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Final Report

Assessment of the Effectiveness of Alternative Modes of Education Provision in Zambia

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Acronyms and Initialisms

AMEP	Alternative Mode of Education Provision
DODE	Directorate of Open and Distance Education
DPI	Directorate of Planning and Information
ECE	Early Childhood Education
CwD	Children with Disabilities
FGD	Focus Group Discussion
GPE	Global Partnership for Education
ICT	Information and Communications Technology
KII	Key Information Interview
MoE	Ministry of Education
UNICEF	United Nations Children's Fund
ZACODE	Zambia College of Distance Education
ZANEC	Zambia National Education Coalition
ZICTA	Zambia Information and Communications Technology Authority

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Introduction[1]

Context

Across the East and Southern Africa region, children, adolescents, and young people face multiple challenges in learning and transitioning to a higher level of education in school. Within Zambia, a range of alternate education provision is well established, and includes (but is not limited to) a variety of non-formal education programmes, including home-schooling, online learning, workforce development, in addition to vocational and technical education (MoGE & MoHE, 2017). Some aspects of this provision were expanded during school closures due to the COVID-19 Pandemic.

In Zambia, school closure disrupted learning for over 4.2 million children and adolescents as schools remained closed for several months due to various waves of the Covid-19 pandemic, with schools re-opening fully on the 24th of January 2022 (having previously re-opened, with periodic closures, throughout 2021). A survey report (ZANEC / Ministry of Education, 2021) revealed poor economic condition (31 per cent), lack of interest due to lengthy school closure (30 per cent), and pregnancies (28 per cent) as the dominant contributing factors for school dropout. Other influencing factors were fear of the Covid-19 pandemic (18 per cent), early marriages (16 per cent), inability to pay school fees (14 per cent), and distance to school (13 per cent). The survey also indicated that 4,887 boys and 964 girls dropped out between March 2020 and March 2021, representing 4 per cent of boys and 0.7 per cent of girls.

As we approach the new normal in the post-COVID-19 era, there is a unique opportunity to reimagine education and transform its systems. During the COVID-19 school closure, plans were in place to support the continuity of learning through alternative modes of education such as enabled self-learning opportunities, airing radio content, lessons broadcast on TV and online learning platforms by the Ministry of Education Directorate of Open and Distance Education (DODE), Zambia College of Distance Education (ZACODE), and other partners, such as enabled self-learning opportunities, airing radio content, and lessons broadcast on TV and online learning platforms. While learners benefited from these alternative modes of education during school closure, the effectiveness of these services are still unknown. The challenge for education institutions and schools is ensuring continuity of learning should there be potential future school closures, particularly in poorly resourced areas. Alternative modes of education must be accessible to all, including the most vulnerable children and adolescents. They should be flexible, affordable, and sustainable, using innovative blended learning approaches in the light of emerging challenges and opportunities.

The COVID-19 pandemic has revealed a new openness in many countries worldwide to take a fresh look at 'reimagining education' and advance into the future. A fundamental transformation element is scaling up world-class digital learning solutions to reach all,

[1] Content and wording drawn largely from project ToR

including the most vulnerable children and adolescents. After the Covid-19 outbreak, governments worldwide, including many African countries, have rapidly delivered open learning and alternative distance education to ensure access for all. However, achieving universal access to open learning and distance education in a meaningful way requires proper infrastructure, such as electricity, radio, and TV, as well as access to internet services and gadgets such as tablets, smartphones, and computers.

Enabling every child to access the best learning available, facilitated by a combination of modalities that best address their needs, could be the great equaliser in education. According to the Zambia national survey on access and usage of Information and Communications Technology (ICT) services by households and individuals (ZICTA, 2018), 32.9 per cent of households (65.5 per cent urban residents; 6 per cent rural residents) have access to electricity through a utility company. The households across the country with a working television set stands at 37.0 per cent (only 15.5 per cent in rural areas). 40 per cent of the households reported owning a working radio, and 8.1 per cent (14.7 per cent urban and merely 2.7 per cent rural) households own a computer. The survey revealed that only 6.8 per cent of individuals aged 10 and above know how to use a computer. However, a sizeable proportion (83.4%) of individuals actively use mobile phones, and 29.6 per cent of people have access to smartphones.

School closures should not remove a child's right to education; instead, continuity of learning is essential through alternative modes, whether low-tech or high-tech. The Ministry of Education (MoE) has implemented various responses to ensure continuity of learning using different delivery modes — high-tech digital solutions (e.g. online platforms) and low-tech solutions (e.g. TV and radio-based learning, take-home materials) can be rapidly developed, adapted and made available at scale, even in low-resource contexts. In collaboration with DODE, UNICEF supports the development of radio learning content for grades 1-7 and provides digital learning content for children with special needs as a long-term solution to access for all children.

Justification

The MoE's investment in distance education and remote learning is still embryonic, lacking proper infrastructure and uptake by administrative units at national, sub-national and district levels. Inequities in resource distribution between urban and rural areas and different income groups, lack of infrastructure and connectivity of school to ICT, and lack of radios and TV reception at home, particularly in remote rural communities, remain a significant hindrance to open access distance learning. The MoE online eLearning is also limited by subscription costs, constraining access to the ones who can afford it.

There is a lack of evidence on which to base an understanding of the extent to which alternative modes of education provision are benefiting children. It is imperative to assess and explore to what extent open and distance learning programmes are delivered by different

institutions and implementing partners, how access issues are addressed, and how effective they are – especially for the most vulnerable children. Therefore, the MoE needs to assess alternative modes of education provision in Zambia to generate evidence to guide the programme design and implementation that works for children especially for disadvantaged and marginalised children.

UNICEF has contracted Thuso, an institutional consultancy with experience identifying opportunities for alternative modes of education and programmes, to:

a. review existing modes of alternative education provision and learning;
b. provide analysis of the best practices from countries of similar contexts to Zambia and review alternative modes of education provision that have already been implemented by DODE, ZACODE, and programmes implemented by partners to understand their effectiveness;
c. examine the Alternative Mode of Education Provision (AMEP) solutions and platforms and supportive infrastructure, learners' access to the current services (TV, Radio, eLearning), particularly in remote rural areas; and
d. document findings and recommend a combination of AMEP solutions that are contextually relevant and address the need for the continuity of learning in Zambia.

This report presents the findings of these research activities.

Methodology

Objectives

This methodology undertakes to describe how the consultancy team completed the Assessment of the Effectiveness of Alternative Modes of Education Provision in Zambia. Specifically, this section of the proposal describes how the team achieved this consultancy's **primary aim,** namely to:

> *'Analyse the current practices on alternative modes of open and distance education for pre-primary, primary and secondary (ECE - grade 12) level education; and strategise ways to enhance this. The strategy must include a combination of alternative modes (radio, TV, ICT eLearning, phone and tablet and printed materials), using more innovative and applied approaches.'*

As well as this consultancy's **primary objectives** (as described in the TOR):

- Analyse best practices and document current global, regional, and national examples of alternative distance education delivered through alternative modes (radio, TV, eLearning, digital and print materials). This will include blended learning approaches, low and high-tech on and off-campus to support all learners in the continuity of learning;
- Study and examine the digital divide and map out the platforms and infrastructure required to access high or low tech digital learning contents through TV, radio, eLearning, digital and print materials for children and adolescents in remote areas; and
- Provide practical recommendations on key strategies and priorities for the government to increase access to alternative education modes that develop knowledge and skills required for the 21st Century.

Scope of Work

In order to achieve the objectives outlined above, the consultancy team undertook the following tasks, working under the overall supervision of the Chief of Education and Education Specialist in close consultation with the MoE, particularly the Directorate of Open and Distance Education, and the Directorate of Planning and Information (DPI):

- Review global, regional, and national evidence on successful initiatives of alternative modes of education analysing best practices and document best examples of alternative modes of education for continuity of learning for advancing knowledge and skills for children (pre-primary to grade 12) in the Zambian context;

- Undertake reviews and conduct interviews and focus group discussion with stakeholders in Zambia to triangulate and deepen the understanding of existing alternative modes of distance education and remote learning opportunities for children enrolled in various learning pathways (ZACODE, AMEP Centre Schools for continuing education, open learning centres and other non-state actors) and their effectiveness;

- Understand and identify the gaps and opportunities in access to ICT, internet-based eLearning, radio and TV programme coverage nationwide, and access to gadgets (laptop, mobile) by the vulnerable children in remote communities, and assessment of infrastructure, i.e., electricity, low and high-tech digital media coverage (radio, TV, mobile) and services, internet connectivity and digital skills.

- Conduct interviews and focus group discussion with schools, teachers and learners on the existing distance education and remote learning opportunities in Zambia, and understand the beneficiaries' views on effectiveness, opportunities and areas of potential strengthening, and understand beneficiaries' needs, demand and expectations. The information should include how teachers and learners were continuing the learning during COVID-19 school closures and how effective that was.

- Develop a contextually relevant strategy for alternative modes of education provision and remote learning support for children and adolescents across Zambia for continuity of learning and skill development required for the 21st-century which includes:
    a. Policy context includes the certification, accreditation, and equivalence of alternative distance education modes.
    b. Demand for alternative distance education modes and their relevance for learners in rural and urban areas in Zambia.
    c. Role of education systems, teachers' professional knowledge and skills to provide remote learning support for children and monitor learner progress through systematic learning assessment.
    d. Guidelines for the parents to facilitate learning and support children to maintain continuity of learning at home.
    e. A monitoring and evaluation framework for alternative modes of distance education through recommending innovative approaches.

- Findings and recommendations should include ingredients of successful conditions for effective delivery of AMEP for disadvantaged children and adolescents from pre-primary to secondary (grade 12) and children with special education needs and disabilities. Assess alternative modes of learning that are effective, contextually relevant, affordable, and sustainable for Zambia.
- The consultancy will map critical partners and key stakeholders in the education sector, in addition to private and public sector partners both outside and within the sector to establish networking relationships to coordinate alternative modes of education and remote learning provision and provide guidelines for implementing partners.

Research Questions

Based on the objectives and tasks outlined above, the following research questions were used to guide the assessment:

- What are the best practices in distance education delivered through alternative modes (radio, TV, eLearning, digital and print materials) at a global, regional, and national level?
- What alternative education provision was in place within Zambia prior to the COVID-19 pandemic, and to what extent does this remain in place?
- How have children in Zambia continued learning during COVID-19 school closures?
- What are the beneficiaries' needs, demands, and expectations with regard to distance education and remote learning in Zambia? To what extent have these needs, demands, and expectations been met by the existing provision?
- To what extent are the existing distance education and remote learning opportunities for Zambian children enrolled in various learning pathways effective?
- What are the gaps and opportunities in access to ICT, internet-based eLearning, nationwide radio and TV programme coverage, and access to gadgets in Zambia?
- How can the existing distance education and remote learning opportunities for children enrolled in various learning pathways be strengthened?

- What other alternative modes of learning could be effective, contextually relevant, affordable, and sustainable for Zambia?
- What are the conditions for effective delivery of AMEP for disadvantaged children and adolescents from pre-primary to secondary (grade 12) and children with special education needs and disabilities?
- Who are the critical partners and key stakeholders in the education sector that could coordinate alternative modes of education and remote learning provision and provide guidelines for implementing partners?

Methodological Approach

To carry out this assessment, the consultancy employed a mixed-methods approach, collecting both qualitative and quantitative data. This approach supports effective data collection on both easily measurable outcomes and impacts as well as in abstract investigation of beliefs and attitudes. A further advantage of the mixed-methods approach is that quantitative data is often most useful for understanding 'what', while qualitative data provides a more detailed and nuanced understanding of 'how and why' (Denscombe, 2010).

In addition to using a mixed-methods approach, the assignment deployed a participatory methodology. This approach sought to incorporate the views and feedback of key stakeholders at every stage, ensuring relevance, appropriateness, and ownership of both the process and findings of this assessment, as well as of the strategy development process.

Multiple instruments were designed to address the full scope of the consultancy, and collect data against individual research question, engaging in a process of 'triangulation' of findings (Denscombe, 2010). The following cross-cutting themes underpinned tool development, as well as subsequent analyses presented below.

	Disability and Inclusion
	Questions and observations relating to disability inclusion (across a variety of disability types, not just physical) will be incorporated throughout all tools.
	Gender
	Similarly, gender will be explored throughout the tools and subsequent analyses.
	Vulnerability Status
	Equity of various types (geographical, socioeconomic, ethnic, etc.) will be considered throughout all tools and subsequent analyses, as far as is possible.

Limitations

Throughout data collection there were a number of challenges and limitations.

- **Limited Access to Transport**: Rural areas with limited transportation infrastructure made it difficult for data collectors to reach remote locations. In such cases, alternative means of transportation were explored, such as motorcycles, bicycles, or walking. The teams also collaborated with the SEOs and headteachers at the schools to find solutions; where this was not possible, the teams were provided an alternative school location to access.
- **Security levels at prisons and correctional centres:** For prisons and correctional centres selected, the teams were met with a number of challenges in terms of access. The permission letters and extra security measures prevented our teams from accessing these centres. As a result, alternative non-formal schools were selected in the affected province and districts.
- **Remote, Hard-to-Reach and Non-Functioning Sites:** Some rural areas were remote or geographically challenging and difficult to access. Data collectors tried to work with local community members and SEOs who were familiar with the terrain to navigate such areas effectively. Where the schools were out of reach, or non-functioning, alternative schools/centres were selected.
- **Number of available teachers at sites**: In adherence to the sampling strategy, it was identified that certain centres and schools did not have the anticipated number of teachers for the targeted focus group discussions (FGDs) of five teachers each. Consequently, in instances where schools or centres had a sufficient number of teachers, an increased number of FGDs were conducted at those specific locations to compensate for the shortfall.
- **Number of available parents at sites:** In adherence to the sampling strategy, it was identified that certain centres and schools did not have the anticipated number of parents for the targeted focus group discussions (FGDs) of five parents each as a result of students boarding, and parents being too far to come in for the interview. Consequently, in instances where schools or centres had a sufficient number of parents, an increased number of FGDs were conducted at those specific locations to compensate for the shortfall.

