helped them with what they did not understand. That's how it proceeded and children continued learning from the radio. I think children went back to school without having lost too much learning. Yes, they lost learning time but it could have been worse. We consulted teachers where we did not understand. For example, most of us don't understand English and we invited the teacher to help, especially their own teacher. When they said things in English, the teacher facilitated but in Kinyarwanda and Mathematics, a parent managed to facilitate children. We are grateful to the University of Rwanda and their partners who helped provide funds to purchase these radios. We also request them to think about thousands of other children from poor families who can't afford to buy radios. We pray God remembers them.

Challenges faced by vulnerable families vis-à-vis remote learning

Children from vulnerable families, teachers and local leaders expressed the challenges they encountered, mainly based on their limited mastery of the subject content, families' living conditions, and the unfamiliarity with the radio learning programme. Table 3 recapitulates the challenges encountered by parents from disadvantaged backgrounds during remote learning as reported by parents.

Table 4: Challenges encountered by parents from disadvantaged background during remote learning

SN	Challenges	Frequency	Percentage (%)
1	Inability to help children because of lack of command of the subject content	206	76.87
2	Inability to help children because of lack of time	191	71.27
3	Household activities (Care for siblings, cooking, etc.)	169	63.06
4	Lack of appropriate facilities (Text book, computers, special room, etc.)	150	55.97
5	Lack of information on the learning schedule of remote learning lessons	111	41.42
6	Lack of qualified personnel to provide counselling and mentorship services for learners during radio broadcast	96	35.82
7	Difficulty to keep children active all the time	84	31.34
8	Handicap (blindness, deafness, etc.)	30	11.19
9	Lack of skills to operate a radio	28	10.45
10	Early marriage and pregnancy	15	5.6

Source: Primary data, 2021

Data presented in Table 4 indicate that the inability to help children because of lack of command of the subject content, inability to help children because of lack of time and household activities (care for siblings, cooking, etc.) and lack of facilities were the topmost challenges encountered by children from disadvantaged background during remote learning.

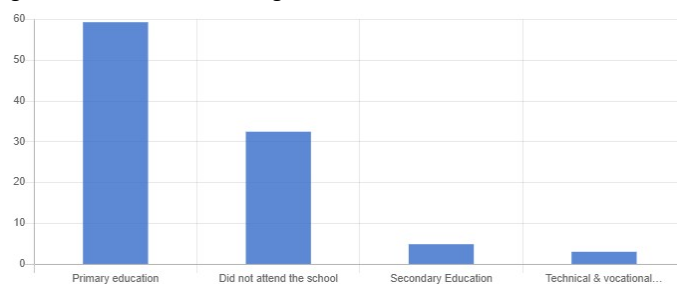
Parents' limited mastery of the subject content

Facilitating learning requires knowledge of the subject content and the methodology of content delivery. In this regard, the first observed challenge was related to parents' limited mastery of the subject content. Figure 3 provides a pictorial look into parents' education background.

The data presented in Figure 3 indicate that a considerable proportion of parents did not attend any formal schooling (32.46%) while the majority attended only primary school (59.33%). This substantiates the evident challenge that parents experienced in supporting their children in subject contents aired through radio and TV. This indeed helps understand the reason why 76.87% of parents from vulnerable families said they had difficulty assisting their children in lesson activities and homework due to lack of understanding of the content. As noted by most parents:

"Many parents did not know how to help their children because either, they are not skilled about the lessons being taught or they do not understand English. Some opted to letting their children go play." (Parent)

Figure 3: Parents' education background



Source: Primary data, 2021

The survey showed that the assistance that parents provided their children with learning was thus much focused on logistic and disciplinary aspects of learning.

Living conditions

The report entitled "Integrated Household Living Conditions Survey" (EICV3) produced by the National Institute of Statistics of Rwanda (NISR) noted that almost half of income in Rwanda is derived from agriculture (48.8%) (NISR, 2012). This report noted that the "income in the poorest households almost exclusively comes from agriculture (NISR, 2012). As many parents from vulnerable families do not own land or do not have any other source of income, their livelihood is dependent on working daily for other families mainly by cultivating for their neighbor families. They do not own any livestock; they only eat after long working hours working in the neighborhoods. In that situation, they barely find time for their children's learning. This is in confirmation with the fact that 19.03 % of parents from vulnerable families declared to have failed to support their children in the remote learning programme due to living conditions and the associated time constraints. This situation was also emphasized by teachers who

participated in this study: As noted by teachers during a focus group discussion:

“Most of the poor parents, due to their limited availability, were not able to assist their children. The relatively rich parents opted to employ people to help their children at home while learning online; but of course, only rich parents could afford that.” (School teacher)

The issue of living conditions impeding on time availability to support their children was also evoked during interviews whereby 68.06 % of parents of children from vulnerable families pointed out household activities as the main reason that prevent them from assisting their children.

Limited access to appropriate ICT gadgets

The remote learning programme was mediated by ICT gadgets including computers, radio, television and mobile phones. The findings from this study indicate that a considerable number of respondents (55.97%) said they had challenges to access these required ICT gadgets. These findings concurred with Rwanda's 2018 poverty report, wherein it is stated that only 1% of households had a television whereas 77% of households in 2017 had a radio device (NISR, 2018; Mugiraneza, 2021: 4-5).

The data collected during this research show that before the distribution of the solar powered radio, 25.7% declared that they did not have access to any ICT gadgets that could help their children in remote learning. Only 8.96% of beneficiaries had access to radio, 1.12% of beneficiaries had access to television and 1.12% had access to internet. Meanwhile, 74.63% of beneficiaries declared that they had access to cell phones, which were rarely made available for children because they were mainly used by parents while receiving and sending calls.

Lack of information about remote learning programme schedule

Following the remote learning programme required that the student at home as well as his/her parents or guardians were aware of the learning schedule as shared across various Radio and TV stations. In Rwanda, various private and public media partnered with Rwanda Education Board in airing the learning schedule and related lessons (Mugiraneza, 2021:5). Nonetheless, as revealed by the findings from the present study, a considerable percentage of respondents (42.74%) pointed out that they did not get the information related to the timetable of

lessons broadcast on TV or radio. During interviews, it was indeed noted that while the information was disseminated through website, radio, television and social media (Facebook and Twitter), the reality on the ground was that these communication channels and strategies could not easily reach the vulnerable families because even only 1.12 % stated they had a television and only 1.12% declared to have access to internet.

Behavioral challenges related to prolonged school closure

The prolonged school closure has had repercussions on children's behaviors. For some, they were idle and redundant due to less care and monitoring from parents. They could be engaged in long hour play in villages' open spaces and roads and this had severe repercussions on their behaviors as noted by teachers during Focus Group Discussions. This view was indeed emphasized by a teacher who asserted that with school reopening, some children came back undisciplined (beating, insulting others). Their behaviors were totally far from the norms. The students' behaviors were also affected by the fact that some families, due to economic reasons, migrated to other areas and left their children, especially student candidates, to stay at their neighbors' and this inflicted some psychological issues on students which made teacher's role more rigorous than before as they have to be counselors and mediators.

The prolonged school closure coupled with the hard family living conditions also forced some children to look for labor and start earning some money. It was thus challenging for some of these children to focus on studies during school lock down or desist from work and come back to school when schools reopened. One of the teachers reported hearing from some children saying that:

“The ultimate goal of the school is to become the bridge to labor. The moment that one is earning, there is no need to go to school.”

This statement demonstrates how tough it was and might still be to bring some children back to school.