High Level Sample Achieved

The following sample table presents the high-level sample both proposed and achieved, broken down on a group level (number of FGDs), and by a participant level (total number of participants per FGD):

Tool	Proposed (Group)	Achieved (Group)	Proposed (Participant)	Achieved (Participant)
Youth FGD	*138*	**155**	*690*	**767**
Parent FGD	*142*	**143**	*710*	**707**
Teacher FGD	*140*	**140**	*700*	**666**
Stakeholder KII	*70*	**58**[2]	*70*	**58**
TOTAL	*490*	496	*2,170*	2,207
TOTAL[3]	*490*	508	*2,170*	2,219

The following tables demonstrate the breakdown by school type and school level:

[2] Stakeholder KIIs are ongoing, there are 12 outstanding to meet the target of 70. This has been delayed due to stakeholder availability and lack of response.
[3] Post stakeholder KII completion

Proposed Sample Breakdown by School Type and Level of Education (Per Participant)[4]

The following table demonstrates the sample that was split across all levels of education (pre-primary, primary, and secondary), as well as across the education providers in community, public, and private institutions amongst the 10 provinces in Zambia.

Tool	Community Schools			Public Schools			Private Schools		
	Pre-primary	Primary	Secondary	Pre-primary	Primary	Secondary	Pre-primary	Primary	Secondary
Student FGD	78	78	77	78	78	77	78	78	77
Parent FGD	78	78	77	78	78	77	78	78	77
Teacher FGD	78	78	78	78	78	78	78	78	78
Stakeholder KII[5]	70[6]								
Total across all school levels	**700**			**700**			**700**		
Total	2,170								

[4] Specific locations to be sent by UNICEF.
[5] Stakeholder KII sampling to be informed by the findings of a systematic stakeholder and partner mapping activity.
[6] Subject to change following stakeholder mapping exercise.

Proposed Sample Breakdown by School Type and Level of Education (Per Group)

The following table demonstrates the sample that was split across all levels of education (pre-primary, primary, and secondary), as well as across the education providers in community, public, and private institutions amongst the 10 provinces in Zambia. The target of 5 participants per group was set out:

Tool	Community Schools			Public Schools			Private Schools / Non Formal		
	Pre-primary	Primary	Secondary	Pre-primary	Primary	Secondary	Pre-primary	Primary	Secondary
Youth FGD	16	16	15	15	16	15	15	15	15
Parent FGD	16	15	16	16	16	16	16	16	15
Teacher FGD	15	16	15	15	16	15	16	16	16
Stakeholder KII	70								
Total across all school levels	**140**			**140**			**140**		
Total	490 groups								

Achieved Sample Breakdown by School Type and Level of Education (Per Participant)

Tool	Community Schools			Public Schools			Private Schools / Non-Formal		
	Pre-primary	Primary	Secondary	Pre-primary	Primary	Secondary	Pre-primary	Primary	Secondary
Youth FGD	75	90	75	100	65	100	65	72	125
Parent FGD	75	85	70	95	65	95	50	80	102
Teacher FGD	55	75	60	85	60	95	45	95	95
Stakeholder KII	58								
Total across all school levels	**660**			**760**			**729**		
Total	2,207 participants[7]								

[7] Subject to change as Stakeholder KIIs are ongoing.

Achieved Sample Breakdown by School Type and Level of Education (Per Group)

Tool	Community Schools			Public Schools			Private Schools / Non Formal		
	Pre-primary	Primary	Secondary	Pre-primary	Primary	Secondary	Pre-primary	Primary	Secondary
Youth FGD	15	18	15	20	13	20	13	15	26
Parent FGD	15	17	14	19	13	19	10	16	20
Teacher FGD	14	15	14	19	12	19	9	19	19
Stakeholder KII	58								
Total across all school levels	**137**			**154**			**147**		
Total	496 groups[8]								

[8] Subject to change as Stakeholder KIIs are ongoing

Data Analysis and Reporting

All data was collected on tablets and smartphones and uploaded in real-time to Thuso's cloud-based online platform, to enable continuous data reviews and analysis, and feedback for enumerators. Once the data collection was completed, all raw data was downloaded from the online platform as spreadsheets. Quantitative data was disaggregated and analysed with pivots, and used to produce graphs, tables, charts, and figures, allowing for in-depth statistical analysis.

The qualitative data has been analysed using a bottom-up process of inductive reasoning to identify any incipient patterns, emerging narrative, and to inform subsequent recommendations. This approach to qualitative data analysis gives the experiences and perspectives of participants a central position in the findings of this study.

The data from the separate quantitative and qualitative tools has been used to triangulate findings relating to specific themes, groups, and interventions. These findings have been used to answer the assignment's research questions.

Ethical Principles

Thuso's approach to data collection, analysis, and reporting is always underpinned by relevant international standards on research ethics and subject protection, which are supplemented by Thuso's own internal policies, with subject protection, informed consent, anonymity, duty-of-care, and do-no-harm principles underlying all activities. All of Thuso's staff are extensively trained in these policies and practices, with zero tolerance of non-observance strictly enforced. Specific standards and policies include (but are not limited to):

Protection

Ensuring that all participants are safe and protected at all times, and do not incur ANY harm as a result of data collection activities;

Consent

Acquiring verbal or written consent from participants before all research activities, and informing each participant of what the research findings will be used for. Participants are informed that they may withdraw their consent at any time, whether it be before, during, or after data collection has taken place;

Anonymity

Asking all participants whether they would like their contributions to be anonymised. In certain contexts, such as conflict settings, all contributions by participants will be made anonymous as a matter of policy, in the interest of safety and protection;

Process

All tools and methodologies are designed with sensitivity to culture, context, and vulnerability criteria in mind. The implementation of research activities is always aligned with international best practices for protection, which includes:

- Instructing male data collectors to interview men and boys, and female data collectors to interview women and girls;
- Ensuring that locations are safe and accessible to all participants, including persons with disabilities and other vulnerability indicators;
- Ensuring that children and vulnerable respondents are ALWAYS accompanied by a parent, guardian, or carer, and that members of Thuso's staff or the client's staff never interact with youth or children alone;
- Designing age- and culturally-appropriate questions and activities for the research activities;

Furthermore, it should be noted that the data was also analysed in a manner sensitive to vulnerability, with data disaggregated by age, gender, disability, and vulnerability criteria as appropriate.

Child Ethics

As an organisation working with children, both directly or indirectly, Thuso has a moral and legal responsibility and a duty to protect children within our care from both intentional and unintentional harm. All Thuso consultants have been fully compliant with UNICEF's internal guidelines on child protection and ethical standards in research.

Child and Parental Consent

During the data collection phase, enumerators collecting on behalf of Thuso were required to obtain permission from a parent or guardian. Verbal consent was also required from children who took part in any data collection activities.

Gender Considerations

Issues of gender have been appropriately considered throughout all stages of the evaluation. Instruments were designed to be sensitive to considerations of gender and youth vulnerabilities whilst also fully aligned with a 'Do No Harm' approach.

Thuso has ensured that issues of gender were appropriately considered throughout the review, ensuring that the key research questions, the project methodology, and data collection process were all appropriately sensitive to relevant gender considerations. This included ensuring that only female data collectors engage with women and girls, that females felt safe and comfortable during engagements, and that women were appropriately represented (through gender-segregated data collection engagements) in all data collection.

Throughout the entire research exercise, Thuso used an 'iterative' process of data analysis, particularly gender analysis, to show, for example, where data is missing, what the most interesting questions are, and what further data might be needed that better reflects the gender equality perspective. A gender-mainstreaming approach was taken to report writing, with data disaggregated by gender as appropriate.

Vulnerability Considerations

Issues of vulnerability have been appropriately considered throughout all stages of the evaluation. Vulnerability is a multidimensional concept, but in this review, persons are defined as vulnerable if they are disadvantaged due to any personal demographic. This could include income, socio-economic status, gender, disability, or location. The consultancy team ensured that issues of vulnerability were appropriately considered throughout the research process. Enumerators were specifically trained on how to ensure the inclusion of vulnerable persons and make them feel safe and comfortable during engagements so that they are able to express their views freely. This included being aware of common problems such as children answering questions to which they don't know the answer; children telling the interviewer what they believe the interviewer wants to hear; and children fearing that any information they disclose will result in reprisals once the interviewers have left.

Enumerators ensured that young participants felt as safe as possible, and the following protocols were used:

- Selecting a location that children know and feel safe within;
- Making the child feel safe by having all data collectors introduce themselves properly before the interview;
- Explaining the purpose of the interview and what the information they give will be used for;
- Explaining how their responses will be recorded and how they will be kept confidential;
- Tools will be designed so that they start with conversational and non-controversial questions and work towards more sensitive issues;
- Enumerators will be king and gentle, using an informal and relaxed approach to help children feel at ease;
- Enumerators will ensure they have significant time dedicated for the interview, and it is not a rushed processed. It can take some time for children to become relaxed enough to be comfortable talking, especially if the events they are recalling are traumatic ones;

- Children will be informed, in order to get unbiased information, that it is acceptable to tell the interviewer if they do not know the answer to a question and that they should correct the interviewer if s/he is mistaken or incorrect;
- Simple and age-appropriate language will be used in the tools to ensure children understand the correct meaning of the questions;
- As per the existing global guidelines, research activities will not require victims and/or witnesses, including children and families, to share information on an incident in an environment that exposes them to security risks and threats;
- Data collectors who are engaged in reporting or verification should not attempt to report or verify a case if or when safety or security conditions cannot be met, or health considerations or movement restrictions make it inadvisable or illegal to do so; and
- All enumerators will have a non-judgemental attitude which conveys acceptance of the child and encourages further participation.

AMEP in Zambia

In Zambia, Alternative Modes of Education Provision (AMEP) – also known as Youth and Adult Learning Education (YALE) provisions – play an important role in improving access to education. AMEP/YALE particularly benefits Zambia's out of school children (OOSC), a group that contained an estimated 800,000 young people in 2019 (LT, 2019). OOSC may be unable to attend traditional schools for reasons including distance, lack of resources, or cultural barriers (Ngware, et al., 2018). Thus, alternative education solutions can be a lifeline for them.

During school closures related to COVID-19 across sub-Saharan Africa, alternative modes of education played an instrumental role in helping primary and secondary level students continue to learn (Faturoti, 2022). This situation was no different in Zambia, where the Ministry of Education's Education Contingency Plan for Novel Coronavirus (COVID-19) directed resources towards the expansion of distance learning to all parts of the country (MoGE, 2020).

However, efforts to roll out AMEP/YALE solutions in response to Covid-19 faced an array of difficulties (Matandiko, 2022; UNESCO, 2022). This report outlines the variety of modes of alternative education provision that benefit children in Zambia and the immediate challenges they face. It then presents analysis on how children continued to learn during Covid-19. Lastly, it presents findings on how the pandemic has altered Zambia's AMEP/YALE landscape.

The findings of this investigation have been drawn from a combination of primary and secondary data analysis (see methodology section above). Throughout the following sections, quotes from focus group discussions - representative of frequently occurring sentiments - are presented and analysed.

What alternative education provision was in place within Zambia prior to the COVID-19 pandemic?

Zambia's Ministry of General Education (MoGE) formally implements AMEP programmes through several modes of delivery including: Open Learning, Distance Learning, Schools for Continuing Education, Adult Literacy Education, and Educational Broadcasting Services (MoGE & MoHE, 2017). Formal AMEP is managed primarily by the MoGE's Directorate of Open and Distance Education (DoDE). The DoDE's three units of operational focus are Open Learning, Distance Learning, and Educational Broadcasting Services (EBS) (MoGE, 2022). Prior to the Covid-19 pandemic, the MoE also formally recognised community schools and Interactive Radio Centers (IRCs) as policy-aligned modes of non-formal provision (MoE, 2020). These non-formal options target marginalised learners who may have gaps in their schooling history, such as refugee, internally displaced, and geographically isolated children (Flemming & Mwaanga, 2021). Table 1 below documents the number of children each mode of AMEP accounts for:

Table 1: Enrolment in different modes of alternative education provision in Zambia

Delivery mode	Number of centers/schools	Enrolment
Open Learning Centers	1074	91,580
Correctional Classes	34	1,913
Skills Development	13	802
Community Schools	2,851*	546,899*
Interactive Radio Centers	300**	800,000**

Source: (MoGE & MoHE, 2017, p. 66), *Community School Data added from source: (MoGE, 2011) **Interactive Radio Center data from: (Laflin, 2007).

It must be noted that the definitions of formal and informal AMEP provision in Zambia are blurred. All forms of alternative education in Zambia emerge out of collaboration between multiple actors, including but not limited to: government ministries, private sector actors, non-governmental organisations (NGOs), churches, and communities (UNESCO, 2022) (Siakalima & Kanyamuna, 2022).