Difficulty in ensuring effective learning

Learning goes beyond mere perception of information. Much as some parents might have been aware of the remote learning, it was hard for them to always be with their children throughout the learning sessions as communicated through the schedule. It was more challenging for parents with more than one child following remote learning. This implies that in most instances children followed remote learning without or with limited supervision; children could hardly maintain their attention and grasp knowledge. One of the respondents said:

“Young children could try to be obedient... but older ones used to cheat while given cell phone as learning tools. They would pretend to be learning and switch to something else as soon as their parents go away or get busy doing something else.”

The hiccup to effective learning was also reported on programmed mobile learning. One teacher said:

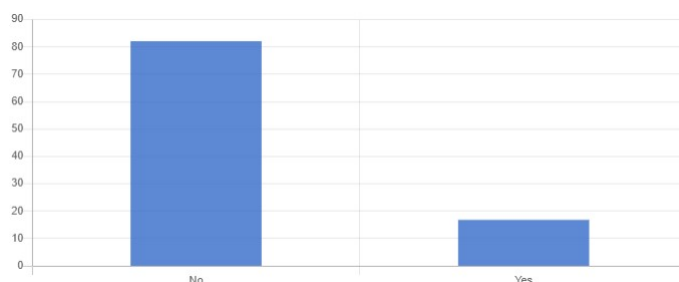
“Reading and choosing one of the proposed multiple choice type questions could not justify the actual student’s competence or imply that the child has understood the scientific knowledge behind certain principles or is able to demonstrate how s/he came up with the answer if asked to explain...much that these questions helped, some gaps were evident when school reopened. Learning is constructed through logical steps and personal efforts. That is why we had to repeat most of those lessons taught under remote learning.”

The difficulty of ensuring effective learning was also tied to the fact that in a usual classroom, the child benefits from the human interactions with the teacher and peers in the knowledge construction process. Learning alone under remote learning may lead the child not only into constant distractions around him/her, but also into anxiety or depression because total discouragement due to the inability to be assisted. In fact, while in class, the child can raise a hand and get immediate teacher and peer support which is not possible in a remote learning context. For vulnerable families whose education levels are low, this challenge could even be critical.

Inclusiveness related challenges during remote learning

Though countries around the globe have been quick to implement remote learning, the reality is that the required education technology that goes with the remote learning was inaccessible to many learners, especially those with special needs education. Inclusiveness implies “a multi-modal, multi-technology approach, making use of a mix of high-tech, low-tech and no-tech solutions to maximize the number of students who can access quality resources” (Rigall, 2020), which many Rwandan vulnerable families could not afford. To exemplify the issue of inclusiveness, Figure 4 presents the proportion of families living with disabled children among those that took part in this study.

Figure 4: Families living with disabled children



Source: Primary data, 2021

The data in Figure 4 indicates that out of the interviewed parents from vulnerable families, a considerable number of respondents declared that they live with children with disability (16.79% of respondents). Considering the lack of specific measures to support them during the remote learning, learners with special needs who are from vulnerable families were at risk of being unable to continue with their education when schools were closed. They were also at the risk of falling behind, or dropping out when schools reopened. That was the case for different categories of learners with special needs such as disabled children, children from poor families, adolescent girls, orphans, teenage mothers and slow learners.

Remote learning for Disabled children in Rwanda

The 2012 Population and Housing Census (NISR, 2012b) show that 5% of the population in Rwanda are identified as having a disability. The records of the Ministry of Education in Rwanda reveal that the types of disability observed in primary schools are hearing, vision, physical, speaking and learning (MINEDUC, 2017; MINEDUC, 2018; MINEDUC, 2019). At secondary school’s level, the records show that the majority of students with disability have physical and motor challenges (38.5%) followed by visual impairment (21.5%) and hearing impairment (14.4%) (MINEDUC, 2019). At Higher learning institutions, the majority of students with disability have a visual disability (51.8%) followed by physical disability (40%). At TVET level, the statistics show that the majority of students with disability have physical and motor challenges (38.1%) followed by visual impairment (28.9%) and hearing impairment (12.4%) (MINEDUC, 2019). The data collected from the beneficiaries of solar powered radios show that 16.79% have at least one child with special needs education.

Before COVID-19 crisis, the Government of Rwanda had made considerable efforts to ensure the education system is inclusive and caters for students with special needs education. In that context, the percentage of schools meeting the standards of accessibility for Learners with Disabilities (LwD) had increased from 23.5% in 2017 to 28.6% in 2018 and 35.6% in 2019 (MINEDUC, 2019). However, despite the remarkable effort of

Government of Rwanda in creating a conducive learning environment, there are still problems of adequate infrastructures, material and trained staff. This is evidenced by the fact that teachers and Head Teachers who participated in the focus group discussion pointed out some of the issues they encountered during remote learning:

“Disabled children did face a lot of challenges during school closure. While in normal classes teachers could recognize children with special needs education by checking on them physically and attending to them face-to-face, this was quite impossible while teaching through television and/or radio.” (Secondary School Teacher).

Remote learning for poor children

Prior to the COVID-19 pandemic, poor children’s learning was in crisis. The Rwandan education sector analysis shows that accessibility to the education system is linked to wealth, with indications being that children in the richest quintile are more likely to access pre-primary education than children from the poor families (MINEDUC, 2017b). In reference to the Rwandan Education Sector Strategic Plan, data shows that during the school year 2013/14, at primary education the net attendance rate was at 82.4% for those in the bottom quintile (Q1) and at 92.1% for those in the top quintile (Q5) (MINEDUC, 2018:13-14). It is also reported that the promotion rate in primary school was 66.4% for those in the bottom quintile (Q1) and 79% for those in the top (Q5) (NISR, 2016, MINEDUC, 2018:13-14). Within that context, the pandemic has deepened these inequities, hitting school children in poorer countries particularly hard. As noted by teachers and Head Teachers who participated in the focus group discussions:

“Poor children could not continue learning amidst school closure. They had no learning materials and were struggling in their homes with food insecurity. ...You cannot imagine that when schools reopened, they turned up without notebooks or pens and only showed up with plates and folks, expressing they were hungry...These children deserve special support in terms of learning resources.”

Also, whereas children in affluent private and international schools attended quality remote learning and were promoted to the next grades when school reopened, their counterparts in public schools repeated classes for not having covered satisfactory grade level content. This is a vivid case of how COVID-19 worsened the already existing inequalities within the education system.

Remote learning for adolescent girls

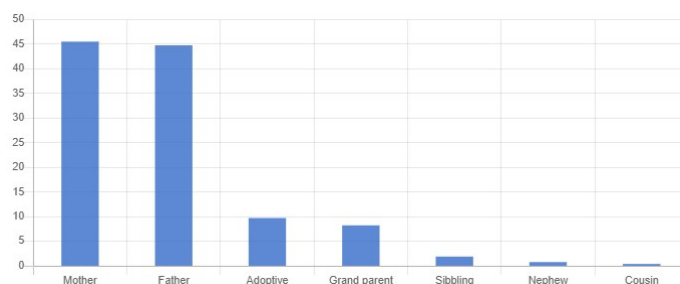
During the closure of learning institutions, coupled with moderate COVID-19 mitigation measures with exclusion and inequality exacerbated, girls were most likely to be vulnerable. As a quick solution to cater for learning continuation, remote learning programme was not designed to cater for gender-specific challenges. This implies that mechanisms and strategies of supporting adolescent girls, who were facing more challenges than boys, were not in place. As a consequence, these adolescent girls were left out, struggling alone with their problems without any organized strategies to assist them as it was noted by teachers and school leaders who participated in this research:

“Adolescent girls faced unique challenges...Some were impregnated; others gave birth; learning for them was very challenging. Even when school reopened, these girls were challenged to come back to school...In my school, we had a girl that came with a baby when schools reopened, but she looked very ridiculous in front of her colleagues. They could call her “Mum” and other names...! But we tried to accommodate her, counsel her and talk to peer students. She is now studying and doing well in class.” (School teacher)

Remote learning for orphans and street children

Data collected during this research show that a great number of children are living without their parents. The disaggregated data are presented in Figure 5.