As reported in the Zambian Ministry of Education's most recent strategic plan, these blurred definitions constitute a key issue for AMEP delivery. The plan states that a poor clarification of roles in the sub-sector has reduced quality assurance capacities, led to a lack of coordination between ministries involved in AMEP, and weakened links between the formal school system and AMEP industry providers (MoGE & MoHE, 2017).

On the other hand, the multifaceted management of AMEP may provide opportunities for impact-driven collaboration and cost-saving (LaRocque & Latham, 2003). Thus, investigating and clarifying the different institutions and implementing partners involved in AMEP delivery in Zambia is an important task.

Under each of the below sub-headings is a description of the channels and institutions through which various alternative modes of education provision in Zambia are delivered, alongside a brief description of each modes' purpose and context.

Open learning (OL)

Open learning in Zambia serves students unable to attend school and students unmatched to their school year in age. The DoDE's Open Learning (OL) Unit is responsible for providing access to OL through afternoon and evening classes, or classes inside of correctional facilities for inmates. The Youth and Adult Literacy Education (YALE) program is a key example of government led OL in Zambia, assisting adults who have missed early grade schooling to catch up with other learners (MoGE, 2022).

Open Learning Centers (OLCs) are a core mechanism for open learning delivery. Centers are designed to meet the specific needs of learners and provide flexible learning opportunities

that are not available in formal education. Their various offerings include catch-up primary and secondary education, adult literacy, vocational training, and skills development (MoGE, 2022). OLCs place heavy emphasis on self-directed learning, for example equipping students to mark their own tests (Siaciwena R. , 1994). Historically OLCs have faced difficulties including inconsistent teaching commitment and economic scarcity, such as paper shortages (ibid). Today, such issues are being overcome by blended and online learning techniques designed to make it easier for engaging and effective teaching to be delivered (MoGE & MoHE, 2017).

The Zambian government has aims of expanding the reach of open learning. However, access to centres is still limited, particularly in rural areas, where shortages of infrastructure and technology complicate OLC operations (MoGE & MoHE, 2017).

Also of note is that Zambia has been exploring open learning opportunities for teachers. Prior to COVID-19, the Zambian MoGE's called for the Open University (OU) to train teachers and school leaders in learner-centered approaches. This demonstrated the government's commitment to innovation for overcoming gaps in teacher development. The resultant ZEST (Zambian Education School-based Training) programme provided 600 primary school teachers with a range of open educational resources (OER) including TESSA Zambia. It aims to reach 4,000 teachers by completion and at the end of the project all resources will be made available online, free from copyright, for teachers across the country to use (Open University, 2023).

Distance learning (DL)

The DoDE's Distance Learning (DL) Unit coordinates efforts to promote access to education through distance learning for out of school children and adults requiring catch-up learning. This unit works through the Zambia College of Distance Education (ZACODE), which provides self-learning materials via print and electronic platforms for distance secondary education (MoGE, 2022). Pre-COVID radio-based distance learning primarily served Early Year and Primary school students. Consequently, ZACODE produced a series of self-instruction modules and curriculum-aligned open education resources specifically for secondary level children to access at home (MoGE, 2020).

E-learning was a growing form of distance learning in Zambia even before the COVID-19 pandemic. The nation did not have an official e-learning platform prior to COVID-19 (MoGE, 2020). However, several initiatives increased the utilisation of e-learning as a mode of AMEP. For example, in 2015 the British Council's 'Connecting Classrooms' program partnered with Airtel to provide 280 schools with internet connection for e-learning options (British High Commission Lusaka, 2015). Another example comes from 2011, when Lubuto Library Partners (LLP) created a set of 700 mother-tongue literacy lessons (100 in each of the 7 major Zambian languages) for children to access on 'One Laptop Per Child' (OLPC) XO laptops, made available in Lubuto libraries. The Lubuto courses have been completed by thousands of children. Although lessons did not provide data on learner success, the popularity of the lessons and feedback in focus groups suggests a strong demand for computer-based reading education in

Zambia (IFLA, 2023). It would be beneficial for future distance and open learning efforts to track the impact of their products, to guarantee learning quality alongside progress in the number of children reached.

Skills development

Zambia's Ministry of Community Development and Social Services (MCDSS) runs the 'Community Skills Development program' to provide alternative education in the form of practical skills. The program targets community members seeking employment and entrepreneurship opportunities, occasionally including school age youths (MCDSS, 2021).

Courses offered range from Metal Fabrication to General Agriculture and are subsided by a range of implementing partners, allowing fees to range from K350 – K500 ($18-$26) (MCDSS, 2021). No current evaluations assess how inclusive skills courses are, but basic literacy skills are listed as a 'should have' for the courses on the government's website (ibid).

Skills training centres have received support from organisations such as the International Labour Organisation (ILO) to offer training to vulnerable youth and women (ILO, 2019). Their teaching methods include practical training, group work, and apprenticeships. These centres had a presence in urban and peri-urban areas prior to COVID-19, but have limited coverage in rural areas where a shortage of skilled training providers limits the potential of centres (Siachiyako, 2012). MoE also provides practical skills training in all Schools for Continuing Education to out-of-school children as well as adults.

Educational Broadcasting Services (EBS)

Educational Broadcasting Services (EBS) serve the dual purpose of delivering an education option to vulnerable OOSC and providing another tool which teachers can draw on to teach formal or community school classes. Interactive Radio Instruction (IRI) has been a popular mode of alternative education provision in Zambia for many years, and its uptake increased during the COVID-19 pandemic. Prior to COVID-19, the Ministry of General Education (MoGE), under the auspices of the Directorate of Open and Distance Education (DoDE), developed ECE content for interactive radio programmes in 3 of the 7 local languages recognised as a medium of ECE and early grade teaching. In 2020, all contents were aired through the Ministry's Education Broadcasting Services (MoGE, 2020).

IRI centers were established in remote and rural areas as a solution to limited access to traditional schooling. They aim to provide safe and supportive environments for children to acquire education, and are necessary as access to radio sets and batteries can be a challenge for remote communities in Zambia (Macwani Sitali, 2023). IRI centres focus on channelling interactive radio broadcasts. The broadcasts cover core subjects such as Mathematics, Science, and Literacy, which are designed to be engaging and interactive, allowing supervisors with minimal training to run impactful sessions.

The outcomes of IRI centers have been evaluated through various studies which show they are effective in improving learning outcomes for children in remote and rural areas (see 'best

practice' section). However, some centres face difficulties in the learning environment such as lack of shelter or malfunctioning radios in some centres (EDC, 2003).

Zambia's TV education program, known as EduTV, also existed prior to COVID-19 and was broadcast by the Zambia National Broadcasting Corporation (ZNBC) to provide educational content in various subjects (Chongo Kabwe, et al., 2020). However, access to TV sets and electricity in rural areas is limited and has formed an initial barrier to the use of TV education since its inception (Matandiko, 2022; Chongo Kabwe, et al., 2020).

Early Childhood Education (ECE)

Early Childhood Education (ECE) is designed to give children a social and emotional platform for learning in schools. This is an essential goal in Zambia, where 78% of children under 5 are estimated to be at risk of not achieving their full potential in life (Walker & Baboo, 2020).

Both prior to COVID-19 and in the present, ECE centers have been diverse in form and run by various organisations, including the government, NGOs, and private individuals (Namonje, Deka, & Kaunda, 2017). The government's commencement with formal Early Childhood Education programming began in 2014, prior to which all centers were owned privately or by churches. The government's initial investment in Early Childhood Care Development and Education (ECCDE) stimulated the construction of 20 model ECCDE centres, the hiring of 1,000 teachers, and the development of an ECCDE curriculum (UNESCO, 2016).

UNESCO reports that despite increased government involvement in ECCDE, Zambia was not able to achieve the Education for All goals committed to in Dakar in 2000 (UNESCO, 2016). In 2013, gross-preschool enrolment was only 14.8%, far below the 50% EFA target and lower than countries such as Lesotho and Tanzania, which have a lower GDP per capita than Zambia (UNESCO, 2016).

This has concerning implications for the high percentage of children out of ECCDE today; A 2017 study finds ECE participation in Zambia to be significantly predictive of children's receptive vocabulary, letter naming, reasoning, fine motor, executive function, and task performance skills (McCoy, Zuilkowski, Yoshikawa, & Fink, 2017). Thus, ECE can be viewed as an important and effective mode of education for key stakeholders in Zambia to get right.

UNESCO's education policy review attributes the poor coverage of ECCDE to weak policy direction. Responsibility for ECCDE is spread across two ministries, something observed to have created bottlenecks in sector planning (UNESCO, 2016, p. 56). A 2020 Light for the World report concurs that a fragmented ECD policy framework undermines quality improvements in the sector, particularly as it relates to a lack of resource mobilisation for ECD and inadequate data collection on the scale of ECD challenges (Walker & Baboo, 2020).

Existing Ministry of Education statistics show that there is an uneven enrolment of children in ECE across Zambia (see table 2 below). The highest numbers of education centers are located in the Southern Province. In contrast, some districts, such as the Lunga district within the

Luapula Province, only have 1 ECC (Namonje, Deka, & Kaunda, 2017, p. 17). Across all provinces the majority of the children enrolled in ECE are girls:

Table 2: Early childhood education enrolment by province

Province	Number of ECCs	Number of children enrolled	%Of total enrolment that is female
Lusaka	77	4,548	53%
North-Western	78	3,816	52%
Eastern	244	11,546	54%
Southern	635	27,916	51%
Western	206	8,912	52%
Muchinga	129	7,501	52%
Central	380	15,479	52%
Copperbelt	220	21,452	52%
Luapula	210	9879	53%
Northern	207	11,016	53%

Source: Ministry of General Education 2016 Database, cited in (Namonje, Deka, & Kaunda, 2017, pp. 8-17).

The sub-sector also faces a series of specific challenges. This includes the inability of poor families to pay for ECE, the lack of a standard curriculum delivered in every school, and the under-qualification of ECE teachers (UNESCO, 2016). Under-funding has also led to limited learning materials and play equipment becoming an issue (see 'gaps and opportunities' section of this report on page 72).

Before COVID-19, the government took a series of steps to improve ECE in Zambia. This included standardising the early childhood curriculum to link it to formal Grade 1 schooling, restricting the minimum qualification of early childhood teachers from certificate to diploma level, introducing ECE higher education programs at Chalimbana University and Zambia Open University, and devising a MoE policy on ECCDE (UNESCO, 2016). The effects of these measures are yet to be systematically evaluated.

Youth and Adult Education

Pre-COVID progress on adult illiteracy in Zambia was positive. Illiteracy rates went from 32.8% (3.2 million adults) in 2004 to 13.07% (1.9 million adults) in 2014 (Activity International, 2023). Adult Learning Centers (ALCs) played a role in this, providing literacy and numeracy learning opportunities for adults who missed out on formal education.

ALCs typically focus on helping adults acquire skills that are relevant to their daily lives. The ability to read English billboards, newspapers, road signs, and items in grocery stores is a skill lacked by many adults in Zambia. Such adults may not have English comprehension but will

likely speak of one of Zambia's 72 native languages, of which 7 are nationally recognised (Activity International, 2023).

There is no one type of administrator for ALCs. ZACODE implements adult literacy programs in rural and urban areas of Zambia, which generally target women and vulnerable groups, such as people living with disabilities (MoGE, 2011). Still, the government, non-governmental organisations (NGOs), and community-based organisations all run ALCs in Zambia (Sichula & Genis, 2019). ALCs can be free for their intended beneficiaries, with funding coming from multiple sources including from government and INGO providers (Sichula N. , 2020).

Traditionally, ALCs have relied on teacher-centered lecture-based learning. A recent qualitative case study on non-formal adult literacy classes shows that this method, when applied in a participatory way, can produce strong learning gains for adults (Sichula & Genis, 2019). However, the authors further note that the two non-formal adult literacy programmes they spotlight fall short of international pedagogical standards for adult learning and non-formal learning. They attributed this to class facilitators perceptions of the adult learners they teach; facilitators tended to see learners as ignorant and therefore requiring a unique style of teaching (Sichula & Genis, 2019). Providing awareness trainings to supervisors, and curating a best practice guide to teaching adult learners, could provide easy wins for enhancing ALC quality.

This said, the modes of teaching in ALCs are already becoming increasingly diverse, encompassing interactive teaching, group work, and practical activities such as the planning of community projects (Banda, Anolt, & Sumbwa, 2017). Each of these is designed to make learning more engaging and effective. However, there remains limited data on best practice in adult learning in Zambia (Sichula & Genis, 2019).

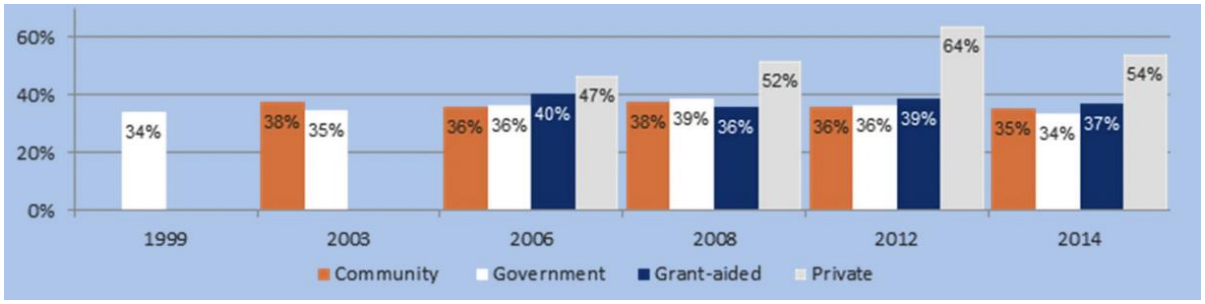
Community schooling

Zambia's large community schooling system emerged during its post-socialist transition, and expanded from 100 schools in 1996 to around 3,000 schools with 600,000 children in 2014 (Hoop, et al., 2020). Community schools are run by community members for targeted groups, often the economically vulnerable, children of HIV/AIDs affected families, orphans, and girls (Siakalima & Kanyamuna, 2022). Since 2000, community schools have utilised interactive radio instruction programs as a delivery system for basic education (Frischkorn & Falconer-Stout, 2016).