Figure 5: Relation between respondents and children



Source: Primary data, 2021

In accordance with the data in Figure 5, it can be noted that in terms of relation between respondents and children, 9.7% were adopted, 8.21% were raised by their grandparents, 1.87% were raised by their siblings, 0.75 were living with their nephews and 0.37 were living with their cousins. Orphaned and street children’s cases were not only striking issues during the remote learning but also after school reopening. On this point, one of the teachers during the focus group discussions declared:

"You know what! Sometimes we would feel helpless in handling some cases. Some students would repetitively come late and teachers could not have a parent or guardian with whom to discuss the issue...I know some learners would be beaten or feel persecuted to the extent of leaving the school. Being aware of the child's background and home related situation is essential to adequately address his/her needs." (School teacher)

Remote learning for slow learners

Slow learners are the students who have the potential to excel subject to the very close guidance of teachers, parents and peers (Zakarneh et al, 2020). Their learning abilities improve at a much slower speed compared to children of the same age. They need the presence of teachers and parents in their learning process which requires patience, creativity, motivation, peer-coaching, assistance in self-organization, etc. This group was among the most affected by the school closure, as they need social contact with the teacher and colleagues for their learning and development. The interview with SEOs pointed out the challenge of slow learners during remote learning. The interviewed Sector Education Officers (SEOs) noted the issue of being taught by a teacher that children do not know and the lack of direct contact between the teacher and learners which made it difficult to assist slow learners.

Promises for sustainability of remote learning

COVID-19 came as a surprise and worldwide education systems were not ready for its consequences. However, though it has been devastating in many domains, it has been an opportunity to assess the readiness of education systems vis-a-vis the challenges and issues that are observed in the contemporary education sector. Therefore, respondents (parents, teachers and local leaders) were asked to mention the lessons learned vis-à-vis the situation they underwent during the remote learning imposed by COVID-19 context. The next section focuses on the reported lessons:

Basic skills for parents, teachers, school leaders and local elected leaders in home-based learning

The situation underlying COVID-19 has shown that there are key competences and appropriate tools required to pursue remote teaching and learning. At the beginning of COVID-19 crisis, there was a concern on the motivation and capacity of vulnerable parents in assisting their children during remote learning. However, this has shown that although parents were facing many

challenges, they were aware of the importance of remote learning and they were motivated to be involved at different levels depending on their capacity and competences. Responses to research questions revealed that parents from vulnerable families were motivated and willing to participate in the learning process of their children (55.6% wanted to assist and did, 19.03 % wanted to help but did not due to lack of time, 14.55 % wanted to assist but did not know how.) However, a gap was observed in competences needed to assist their children and help them attempt lesson activities and homework. The key bottleneck has been their poor education background. Despite the lack of competences, responses from parents revealed a level of courage to confront the challenges they encountered because only 2.99% declared being scared or embarrassed when their children ask for assistance against subject contents, they are not aware of or totally ignorant about.

It is on this ground that some interviewees suggested that online and remote resources may be provided as well to support education stakeholders, especially parents and local elected officials. This suggestion concurs with other practices such as in Spain whereby it was observed that

"these materials range from mere recommendations and guidelines, to short and condensed explanatory videos providing advice on how to help children manage their emotions, how to promote their participation at home and in society or how to play creative games" (OECD, 2020p.7).

Develop policies that support remote learning during school closure and beyond

The unexpected school closure and the abrupt introduction of remote learning led families into "new routines and interaction patterns" (OECD, 2020). This new situation has significantly affected families' work-family balance, parental support, and school family modes of collaboration. These imposed changes affected the entire community of parents, learners and schools; and shaped parents' role in their children's education and learning during this time, in a form never previously experienced (OECD, 2020 p.2). In this context, there is a need to develop guidelines that determine the role of education stakeholders in home-based learning during school closure and beyond. Indeed, there is need for education systems to formalize remote learning as it can be the only alternative for education provision in extreme conditions whereby physical school reopening is impossible or too delayed to the extent that learning losses and gaps in labor become too alarming.

Support to and from teachers and local education leaders

Although teachers and local education leaders have responsibility to support children while learning at their home, they also need to be supported. According to World Bank (2020), policies aiming at promoting effectiveness and wellbeing of teachers during school closure should be guided by three principles namely (i) support teachers' resilience (ii) support teachers' instructionally and (iii) support teachers technologically. In that framework, school-community outreach activities should be strengthened and structured in order to help teachers and local education leaders to reach vulnerable families and assist their children either face-to-face or remotely. As visually expressed by one of the teachers in this study, "Teachers shouldn't be given worn out hoes and be asked to break up the soil."

Elaboration of adapted curriculum that promote inclusion and equity in remote learning

Dorn et al (2020, p. 2) stated that "no one-size-fits-all strategy for determining the optimal model for learning in the COVID-19 crisis". In that perspective, the data from this research revealed that students from vulnerable families have suffered greater setbacks. The remote learning program was developed in an emergency. The priority was to keep teachers and learners in the teaching-learning mood while ensuring their safety. Adapting the teaching-learning strategies to the needs of each learner was not an easy task, especially in a context of a pandemic that was changing constantly. However, there is a need to design a remote learning curriculum that facilitates inclusion. In addition, the program designers and implementers should make sure that what parents are being asked to do during the radio or television lessons broadcasting is within their capacity.

Involvement of local elected leaders and local education officials in remote learning program

Local elected officials and local education officials at decentralized levels constituted pillars of assistance to children from vulnerable families in remote learning programme. Their intervention was not only limited to motivating parents towards their involvement in the remote teaching-learning programme. Where possible, they followed up on all teaching-learning components including checking whether the learning tools were still working properly, informing families about the learning schedule, monitoring the students' level of participation in the learning process and assisting in solving potential pedagogical problems that may arise.

During the focus group discussion with the DDEs, SEOs and Head Teachers, it was noted that the implication of local education leaders is still on low level. A considerable percentage declared not having enough time to follow up the remote learning activities (13.6% of SEOs declared not having enough time to follow up on remote learning and 63.6% of SEOs have never assisted any learners from vulnerable families). Surprisingly, this research revealed that the role played by the local education leaders was lesser compared to the role played by the local elected officials such as the Leaders of the Villages, the Executive Secretary of the Cells and the "Abahwituzi b'imidugudu/ the village awakener". This might infer that local education leaders might either be busy with other competing tasks or their scale of operation is too high to touch base with households related interventions.

Build a strong communication system

Although different opportunities were created for the continuity of children's learning, collected data pointed out the need for strategies to disseminate information on the existence of those opportunities. In fact, the majority of parents confirmed that they heard about those opportunities through the distributed solar powered radios. It is not evident however how other vulnerable families not included among the beneficiaries of the radios managed to gather information on the existence of such opportunities. Therefore, there is a need to analyze the best practices that were observed during the lockdown in order to build a communication system that optimizes the use of different online platforms which the local population can easily access such as *WhatsApp groups*. In addition, there is a need to strengthen the communication channel between education stakeholders and implement strong strategies of disseminating education related information among stakeholders with emphasis on vulnerable families.

Conclusion

During the COVID-19 crisis, the worldwide education systems were torn between two obligations: (i) reduce the transmission of the virus through ensuring the safety of students and school staff and; (ii) getting students into more productive learning context and environments despite the unexpected school closure. The sudden closure of schools has revealed the level of readiness of education systems to face the challenges of contemporary society, which was proven to be low. It revealed the need to adapt the teaching-learning process to the current socio-economical context. One of main issues that needs attention is related to creation of learning spaces for the children from vulnerable contexts as the new context related to COVID-19 has

widened the problem of inclusiveness, equality and equity in education systems. The results of this research show that different measures were implemented to tackle the problem and assist the learning process of children from vulnerable families in their remote learning. Different actors were involved with different actions and strategies.