Community schooling was formally recognised as a non-formal mode of education provision prior to the COVID-19 pandemic (MoE, 2020). This has allowed community schools to continue to account for a major segment of education coverage in the country, representing around 18% of total primary school enrolment in 2010 (MoGE, 2011). Community-schools, particularly those targeted at marginalised groups, have been shown to have transformative outcomes for Zambian youth. Frequently delivering education to children who would

otherwise be out of school, they have achieved average grades on par with government school outcomes since at least 2003 (figure 1):

Figure 1: Aggregated Grade 5 Mean Performance in All Subject Areas, by school type



Source: (Frischkorn & Falconer-Stout, 2016, p. 2), original data from (MoGE, 2015).

However, community schools face a series of challenges. The Ministry of Education notes that insufficient teaching and learning materials, sub-standard infrastructure, and inadequate numbers of qualified staff all limit the impact community schools have on their attendees (MoGE, 2011; Frischkorn & Falconer-Stout, 2016).

Summary of pre-pandemic AMEP in Zambia

Table 3 below provides a summary of the AMEP in-place in Zambia prior to COVID-19. Higher education is outside the scope of this study and is therefore not noted as a level of education covered by the respective modes of provision.

Table 3: Summary of alternative modes of education provision available in Zambia prior to COVID-19

Mode of provision	Level of education covered	Key administrators
Open Learning (OL)	Primary, Secondary, Teacher Education	DoDE's Open Learning (OL) Unit; Open Learning Centers (OLCs)
Distance Learning (DL)	Primary, Secondary, Teacher Education	Zambia College of Distance Education (ZACODE)
Skills Development	Secondary	Ministry of Community Development and Social Services (MCDSS)
Educational Broadcasting Services (EBS)	Pre-primary, Primary, Secondary	Directorate of Open and Distance Education (DoDE), Zambia National Broadcasting Corporation (ZNBC); Interactive Radio Instruction (IRI) Centers
Early Childhood Education (ECE)	Pre-primary	MoE, through investments in Early Childhood Care

		Development and Education (ECCDE); Private, NGO, or Church ECE Centers
Youth and Adult Education	Primary, Secondary	Adult Learning Centers (ALCs)
Community Schooling	Primary, Secondary	Community Schools

Awareness of distance learning tools and programs prior to COVID-19

Populations' awareness of modes of AMEP can indicate the strength of the educational modes' reach. This is particularly true for distance learning tools and educational broadcasting services which aim to be a universally accessible learning option. This sub-section draws on primary data collected for this investigation to summarise the extent of pre-COVID-19 awareness of distance learning tools in Zambia:

Most students and parents were not aware that distance learning tools or programs existed prior to the pandemic. Across 142 FGDs, parents were asked if they knew of any distance education programs or tools that existed before COVID-19. In 53% of these discussions all parents said no. Similarly, in 57% of the 156 focus group discussions conducted with youths, no students were aware that distance learning tools were available to them prior to the pandemic.

Student awareness varied across school types. Only 26% of community school student focus groups showed awareness of pre-pandemic distance learning tools, compared to 41% of public-school students and 76% of private school students. Similar trends were found among parents; 36% of community school parents were aware of distance learning programmes, in contrast to 50% of public-school parents and 79% of private school parents. This suggests that pre-pandemic exposure to distance learning tools and programmes was uneven, and dependent on a series of factors that intersect with the type of school a child attends. These factors – including internet access, electricity, and parental support – are explained in subsequent sections of this report.

Teachers demonstrated a greater awareness of pre-pandemic distance learning options than parents and students. Overall, 76% of teacher groups were aware of distance learning programmes, including 79% of focus groups with public-school teachers, and a respective 72% of focus groups with community school teachers and focus groups with private school teachers. These high percentages suggest that in many areas of Zambia, prior to COVID-19, distance learning tools were known by teachers but not introduced to students and parents due to the infeasibility of their application. In line with the findings of the Zambian Ministry of Education's most recent strategic plan (MoGE & MoHE, 2017), this implies that teachers did not have meaningful options for requesting additional support for the application of distance learning tools to support children. Instead, they may have elected to not mention the existence of the tools to the communities they served.

Teachers' concern for equity may have limited their rate of distance learning tool use, and thereby students' awareness of the alternative mode of provision. During focus groups, several teachers emphasised concern that not all students in their school have equal access to the devices and infrastructure for effective distance learning, and that this knowledge made them reserved about proactively sharing and utilising distance learning tools.

> *Most of our learners have no access to distance learning tools. So if we used any, we would have disadvantaged the majority who have no access to these tools*
>
> TEACHER, COPPERBELT PROVINCE, PUBLIC - ADULT EDUCATION SCHOOL

While awareness rates went up strongly during the pandemic, this finding demonstrates the need to provide teachers with options to support all students, allowing them to pass on knowledge of distance learning tools to students and parents and identify and address gaps in who can access such tools.

How have children in Zambia continued learning during COVID-19 school closures?

Between Early March and the 20th of September 2020, schools in Zambia were fully or partially closed for 15 or 13 weeks, respectively. During this time, the MoGE's Education Contingency Plan for Novel Coronavirus (COVID-19) (MoGE, 2020) initiated Zambia's transition to distance learning. It budgeted ZMW 8,616,000 to 'expand radio, TV services and e-learning to all provinces of Zambia' (MoGE, 2020, p. 12). On May 7, UNICEF administered a US$10 million Global Partnership for Education (GPE) grant for this pandemic response (GPE, 2023; GPE, 2021). The Contingency Plan with GPE assistance aimed to ensure government support for continuous educational activities such as internet enabled self-learning, and radio and television broadcasts.

Combining primary and secondary data, this section explores whether students were able to continue learning during school closures, which tools enabled continued learning, and which factors affected the usability of each tool.

Learning continuity during COVID-19 related school closures

During primary data collection, parents and teachers were asked if they thought students continued learning during Covid-19. Meanwhile, students were asked directly if they felt they had continued learning. The results indicate that access to learning was uneven:

Less than half of Zambian teachers felt whether children were able to continue learning during COVID-19. Across 140 teacher focus groups, each containing 3 to 5 participants, there

was a near even split

75% of focus groups with community school attendees said that they were unable to continue learning

Out of these **33** groups…

16 cited a lack of infrastructure or resources

12 mentioned concerns about social distancing or virus transmission, with no home learning options available

between the number of respondents that said students continued learning and those that said they did not:

Across 140 teacher FDGs…

62 respondent groups indicated that students continued to learn

Alternative means of teaching such as WhatsApp groups, home assignments, and online lessons were said to have been utilised.

67 respondent groups said that learning opportunities were limited or non-existent

7 said specified that only some of their students were able to access learning.

Factors such as limited access to learning materials, gadgets, and internet connectivity were the most common reasons given.

Students from Community Schools were the least likely to feel they continued learning during COVID-19. Community school students faced significant challenges:

72% of focus groups featuring private school students said that they continued learning during school closures

These **46** groups attributed their educational continuation to reasons including:

- Access to online resources and WhatsApp groups;
- A regular setting of assignments;
- Self-studying, and;
- Motivation to not fall behind.

The term 'resources' was used variously by students to describe unaffordable internet bundles, technology gadgets, televisions and radios. Students in non-formal schools also struggled to continue learning, with a 64% majority of focus groups (7/11) reporting an interruption in their education. Their reasons for learning inaccessibility were similar to the community school respondents.

On the other hand, the majority of private school students said they were able to continue learning.

Public school students experienced a near even chance of learning continuation:

49% of public-school student groups reported that they were able to continue education during school closures

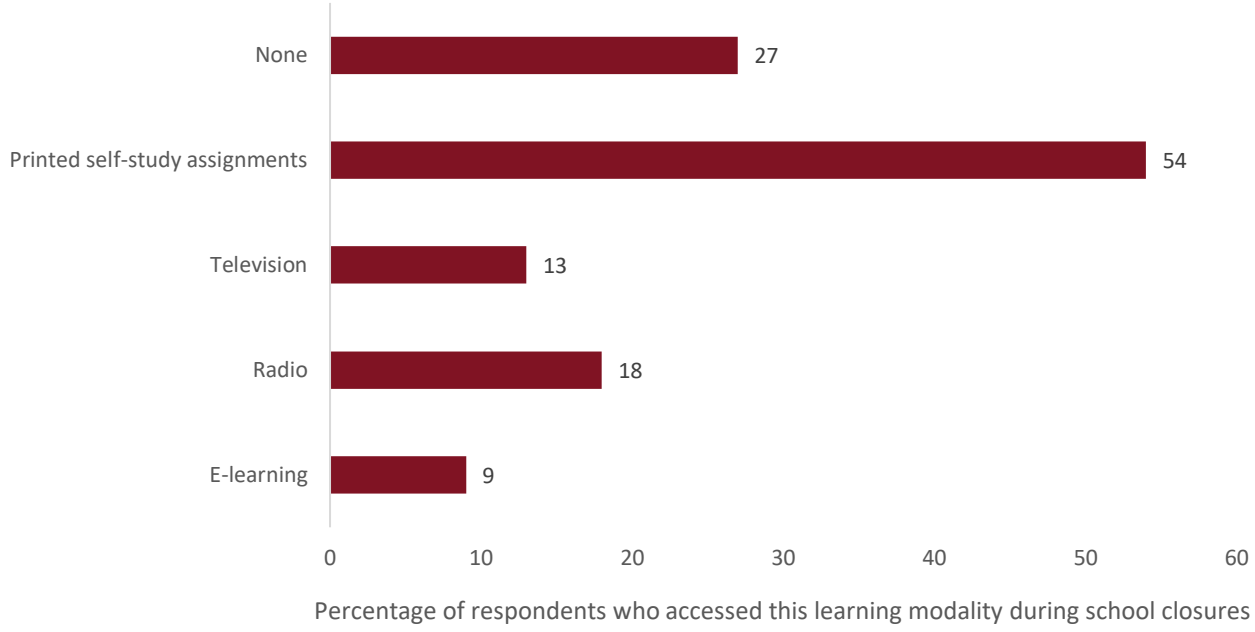
Like private school students, the half that felt able to learn emphasised the benefits of receiving assignments from teachers and being supported in self-study. Public school students in prison schools added that vocational skills trainings and educational TV programs also helped them to learn.

According to teachers, most provinces had a mixture of students who were and were not able to continue learning. However, in the Western, Central, Eastern, and Luapula provinces, the majority of teachers said that students were not able to continue learning. Responses such as "not all areas have ICT infrastructure" were the most common explanation provided when parents were asked why they said their children were unable to continue learning during school closures. Responses denoting a lack of access to gadgets such as phones and computers were the second most frequently recurring. Analysis of these issues, and of other factors frequently discussed by students, teachers, or parents, are discussed in subsequent analysis of the gaps in access to ICT, internet-based eLearning, radio, tv, and access to gadgets.

Distance education tools used for learning during school closures

Within a month of students returning to learning (June 2020), the Zambia National Education Coalition (ZANEC) collected data from administrators in 501 schools in all ten provinces to assess how learners had engaged with distance learning during the response phase (Flemming & Mwaanga, 2021). The project was named School Readiness and Accountability Monitoring (SCREAM) (ZANEC, 2020). Its sample revealed that the most commonly accessed form of learning during closures was printed self-study assignments, and that around 27% of schools presented no distance learning option to students.

Figure 2: Percentage of respondents from the SCREAM study who offered different modes of distance education to their students



Source: Adapted from (ZANEC, 2020, p. 23).

Primary data collection conducted for this investigation reveals which of these modes of learning were accessed by students and parents:

Overall, TV and self-study assignments sent via WhatsApp were the most common modes of learning for students during school closures. The 117 groups of parents and teachers who indicated that their children were able to continue learning during COVID-19 school closures were asked how they continued learning. A variety of modes of alternative learning provision were mentioned during focus group responses. These included, in order of frequency mentioned:

Table 4: Modes of learning used to continue learning during the pandemic

	Theme	Frequency of mentions	Provinces mentioned in
	Use of smartphones and WhatsApp groups for remote learning*	63	Luapula, Copperbelt, Lusaka, Western, Southern, North Western
	Television programs for remote learning	49	Copperbelt, Lusaka, Luapula, Southern

	Use of books and handouts for remote learning	23	Eastern, Luapula, Copperbelt
	Radio programs for remote learning	20	Muchinga, North Western, Eastern
	Use of online platforms such as Zoom and Google Meet for remote learning	18	Western, Southern, Copperbelt
	Use of YouTube for remote learning**	12	Copperbelt, Luapula

**All ages received info via WhatsApp, suggesting that parents were a mediator. *Only secondary school parents reported that their children used YouTube.

The relatively small number of respondents who said that they continued learning through the use of books and handouts suggests that the learning mode was not perceived as an effective means of educational continuation. In conjunction with the SCREAM study finding that over 50% of Zambian schools distributed printed learning materials, the fact that only 23 focus groups of parents and teachers respectively described it as a resource enabling their children's continued education implies that distribution alone was not sufficient to progress notable outcomes. Analysis on potential reasons for this, such as a lack of teacher guidance, is presented in the 'gaps and opportunities' section of this report (page 72).

Under each of the below sub-headings, analysis on the role each of the different modes of distance learning in Zambia played during the pandemic (television, radio, internet-based eLearning, TV, radio, m-learning on smartphone or tablet devices) is provided:

Television

Following the acquisition of the GPE COVID-19 support grant, the Zambian government drew on a UNICEF led consultation to play to its strengths (MoGE, 2020, p. 5). It acknowledged television as a logical pathway because it wouldn't require content development or an adaptation of existing materials; teachers could simply be recorded teaching. Subsequently, the GPE grant was given and partially used to build studios in all 10 provinces in Zambia (Železný-Green & Metcalfe, 2022).

However, access, quality, and time constraints limited the effectiveness of television education. A recent report presenting evidence from key stakeholder interviews in Zambia's education technology sector reveals that several problems rendered TV learning ineffective. First, there was limited access to TV among poorer families. Second, the TV studios used teachers conveniently located nearby, with no quality assuring selection process. Third, and relatedly, time constraints meant that content was generally not previewed before it went live, exposing the low skillset and low digital literacy of some teachers. One key stakeholder

explained that this led the Permanent Secretary in Zambia to teach live on TV himself in a bid to ensure quality:

> *[The Permanent Secretary in Zambia was] really disappointed with the quality of the teaching so he went live on TV and even ran a few lessons himself to demonstrate how to teach*
>
> KEY STAKEHOLDER IN THE ZAMBIAN EDUCATION TECHNOLOGY SECTOR. QUOTE SOURCE: (ŽELEZNÝ-GREEN & METCALFE, 2022, P. 79).

Households' access to electricity and televisions, alongside the common uses of televisions, limited the potential for students to learn through the EdTV channels. In Mukuka, Shumba, and Mulenga's (2021) survey sample of 367 students learning mathematics in Zambia's Kitwe district schools, 59.3% of students reported lacking a television set and 56.7% said they did not use television during the Covid-19 school closures (Mukuka, Shumba, & Mulenga, 2021, pp. 4-5). Thus, barriers to access nationwide, alongside the poor-quality teaching provided, have severely limited the impact of Education Television channels in Zambia (Matandiko, 2022).

Moreover, a lack of interactivity in television broadcasts limited student's understanding and engagement. During focus groups conducted for this investigation, students and parents reported that without the ability to ask questions, or pause programs to reflect on and digest their content, learners without immediate understanding of broadcasted content did not gain much from the lessons. Responses comparing the utility of online learning and television learning were echoed across several group discussions. For example:

> *Yes I learned from using a tablet and computer because it was the same as teaching me in person only that the teacher was somewhere else. I didn't learn much from using a television because most things were hard to understand.*
>
> STUDENT, SOUTHERN PROVINCE, NON-FORMAL/ADULT EDUCATION

The lack of interactivity lead students' individual characteristics and learning styles to affect their learning attainment during TV broadcasts. Students with limited concentration and a need for activity-based learning struggled to stay engaged while watching the programs. This occurrence was reported by several parents. For example, asked if television learning was effective, one parent explained that:

No they were mostly distracted by playing games and ending up switching channels on TV. They said it was boring

PARENT, COPPERBELT PROVINCE, COMMUNITY - PRE PRIMARY SCHOOL

Several parents reported that television programmes required subscriptions that they could not afford. During parent focus groups, it was widely shared that not all beneficial educational content was available free on the ZNBC channels. Asked how distance learning opportunities could be improved, several groups of respondents offered responses along the lines of:

If everyone had the educational channel it would have help. It was only on Topstar and we have GoTv at home, which didn't have that channel.

PARENT, COPPERBELT PROVINCE, PUBLIC - SECONDARY SCHOOL

If there had complimentary programs on ZNBC for learning so that even those that don't have DStv or GOtv could learn from there

PARENT, COPPERBELT PROVINCE, PUBLIC - SECONDARY SCHOOL

Plus, awareness of when free content was available was limited by inconsistent and poorly communicated broadcasting times. Several student and parent FGD respondents explained that content repetition was an issue, and that uncertainty around when new content would be aired restricted their preparations for learning.

If only the TV channel was improved because not everyone had access to it and for some who had the programs where just the same and repeated mostly

PARENT, COPPERBELT PROVINCE, PUBLIC - PRISON SCHOOL

It could be made better if it was consistent in airing out those educational programs...not an on/off kind of affair

STUDENT, NORTH WESTERN PROVINCE, PRIVATE - PRIMARY SCHOOL

Radio

The government also expanded support for content in interactive radio programme form, mostly ECE and early primary education programs, which existed in seven local languages before the advent of the pandemic. The GPE grant enabled the purchase of 11,000 solar-powered radios, intended to help benefit vulnerable students unable to access a school building due to remoteness, poverty, early pregnancy or child marriage (GPE, 2021). World Vision also trained teachers to deliver lessons on the radio for children across the country (World Vision, 2020).

Radio programmes were also broadcasted to benefit teachers, and received positive feedback for their role as a teaching aid. For example, asked which distance learning tools were effective, one teacher replied that:

> *Radio Liseli in Mongu, Mongu FM, Liyambai Radio. They were effective because they used trained teachers to offer learners [a better education].*
>
> TEACHER, WESTERN PROVINCE, PUBLIC - SECONDARY SCHOOL

Radio programmes offering remedial lessons played an important role in ensuring learners did not fall behind. Students in the Eastern Province and Muchinga Province mentioned the use of Taonga Market radio program as an effective leveller for their classmates during school closures. Simultaneously, programmes designed as remedial lessons gave teachers a resource to help students who were behind on learning to catch up:

> *There was a program called remedial lessons for the traditional way of teaching. Students who were slow lessons were given remedial work by their teachers to help them get through the class works effortlessly...It should be implemented country wide and not just in selected schools more like piloting...that was a very good program.*
>
> TEACHER, NORTH WESTERN PROVINCE, COMMUNITY - PRIMARY SCHOOL

Students in non-formal schools were most reliant on radio programmes than the general student population. Asked 'why were they able to continue learning during school closures', the parents and teachers of children in non-formal schools frequently responded that radio programmes helped to allow continued learning. This suggests that until access to ICT is more widespread across Zambia, radio will continue to have an important role to play in education.

However, it has been reported that radio lessons were limited in their effectiveness by several factors including schedule communication and learner concentration. As in the case of TV broadcasting, key stakeholders in Zambia's education sector explained that poor communication regarding radio broadcasting schedules made it difficult to know which grade lessons would be aired at which time (Železný-Green & Metcalfe, 2022). Plus, younger children were observed to struggle to sit and listen to the radio without strong supervision, given that many of the COVID-19 broadcasts were not interactive (ibid).

Relatedly, teachers, parents, and students made it clear that radio programmes were only effective when used in combination with teacher-led learning. Students explained that radio programmes promoted by schools as remedial lessons were relied on by teachers as a replacement to learning, rather than as a supplementary tool.

[I hoped to learn] through maybe remedial lessons but that was not the case. The process would have been better if our teachers used to give us work to go through answer and go through the works given by them but sadly nothing like that happened at all.

COMMUNITY, PRIMARY, NORTH-WESTERN PROVINCE

Teachers, meanwhile, reflected that relying on radio as a core component of catch-up teaching was risky due to no way of ensuring attendance. This highlights the importance of home environment in determining the effectiveness of distance learning and the risk of relying on modes of distance learning without attendance checking capabilities.

The radio program worked well then but not anymore...the issue of remedial work did not work well as most students didn't attend lessons

TEACHER, NORTH WESTERN PROVINCE, PRIVATE - PRIMARY SCHOOL

Finally, inconsistent radio frequencies and uneven access to radio devices are common challenges. Across FGDs, parents – including those grateful for the impact of radio -requested that radio network infrastructure is improved:

The education programs (Taonga market) on ZNBC radio 2, they were effective but they can be improved if the radio frequency is improved in all the parts of the country

PARENT, MUCHINGA PROVINCE, NON FORMAL - COMBINED SCHOOL

E-Learning

To facilitate remote learning, 'e-learning' and 'Smart revision' platforms were introduced. The former contained educational resources such as e-books and links, while the latter contained past examination papers with model answers.

To serve secondary level learners specifically, the government committed to launching self-instruction modular contents for all subjects, alongside making open education resources available on an e-learning platform. These self-instruction materials were delivered by the Zambia College of Distance and Open Education (ZACODE) (ibid).

Key commitments of the plan intended to mitigate the impact of school closure included:

- ***Implement continuity of learning through diverse platforms with particular focus on disadvantaged and marginalised children and adolescents***
- ***Implement continuity of learning for children with special education needs through development of relevant contents, identification of appropriate platforms and provision of teaching and learning materials***
- ***Empower teachers to provide remote learner support on structured lessons delivered through multiple platforms as well as provide guidance on self-directed learning***
- ***Utilise some already existing interventions and good practices, facilities and human resource in ICT at the two ICT Centres of Excellence.***

Source: (MoGE, 2020, p. 6).

In contrast to comments on radio and television learning, feedback on eLearning was appreciative of the government platform's depth and interactivity:

Yes it [eLearning options] had more information and easy explanation. In short, these tools have all the answers someone might have been stuck on

PARENT, COPPERBELT PROVINCE, PUBLIC - PRISON SCHOOL

YouTube was widely turned to by students able to access the internet, but a lack of Zambian syllabus content limited its effectiveness. Several students reported that YouTube was a beneficial tool for them, and hoped that content will be updated:

[Distance learning tools would be better] If they were a lot of Zambian tutors on those YouTube tutorials those who know and understand our curriculum.

STUDENT, COPPERBELT PROVINCE, PUBLIC - PRISON SCHOOL

Google Search was mentioned alongside YouTube as a source of learning. This was most common in private and public secondary schools, suggesting that training students on how to maximise search engine tools for learning would be a meaningful endeavour in these settings.

[My children used] YouTube, Whatsapp, Google search and TV

PARENT, PUBLIC/COMBINED SCHOOL, COPPERBELT PROVINCE

However, most learners were unable to access eLearning. During the UNESCO MILO study, over 80% of schools indicated that their capacity to utilise such services and deliver remote instruction was limited by student's lack of internet access and digital devices (UNESCO, 2022, p. 10). During FGDs conducted for this investigation, most discussions on eLearning revolved around a lack of internet bundles and poor internet connection. For example:

For [using] smart phones it was a challenge. If no bundles then no learning. Also, the network was poor that students missed their lessons.

PARENT, COPPERBELT PROVINCE, PUBLIC - COMBINED SCHOOL

Online Learning (Zoom and WhatsApp)

Online learning expanded rapidly in Zambia during the pandemic. However, live video calling opportunities were limited by internet and device access. In the face of these challenges, WhatsApp emerged as a popular channel for the sharing of resources and answering families' questions.

Most respondents discussing Zoom or other video calling platforms said that connectivity issues affected their impact. Both affordability and network stability were commonly cited as issues.

Zoom is effective, it can accommodate a lot of people at once. They should improve the network and make it cheaper.

TEACHER, COPPERBELT PROVINCE, PRIVATE - SECONDARY SCHOOL

WhatsApp groups showed strong utility as a distance learning tool due to the two-way communication option they offered. Parents and students appreciated that teachers were accessible via WhatsApp and that messages with assignments could be replied to with questions.

What worked well is the fact that children now where exposed to self-learning using tools (phones app) for studying, they were able to communicate with teachers on WhatsApp and ask questions where they wouldn't understand.

PARENT, COPPERBELT PROVINCE, PUBLIC - SECONDARY SCHOOL

One of the teachers got my number from my child and was sending topics to study and research work. There was even that channel government made for learners you would find children learning from it and doing some discussions

PARENT, COPPERBELT PROVINCE, PUBLIC - SECONDARY SCHOOL

Device and internet access occasionally hindered the impact of WhatsApp groups, but most had access and alternative options existed. Problems occurred when teachers relied on WhatsApp groups to reach families with assignments, and did not set clear times for assignments to be sent. When schools did not assess the internet access of families (assuming they would be online at any time of day), schools created problems for students' learning:

[On challenge was] assignments on WhatsApp groups because not everyone had access to them on time and required to be online almost the all day to be updated fast

PARENT, COPPERBELT PROVINCE, PUBLIC - SECONDARY SCHOOL

On the other hand, when schools recognised that not all students had consistent access to the internet, WhatsApp was used to save time and resources without excluding any groups.

The school made class groups on WhatsApp and sent work to keep our kids studying and learning and also sent printed work for some who were not on WhatsApp

PARENT, COPPERBELT PROVINCE AT A PUBLIC - PRISON SCHOOL

WhatsApp was primarily a communication tool, and was best used as a compliment to other distance learning options. For example, handouts were be created and distributed via WhatsApp, and messages on timings of online classes or broadcasts were sent. Teachers noted that the network effect of most people with a compatible phone using WhatsApp gave it utility, and suggested that its features are expanded:

WhatsApp is also effective considering that most people use it, but it's not very effective educationally. It's mostly used for communication. Maybe If they introduce WhatsApp Education the way we have WhatsApp business it can improve

TEACHER FGD, COPPERBELT PROVINCE, PRIVATE/SECONDARY SCHOOL

Print materials

Students reported that print materials were easier to focus on than m-learning tasks. Print assignments were generally reviewed positively by students, providing clear and isolated tasks that they felt more able to focus on than digital assignments.