During the closure of schools, education systems, taken by surprise, faced a big challenge: the inability to develop a remote learning model suitable for all learners in such a short time. The research revealed that some implemented actions and strategies were appropriate for the learning process of children from vulnerable families and many others were not. On several occasions, disadvantaged children found themselves disarmed in the face of challenges of remote learning where they did not possess the required tools to engage with others in the learning process. Consequently, the educational actors on the ground (especially parents and their children) have tried to make do with the means on board to ensure the learning of the children from vulnerable families.

In that framework, this research revealed that children were themselves influential in seeking support from parents and other educational stakeholders in the continuation of their learning during the lockdown. In addition, it was noted that parents from vulnerable backgrounds were relatively committed and passionate for the education of their children. Perhaps, the only hope for improved lives in their future. That enthusiasm and passion should be kept up at any cost. Thus, their points of view and the context of their environment should be taken into account while implementing remote learning actions. Meanwhile, this research revealed that the involvement of teachers, school leaders, local elected leaders and local education leaders did not work out the way it was expected to be. Consequently, there is a need for a strong partnership between education policy makers, local elected leaders, local school leaders, families and community members to ensure a collective response to the education needs of vulnerable learners.

Parents and caregivers have pointed out the issue of their limited capacity in terms of pedagogical assistance to their children. In that framework, a simple and friendly user toolkit describing the parents' strategies applied in home-based learning is very important. As parents have shown interest in listening to radio and watching television, those home-based learning strategies can be broadcasted through the media, especially radio and television, or shared via different most used online platforms such as WhatsApp, Facebook, etc.

Since COVID-19 crisis and the underlying school closure were a surprise to the education systems, remote learning was implemented under a policy gap. Due to the lack of information on COVID-19 and its consequences, the situation was very unpredictable for guidelines or policy development. Apart from a few guidelines hastily elaborated to ensure some sort of organization of the remote learning, there are no policy, rules, regulations and guidelines that govern the remote learning process and determine the role and responsibilities of each actor. This emergency context creates an issue of accountability in terms of remote learning for children from vulnerable backgrounds. In addition, the curriculum needs to be adapted to the blended learning approach.

The research has revealed another issue that needs more attention. It was noted that lack of appropriate infrastructures for learners with special education needs remain a critical challenge and the perception of their abilities at the labor market remains one of the demotivating factors for disabled students who continue to see themselves as discriminated compared to their peers who are not disabled. The issue was aggravated when students were supposed to integrate remote learning which has never been adapted to the individual context. The COVID-19 outbreak was a surprise to all educational actors. It did not give time to adapt the remote learning process to the special education needs but it can serve as an opportunity to identify the limitations of the education system and to find appropriate solutions for sustainable futures.

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Links to Other resources on the impact of COVID 19 on education

<https://www.oecd.org/coronavirus/policy-responses/the-impact-of-covid-19-on-student-equity-and-inclusion-supporting-vulnerable-students-during-school-closures-and-school-re-openings-d593b5c8/>

<https://reliefweb.int/report/ukraine/impact-covid-19-education-recommendations-and-opportunities-ukraine>

<https://www.hrw.org/news/2020/08/26/impact-covid-19-childrens-education-africa>

<https://www.unicef.org/eca/reports/covid-19-impact-remittances>

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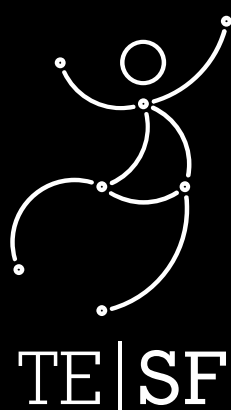
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