The printed assignments from school kept us busy because we had a deadline, that one worked well, but we had a lot of distractions when it came to use phones sometimes you may find yourself opening other pages.

STUDENT, COPPERBELT PROVINCE, PUBLIC/SECONDARY SCHOOL

The physical presence of print materials also helped to enhance student's motivation for learning. Key stakeholders involved in the provision of distance education during the pandemic reported that printed materials were positively received.

From teacher testimonies, they were saying these children had never seen textbooks. So in the presence of these hard copy materials, the learners

put in more effort to read and study. They would see them as extra resources that they needed to help them progress through school. There was a difference in student results between the district where materials were distributed, and those where they had no hard copies.

KII, INGO STAFF MEMBER

However, the success of self-study materials was contingent on parent support and students' self-learning capacity. During KIIs, stakeholders involved in the provision of distance education during school closures emphasised that self-study materials were particularly effective in homes where parents were literate, supportive, and created an ideal learning environment for children.

For children who were able to read on their own, and were supported by their parents to go through their work, the self-study materials were very helpful because instructions were very clear, the support that came with the materials

KII, INGO STAFF MEMBER

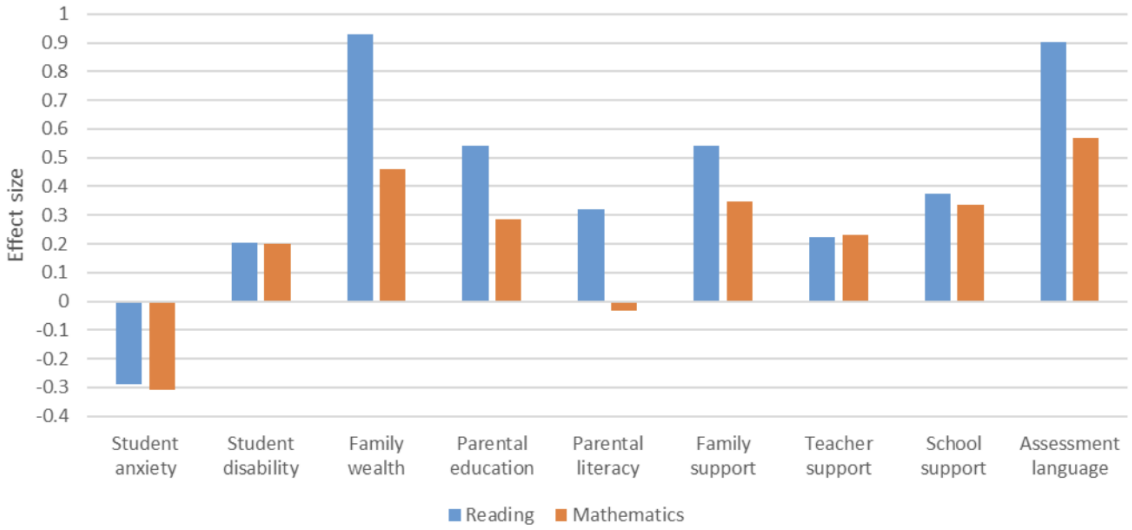
Moreover, distribution difficulties and under-resourcing made it challenging for all students to be reached with print materials. During UNESCO's 2022 MILO study, the majority of Zambian school principals reported that their use of government provided self-study materials was limited by distribution difficulties (78%), by inadequate supplementary materials (75%), and by an inability to communicate with students (74%) (UNESCO, 2022, p. 10).

Effectiveness of distance learning during school closures

Zambian learning outcomes for reading and mathematics remained steady compared to pre-pandemic 2016 results. Following the school closure period, the UNESCO Institute of Statistics (UIS) led a Covid-19 Monitoring Impacts on Learning Outcomes (MILO) study. The research measured how the pandemic impacted Grade 5 students in Zambia and 5 other African countries (UNESCO, 2022). In Zambia, students' average results in core reading and mathematics assignments did not decline after the school closure period.

However, school closures interacted with geographical and household level inequalities to worsen inequality in educational attainment. For example, students in Zambia who received more support from families showed greater proficiency in reading and mathematics during post-closure tests (UNESCO, 2022) (see figure 3 below):

Figure 3: Students' reading and mathematics assessment scores shown against their score in the nine indices they were surveyed for



Source: (UNESCO, 2022, p. 13)

As a result, from an equity standpoint, distance learning during school closures in Zambia has been widely deemed inadequate (Mukuka, Shumba, & Mulenga, 2021; Matandiko, 2022). For children able to access distance learning options, it has been concluded that the quality of education children received during online learning in Zambia was strongly dependent on their home environment, fastening unequal outcomes in e-learning (Besa, 2022).

Moreover, the steadiness of learning outcomes pre- and post- pandemic is more likely the result of a strong return to school than effective online learning provisions. Students had 25 weeks back at school before being assessed as part of the MILO study (UNESCO, 2022). School principals reported that, during this time, teachers recapped learning materials covered and targeted teaching at areas of weakness (UNESCO, 2022). UNESCO researchers report that reading and mathematics were the likely focus of these recap activities, leaving declines in unassessed areas such as science or social and emotional skills possible (ibid).

Interestingly, some respondents did not consider self-learning assignments to constitute continued learning opportunities. This may explain the aforementioned contrast between a high percentage of schools reporting the use of print materials and the relatively low number of parents and teachers who reported that the mode of education provision allowed students to continue learning. For example, one focus group respondent from a public adult education center said:

No we didn't continue learning. We just used to go through our school books. We were given homework and assignment from school

YOUTH FGD, ADULT EDUCATION SCHOOL RESPONDENT, COPPERBELT PROVINCE.

In contrast, when students felt connected to their teacher via WhatsApp and online chats, they overwhelmingly felt that they had continued learning. Moreover, having examinations or assessments to work towards helped provide additional impetus for remote learning. For example, one private school student explained that:

I feel that I continued learning because I was in an examination class, I continued studying and had group chats with our teachers.

YOUTH FGD, PRIVATE SECONDARY SCHOOL RESPONDENT, COPPERBELT PROVINCE.

Home visits also had the effect of making students feel that they were continuing learning in meaningful ways. In Prison Schools, students reporting that teachers came to visit them tended to respond that they had kept up learning during the Covid-19 pandemic.

We continued to learn all skills, e.g., agriculture, carpentry, and brick laying. This is because we were quarantined and teachers used to come while observing the safety measures

YOUTH FGD, PRISON SCHOOL RESPONDENT, EASTERN PROVINCE

To what extent does past AMEP remain in place?

Most Zambian children reported that they would now use a distance education tool or program if unable to go to school. Specifically, 79% (124/155) of youth focus groups had all participants say that they would turn to tool usage if school was unavailable.

However, at present community school students are less likely to feel able to use distance education tools. Only 59% (17/41) of community school student focus groups reporting that they would use a distance education tool if unable to go to school, in contrast to 88% (70/80) of public-school focus groups and 86% (18/21) of private school groups.

Moreover, within all school types, some students are likely to be unable to use distance learning tools. This view was widely purported by teachers and parents; 98% (137/140) of teacher focus groups and 96% (136/141) of parent focus groups said that the distance learning tools known to them were not available to all students.

Teachers suggested that radio was the distance learning tool most likely to be available to students across Zambia, though confidence in the universality of all tools was low. Teachers focus groups were asked if they felt all students in Zambia had access to a variety of respective distance learning tools. While 4% of groups said that all students could access ICT, only 1% of the same sample said that all students in the country have available internet. The proportion of groups who felt that all students could access TV (4%) and radio (8%) was slightly higher, though still low.

Radio was the only tool where community school families had equal or better access than the average Zambian household. The below tables present primary data on responses to closed-ended questions asked to assess parent and student access to each of the modes of distance learning. They show that radio and TV were more accessible to community school groups, but no more accessible to private school respondents than computers or gadgets. Only TV is more accessible than gadgets to public school students.

Table 5: Percentage of parents focus groups reporting access to the various modes of distance learning

Mode of distance learning	Percentage of parents reporting access			
	Overall	Public	Private	Community
ICT	32%	28%	80%	17%
Radio	33%	28%	67%	36%
TV	39%	38%	73%	36%
Gadgets (Smartphones/Tablets)	29%	28%	67%	21%

Table 6: Percentage of student focus groups reporting access to the various modes of distance learning

Mode of distance learning	Percentage of students reporting access			
	Overall	Public	Private	Community
ICT	49%	58%	74%	21%
eLearning	31%	34%	61%	14%
Radio	34%	26%	65%	33%
TV	56%	60%	96%	38%
Gadgets (Smartphones/Tablets)	46%	49%	78%	29%

The government of Zambia recognises the importance of IRI centres, and it has made efforts to expand IRI programming to reach more children in remote and rural areas. The government's 'Learning at Taonga Market' (LTM) programme continues to be used as an alternative mode of education provision and as a support tool in formal primary schools (see

'national best practices' section below). However, access to IRI and IRI centres is still limited, particularly in areas with poor radio reception or no access to electricity.

E-learning options have also expanded since the pandemic. The government has recently launched a national digital teaching and learning platform with the support of UNICEF – the Learning Passport. The platform facilitates learning through audio lessons, career development support, financial literacy, and digital skills. It already has around 3,000 pieces of content available, including:

- ***Audio lessons for Early Childhood Education (ECE) in five local languages, for Grades 1 to 4 in seven local languages and Grades 5 to 7 in English;***
- ***Financial literacy and career development learning contents for adolescents and young people;***
- ***Video lessons for Early Childhood Education (ECE) and for Grades 1 to 11 (Primary to Secondary);***
- ***Digitalised and interactive curriculum-based content for Grades 5 to 7 also adapted for children with specialised education needs and disabilities.***

Source: (Fernadez, 2022)

Furthermore, the platform provides teachers the opportunity to learn and develop, providing teacher guides and pedagogical materials (Fernadez, 2022).

However, disparities between school types are greatest in student's access to elearning, gadgets and ICT. As table 6 shows, only 14% of community school respondent groups said they have access to elearning platforms, in contrast to 61% of private school students. Thus, the roll out of elearning programs are likely to favour private school students unless access gaps can be addressed. The same is true of distance learning provision through ICT or gadgets. Relative to focus groups of public or private school respondents. Notably less groups of community school students reported the ability to access ICT or gadgets, emphasising that both their schools and homes did not have the same equipment they perceived others to have:

The school doesn't have enough desks. No virtual equipment like computers, projector and electricity.

TEACHER, NORTH WESTERN PROVINCE, COMMUNITY - COMBINED SCHOOL

Private schools are more likely to have access to online learning platforms. For government schools there is no funding.

KII, INGO STAFF MEMBER

Attempts are being made to create better resourced community schools, but progress remains challenging due to inconsistent governance. Recently, Airtel Zambia collaborated with the organisation Zambia Open Community Schools (ZOCS) to build six classrooms and an ablution facility for the Ministry of Education (TechTrends, 2023). However, a 2016 evaluation of community schools found that there is inconsistent implementation of national policy, and concludes that the challenges facing community schools are therefore set to persist for the foreseeable future (Frischkorn & Falconer-Stout, 2016). Since introducing free basic education for all in 2002, the MoGE has taken increased responsibility for community schools, but resource allocations are inconsistent and stakeholders report confusion with the upgrading process (ibid).

Summary of AMEP in Zambia

The table below summarises the information contained in the previous three sub-sections to outline the types of AMEP, past and present, that have existed in Zambia.

Table 7: Summary of alternative modes of education provision in Zambia, past and present

Type of AMEP	Role in Zambia	Primary implementing institutions/partners	Key materials	Notable initiatives	Citing literature
Open Learning	To assist students unmatched to their school year in age (including adults) and students unable to attend school (including inmates). & To allow teachers to learn remotely and improve their practice	DoDE's Open Learning (OL) Unit, Open Learning Centers (OLCs)	Lecture materials, self-assessment tools	Youth and Adult Literacy Education (YALE) programme; OER4Schools by Centre for Commonwealth Education (CCE) and iSchool Zambia (for teachers); Zambian Education School-based Training (ZEST) open learning programme (for teachers).	(MoGE, 2022); (MoGE & MoHE, 2017); (Siaciwena R. , 1994); (Commonwealth Secretariat, 2015); (Open University, 2023) (Burns, 2011).

Distance Learning	Learning for out of school children and adults requiring catch-up (or continuation during school closures) & To allow teachers to learn remotely and improve their practice	Zambia College of Distance Education (ZACODE)	Self-learning materials, via print and electronic platforms; Radio;	British Council's Connecting Classrooms program; Lubuto Library Partners (LLP); *School Readiness and Accountability Monitoring (SCREAM); **UNICEF & MoE's 'Learning Passport'; [X]*Fastele! Fastele!* by MoE	(MoGE, 2022); (MoGE, 2020); (British High Commission Lusaka, 2015); (IFLA, 2023); (ZANEC, 2020); (EDC, 2017).
Electronic Learning (E-learning)	Enhanced learning through Information Technology (IT) devices both in and out of schools	Specific Community or Government Schools with INGO support	Mobile Phones[X]; Tablets; Laptops; **MoE's e-platform 'The Learning Passport'	[X]'Time to Learn' (TTL) project supported by the Education Development Centre (EDC); [X]Impact Network's and *Mwabu's* eSchool 360 model; **UNICEF & MoE's 'Learning Passport'	(EDC, 2017); (Hoop, et al., 2020)

Skills development (Form of Open Learning)	Providing alternative education in the form of practical skills	Ministry of Community Development and Social Services (MCDSS)	Materials vary according to course.	Community Skills Development program; International Labour Organisation (ILO) training to vulnerable youth and women	(MCDSS, 2021); (ILO, 2019); (Siachiyako, 2012).
Educational Broadcasting Services (EBS)	To broadcast learning content to be used by all students and as a tool by teachers	Directorate of Open and Distance Education (DoDE); Zambia National Broadcasting Corporation (ZNBC); Interactive Radio Instruction (IRI) Centers	Radio; Television	EdTV by ZNBC; Interactive Radio Instruction (IRI) Centers; 'Learning at Taonga Market' (LTM)[X]	(MoGE, 2020); (Macwani Sitali, 2023); (Chongo Kabwe, et al., 2020); (Matandiko, 2022); (USAID, 2009).
Early Childhood Education (ECE)	To provide pre-school children with a physical, psychomotor, cognitive, social, and	MoE through investments in Early Childhood Care Development and Education (ECCDE);	Play Materials; Classroom space	MoE construction of 20 model ECCDE centres; ECE related higher education programs at Chalimbana University	(Namonje, Deka, & Kaunda, 2017); (UNESCO, 2016);

	emotional platform to begin school learning	Private, NGO, or Church ECE Centers		and Zambia Open University	(McCoy, Zuilkowski, Yoshikawa, & Fink, 2017).
Adult Learning (Form of Open Learning)	Literacy and numeracy learning for adults who missed out on formal education	Adult Learning Centers (ALCs)	Lecture materials; Group work and practical activity plans	ZACODE adult literacy programs	(Activity International, 2023); (Sichula & Genis, 2019); (Banda, Anolt, & Sumbwa, 2017); (MoGE, 2011).
Community schooling	Alternative schools run by community members for targeted groups, often the economically vulnerable, children of HIV/AIDs affected families, orphans, and girls	Community schools (many now government supported)	School resources	Zambia Open Community Schools (ZOCS) programming; Various projects in collaboration with ZOCS	(ZOCS, 2023); (Siakalima & Kanyamuna, 2022); (Frischkorn & Falconer-Stout, 2016); (MoGE, 2011).

Key: *A Covid-19 Development, **A post Covid-19 Development, [X] Covered in 'best practices' section.

National, Regional, International Evidence on Successful Initiatives of AMEP

This section addresses the research question "What are the best practices in distance education delivered through alternative modes (radio, TV, eLearning, digital and print materials) at a global, regional, and national level?". It first explains successful initiatives at the national level, then at regional and global levels, before presenting these initiatives and alongside other exemplary examples in a table.

National best practices

Radio

The most prominent and best example of alternative learning tool application in Zambia is the use of interactive audio instruction (IAI) and interactive radio instruction (IRI). Since 2000, IRI has played a particularly instrumental role for Zambian children, in particular for orphans. As a group, orphans are often targeted for IRI exposure during their time at community schools or through invite to IRI centers. IRI centers solely offer Interactive Radio Instruction, while community schools often use it as a tool (Ho & Thukral, 2009).

Evidence shows that IRI delivers significant positive outcomes for Zambian students. Interactive audio instruction (IAI) and interactive radio instruction (IRI) has been measured to alter learning outcomes in Zambia. For example, Ho and Thukral (2009) analyse the test-results of grade 1-4 students participating in IAI programmes from across Zambia, Sudan, Haiti, and India. The researchers find that in both numeracy and literacy programming, participating students ranked significantly higher among their classmates after participating in IRI. One standout finding from their calculations is that grade 1 students are projected to rank at least 16 percentiles higher among their peers in both numeracy and literacy if they participate in IRI.

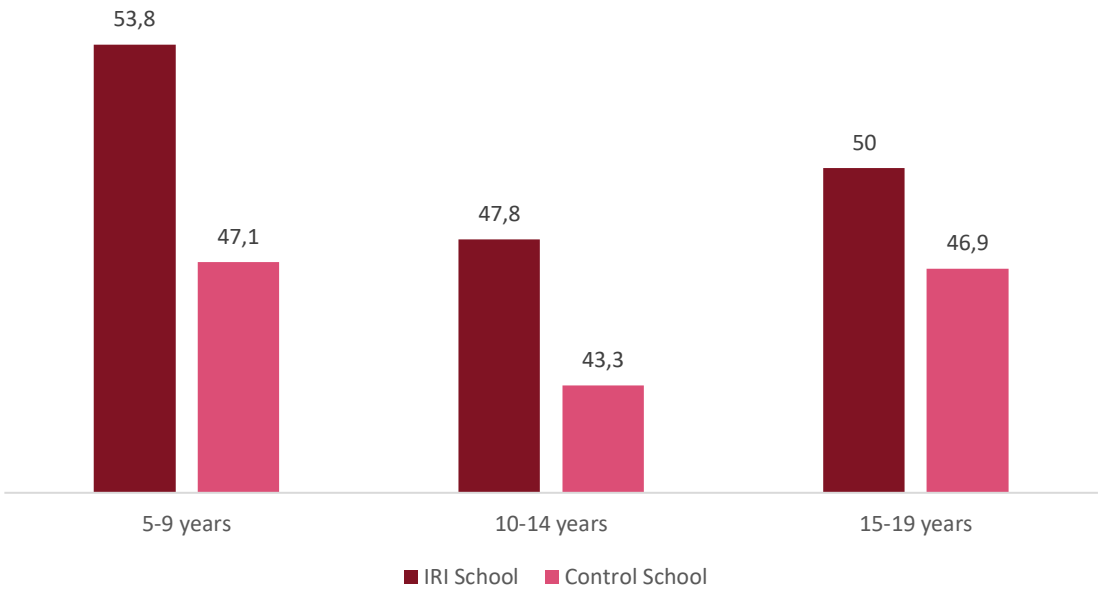
Moreover, IAI has been described as a "critical instructional support for untrained teachers in Zambia" (UNESCO, 2021, p. 30). IAI can be summarised as a pedagogical approach that requires learners to engage with, and respond to, a recorded audio lesson (ibid). In community schools, which are generally located in rural areas, IAI can provide a free service for teachers unable to provide or procure high-quality instruction on their own. For example, Zambia's IAI series 'Learning at Taonga Market' (LTM) taught Zambia children in grades 1-7 across the full primary curriculum of subjects. The radio broadcast series was recorded by Educational Broadcasting Services (EBS) of the Directorate of Open and Distance Education (DODE) of the Ministry of Education (MOE) (USAID, 2009). Collaborators and funders included the USAID-funded QUESTT project (ibid). Reports note that the variety of subjects covered by

the broadcasts helped to maintain student interest in it, making the project a leading example of good practice in engaging IRI rollout (UNESCO, 2021).

The 'Learning at Taonga Market' (LTM) project has had measurable success. An assessment-based evaluation of the LTM project provides evidence of its outcomes (USAID, 2009). The project ran from 1999 to 2009 and averages show that learners from IRI schools with the IRI resource were found to perform slightly better in all target subjects than learners from control schools (USAID, 2009). Results show that learners in schools with the IRI option achieved better mean scores across Mathematics, English, Science and Social Studies than those in Control group schools. Specifically, IRI learners scored an average 5% higher overall (ibid).

The evaluation of the LTM series also reveals that the project was particularly impactful for younger children (USAID, 2009). For children aged 5-9 the gap was especially significant, with IRI learners scoring 6.7% higher on average. Learners aged 10-14 scored 4.5% higher, while the mean score of learners 15-19 was only 3.1% higher than the score of students in Control schools (see figure 4 below). Thus, the 'Learning at Taonga Market' case study illustrates the importance of tailoring content to the needs of students; content was particularly engaging for younger age groups, which resulted directly in better outcomes for these segments.

Figure 4: Percentage difference in mean overall test score between IRI schools using the 'Learning at Taonga Market' resource and Control schools, by age group



Source: (USAID, 2009, p. 15).

The LTM project also shows the need to build teachers' capacity to support new tool use. The broadcasts were made only in English, requiring teachers to translate into one of the seven other formal languages of instruction in Zambia as appropriate. This process was designed into the project, with long broadcast pauses to accommodate translations (UNESCO,

2021). The frequent short translations tended to help children learn English quickly, making the IRI project a good practice example of the type of alternative learning tool that can enhance children's exposure to a lingua franca. However, the disadvantage of this approach was that it put extra burden on teachers. Potentially as a result, evidence shows that teachers with less than 1 year of experience and/or without formal training struggled to fully utilise the tool (USAID, 2009). Students in IRI classes with a teacher holding 1-2 years of experience scored on average 8% higher than students of teachers with less than a year, while the gap between teachers with a Primary Teachers Certificate and untrained teachers was a 7.1% drop in mean score. In fact, learners in Control schools taught by a teacher with less than 1 year of experience performed better in 3 subjects than those in IRI assisted schools. Therefore, the LTM case study demonstrates the need to tailor the provision of alternative education tools to teachers, complimenting the option of use with adequate training for less experienced and untrained teachers.

Given the success of radio learning programs, there may be an opportunity to expand radio learning opportunities in Zambia. However, the quality of radio broadcasts must also be considered. In 2019/2020, more than 80% of households that owned working radios said that they primarily access community radio stations because they are better quality than public radio stations (MoGE, 2020). If considered, coordinating community broadcasts will incur a cost should be weighed up against the potential of existing practices in IRI centers that utilise pre-recordings.

Teacher training

Teacher training itself has constituted one of the most impactful alternative modes of education provision in Zambia. For example, with support from USAID, The Zambian Teacher Education College (ZATEC) used cell phones to support its print-based Primary Teachers Diploma distance learning programme. Groups of teachers in rural areas were given a Motorola C-113 mobile pay phone, kept in teacher resource centres. The teachers could then sell talk-time cards and talk-time minutes on this phone to other community members. In allowing this capitalisation of the time teachers were not using the phones, the project generated income to cover the cost of the teachers communicating with lecturers (Burns, 2011). Although cell reception and the absence of a calling schedule in printed materials posed problems, the project was overall a success, allowing teachers to contact a knowledgeable resource in times of need (ibid).

Zambia has also witnessed successful ventures into open educational resource (OER) based training for teaching staff across the country. For example, in 2014 the Centre for Commonwealth Education (CCE) launched the OER4Schools project to provide local Zambian teachers in selected schools with a range of varied, practical, and ICT-based resources openly available under the Creative Commons License, so that they can be reused and modified freely (Commonwealth Secretariat, 2015; Hennessy & Haßler, 2014) (Hennessy, Haßler, & Hofmann, 2015). The OER4Schools multimedia resource supports and illustrates interactive

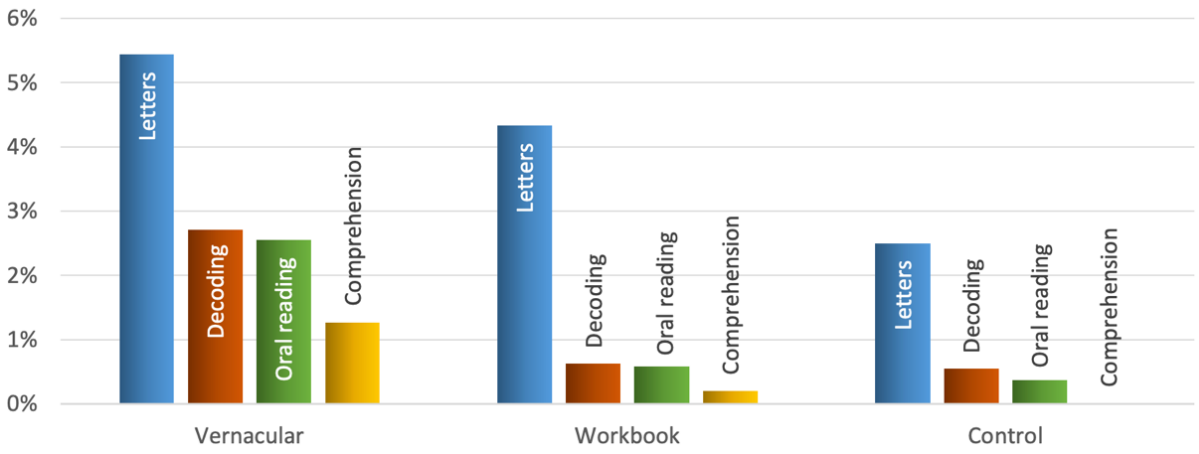
teaching and inquiry-based, collaborative learning of primary school mathematics and science – in contexts with and without classroom technology. The work was initiated in response to a project led by an NGO partner, iSchool.zm, who were integrating technology into Zambian schools with limited pedagogical support at the time.

During its assessment period, the OER4Schools initiative was found to be consistently successful in encouraging participants in engaging with, and using, digital tools and resources in the learning environment. Teachers reported greater comfort with the use of interactive, collaborative, and exploratory approaches to teaching; while pupils became far more actively engaged. Moreover, arguably the most crucial outcome is the creation of the OER itself: A resource available to all teachers in online and offline formats, free of charge, under the Creative Commons license, which collates and makes available hundreds of files, materials, lesson plans, video and audio resources and other information to help teachers design and deliver better lessons and achieve educational outcomes (Commonwealth Secretariat, 2015). The project's success gave platform the currently ongoing ZEST (Zambian Education School-based Training) programme, which has so far provided 600 primary school teachers with a range of OER (Open University, 2023).

eLearning and mLearning

Zambia has had some successful applications of mobile learning (m-learning) and electronic learning (e-learning), prominently to support community schools and education for struggling rural areas. In its five-year 'Time to Learn' (TTL) project targeted at improving the quality of 2,000 Zambian community schools, the USAID funded Education Development Centre (EDC) piloted providing students with digital learning tools (EDC, 2017). The literacy app 'Vernacular' offered children tablet-based reading activities in their mother-tongue Chinyanja language. A randomised control trial reveals that the app dramatically improves young children's reading ability at a lower projected cost contra print materials (ibid) (see figure 5 below):

Figure 5: Gains in percent of answers correct during assessment, tablet learning vs workbook learning, by assessment category:



Source: (EDC, 2017, p. 17).

The TTL project also introduced mobile-phones as an in-service training tool for early-grade teachers in community schools. ECD's m-learning platform 'Stepping Stone' was loaded with videos guiding in-classroom literacy instruction as well as tutorials on how to create materials. All videos aligned with Zambia's Primary Literacy Program (PLP). The project is reported to have particularly helped new teachers who rotated in during the school year and had not yet received annual face-to-face trainings (EDC, 2017).

E-learning has also been successfully integrated into rural public-school teaching to address low learning levels in remote settings. De Hoop et al (2020) provides mixed method experimental evidence that the use of projectors and tablets in 63 rural Zambian schools enhanced scores in early grade reading assessments (EGRA) and mathematics assessments (EGMA). The e-learning tools were provided as part of the Impact Network's and *Mwabu's* collaborative eSchool 360 model, which supplies tablets loaded with lesson plans and interactive lessons for students. The program has been estimated to cost $3 a month per student, representing a 70% saving on government spending per child (Schling & Winters, 2018). The program supports teacher development with weekly trainings, including on how to most effectively utilise the technologies available. Student groups participating in the program improved their scores by up to 4.9% more than Control groups in mathematics, and 3.5% in reading. School enrolment and attendance also increased with the introduction of technology and teacher training, with children in Impact Network catchment areas 8% more likely to be enrolled than children in the control group. This was tied to a higher satisfaction among those learning through the eSchool 360 model. Thus, there is potential for substantial learning gains at low-cost from well blended combinations of technology integration and teacher training in Zambia.

Crosscutting best practices

Best practice in alternative education provision also entails certain fundamental actions which can assist learning and enrolment. As the above examples illustrate, delivering regular teacher training is one such action. Others include parent outreach, use of examinations, and offering skills relevant to students surrounding environment:

Regardless of the distance learning tool or mode of education provision, strong parent outreach is an important good practice that schools and programs must consider. UNESCO's (2022) evaluation of distance learning outcomes across sub-Saharan Africa during Covid-19 notes that students in Zambia were most likely to attend to learning when schools regularly contacted their families.

Moreover, Zambian students were more likely to attend a school where offline assessment methods were expected and required (ibid). Technology can assist outreach communications and assessment planning, allowing such fundamentals to be complemented, rather than replaced, by e-learning provisions.

Finally, offering students the chance to learn skills relevant to their communities can positively impact learning outcomes. Focusing on alternative-to-schooling youth and adult literacy (YAL) programmes, Kang'ombe and Sichula (2021) describe best practice in financing, policy formulation, curriculum design and monitoring in Zambia. In their literature review of best practice, they conclude that 'education-with-production' - programmes equipping students with skills relevant to solving the problems of their communities – are most likely to attract sponsors and participants with a sense of local ownership. The potential to gain vocational skills for self-employment have proved to be a strong incentive for learners in weak local socio-economic environments (ibid). This should be held in mind by alternative education curriculum providers to the same extent as it should by mainstream education managers.

Regional and global best practices

The COVID-19 pandemic drew out a range of AMEP approaches from governments around the world. As a result, it provided lessons on what constitutes good practice in distance education. Comparing remote learning solutions across the world, World Bank researchers have concluded that best practice in remote learning has five principles at its core, relating to three themes: adopt suitable technology, prioritise effective teachers, and ensure learners are engaged (see box 1 below)

Box 1: Principles of best practice for distance learning provision

Adopt Suitable Technology
1. Ensure remote learning is fit-for-purpose by selecting technologies accessible and utilisable by both teachers and students.
Prioritise effective teachers
2. Use technology to enhance the effectiveness of teachers, ensuring teachers are supported to acquire and use the technical and pedagogical competencies needed for the chosen mode of remote learning 3. Establish meaningful two-way interactions, by planning opportunities for students and teachers to interact with each other through suitable adaptations to the delivery of the curriculum
Ensure Learners are Engaged
4. Engage and support parents and students as partners in the teaching and learning process, by giving them the mean and motivation to support student's learning and emotional wellbeing 5. Rally all actors to cooperate for learning, ensuring continual improvement to remote learning systems through partnerships between the public and private sector, teachers, administrators, and communities.

Source: Adapted from (Muñoz-Najar, et al., 2021, p. 5)

Several case studies from around the world illustrate how these principles can be effectively implemented. For example, Peru is one country where parents and students were engaged as partners in the learning process. This required a multi-modal two-way strategy for communication with homes with varying levels of access to technology (see box 2).

Box 2: Peru's multimodal communication strategy as part of delivering the 'Aprendo en Casa' distance learning program:

Setting

Within two weeks of the pandemic, Peru's Ministry of Education (MINEDU) launched "Aprendo en Casa" (I learn at home).

The programme was multimodal. This was necessary given the variety of access to devices and connectivity in households across the nation: 80% of possessed a TV, 84% a radio, but only 24% had internet connection at home.

Launching a nationwide programme in such a short time span required involving partnering with communication providers, engaging parents as stakeholders in their children's learning, and implementing dynamic improvements on the basis of continually collected feedback.

Solutions

Partnerships with broadcasting and telecommunications providers:

- 1,100 local radios were partnered with to create content in nine native languages and reach students in remote areas.
- Minstry of Education curated content for Aprendo en Casa was broadcast free on the main TV channels
- Telecommunications operators zero-rated Aprendo en Casa's core digital site

A multi-modal communication strategy:

- Schedules for and information on content were sent out via multiple channels of communication including television, radio, mobile phone via text messages and WhatsApp
- Students and parents were able to send completed activities to teachers and ask for further work, mainly through WhatsApp.

Opportunities for parent feedback:

- The Ministry of Education conducted phone calls with parents at least once a month to supervise the adoption and effectiveness of its provision and make improvements.

Results

Due to the appropriateness of technology to the local context, "Aprendo en Casa" reached almost 85% of students in Peru.

According to the Monitoring and Evaluation (M&E) Unit phone survey conducted in May 2021:

- 77 percent of students and parents received support from teachers at least once in the past week
- 89 percent of students and parents were satisfied with the communication.
- 95.5 percent of parents said that at least one teacher requested students to complete and send homework in the past week.
- Among teachers who contacted parents and requested students to complete the learning activities, 95.3 percent ended up providing feedback.
- Overall 66.8 percent of students were satisfied with the TV learning program, 47.7 percent with the radio program, and 79.6 percent with the content and learning materials accessed from the initiative's website.

Source: Adapted from (Muñoz-Najar, et al., 2021, p. 25).

Irrespective of the alternative mode of provision, clear and regular communication to learners and those supporting them constitutes is a necessary good practice in AMEP. Best practice involves adapting such methods of communication to populations' popular channels. For example, the Rwanda Education board used its pages on social media sites such as Facebook to communicate messages to learners during school closures (REB, 2020). The Rwandan government also worked with mobile networks MTN and Airtel to create free USSD codes for students to take self-assessments and parents to have their queries and feedback considered by a helpline and helpdesk (Mugiraneza, 2021). This opened up information pathways for households with only basic T-9 phones, helping to broaden access to remote learning. If Zambia is to expand its AMEP channels, it must simultaneously develop strategies to deliver information on the programs to last-mile communities.

All best practice examples of AMEP take steps to equip teachers with the specific skills their programs require. During the pandemic, Uruguay, a country with a long history supporting education with technology, focused heavily on equipping teachers with the technical and pedagogical competencies for online teaching. This helped to ensure that learners were effectively engaged by online learning, illustrated by the high numbers of students who voluntarily undertook formative online assessments during the pandemic (see box 3).

Box 3: Uruguay's support for teachers implementing it's 'Ceibal en Casa' distance learning program

Setting

Since 2007, the Uruguay Government's Plan Ceibal has given every child who enters the public education system a computer for personal use with a free internet connection at school. Consequently, over 80 percent of households in rural areas have a computer. This provided a platform for the success of their Ceibal en Casa (Ceibal at home) program during school closures.

Solutions

Partnerships with broadcasting and telecommunications providers:

- Telecommunication operators zero-rated access to the main education technology (EdTech) platforms,
- Server capacity increased by 400 percent

Addressing digital divides:

- Computers were provided to students who lacked access to devices required for remote learning

Equipping teachers:

- A pre-Covid coaching program was adapted by Uruguay's Institute for In-service Teacher Training to provide pedagogical support to teachers in an online format
- The CREA management system - which teachers had been using for many years - provided teaching resources including discussion forums, virtual training, and guidelines for remote teaching.
- The capabilities of GURI - a digital platform used by Uruguayan teachers for over 10 years to report data such as student attendance and grades – were adapted to allow teachers to access parent's contact information and reach out during closures.

Results

- Over 90% of teachers reported feeling highly satisfied with the training and support they received during the pandemic.
- Student usage of Ceibal's online platforms during COVID-19 increased 2,454 percent in March 2020 in comparison to March 2019
- During school closures, 96 percent of primary school students voluntarily underwent formative online assessments through an evaluation platform that was implemented prior to the pandemic by SEA (Sistema de Evaluación de Aprendisajes).

Source: Adapted from (Muñoz-Najar, et al., 2021, pp. 41-42).

The high percentage of teachers satisfied with the training they received during pandemic period remote learning in Uruguay demonstrates the effectiveness of multifaceted support. Offering teachers specifically adapted trainings, alongside spaces to ask questions and engage with peers, helped to maintain motivation and enable problems to be quickly solved. The Uruguay case study shows that teacher trainings do not have to be designed from scratch for successful AMEP, but do need to be adapted from traditional formal trainings to prevent knowledge barriers from limiting impact.

Engaging parents as stakeholders in AMEP provision begins with enhancing their awareness of its importance. A UNESCO (2016) report argues that systematic efforts to do this is an important aspect of good practice that must be noted by countries like Zambia. There report

gives the example of Cameroon, where a system aimed at increasing people's awareness on the benefits of early childhood care and structured pre-school learning has been developed. Consciousness-raising seminars and workshops have helped to boost communities buy-in to ECE (ibid). In Zambia, sensitisation and awareness programs may help to level out uneven enrolment figures.

Similarly, rallying multiple actors and stakeholders to support AMEP benefits from a systemic and coherent approach. For example, South Africa's Children's Act 38 of 2015 has helped to enable a properly resourced, coordinated and managed ECD system. It designates leadership of ECE to the Department of Social Development and mandates collaboration with the Departments of Basic Education and Health; provincial and local government, and the finance and transport sectors (UNESCO, 2016). A similar policy in Zambia could help ensure that multiple stakeholders play appropriate roles in ECE service delivery, enabling referrals between health, education and social services to the effect of ensuring children's interdependent needs are met.

Finally, creating clear policies on each of the alternative modes of education provision will help to guide evidence-based decision making for more effective investment decisions. Kang'ombe and Sichula (2021) note that by 2008, nearby countries of Botswana, Namibia, South Africa, Mozambique, Madagascar and Zimbabwe had ratified national adult literacy policies or lifelong education policies emphasising adult education as a right. This has encouraged monitoring and evaluating on the effectiveness of AMEP and the identification of areas for improvement. In contrast, Zambia currently lacks a clearly articulated policy on youth and adult literacy, which contributes to minimal research and data collection in this area.

AMEP Best Practice Summary Table

Table 8: National, regional and global good practice initiatives in remote and distance learning

Initiative Name & Location(s)	Mode of provision	Context	Exemplary Solution	Results	Information source
National					
Learning at Taonga Market	Educational Broadcasting Services	Poor numeracy and literacy outcomes across the country	Interactive Radio Instruction programmes for children in grades 1-7 across the full primary curriculum of subjects, with content carefully tailored to be interactive for Zambian youth, and pauses in programming for teachers to translate content into local languages	Among children aged 5-9, IRI learners scoring 6.7% higher on average. Learners aged 10-14 scored 4.5% higher. Learners aged 15-19 scored 3.1% higher than students in Control schools.	(USAID, 2009).
OER4Schools	Open Learning	Limited teacher training materials available for in-service training	Variety of multimedia resources openly available online to teachers, adaptable under the Creative Commons License	Teachers reported greater comfort with the use of interactive, collaborative, and exploratory approaches to teaching, as well as more active student engagement with their teaching.	(Commonwealth Secretariat, 2015; Hennessy & Haßler, 2014) (Hennessy, Haßler, & Hofmann, 2015).

Time to Learn 'Vernacular' Literacy App	Community Schooling	Poor literacy outcomes in Zambian community schools	Tablet-based reading activities in students' mother-tounge Chinyanja language, following National Literacy Framework and schedule	Learning via the Vernacular software was found to be more impactful than workbook-based learning in improving students' letter identification and oral reading fluency.	(EDC, 2017).
eSchool 360 model	E-learning	Weaknesses in teaching skills and specific unmet student needs	Projectors and tablets for locally hired teachers, alongside pooled support and weekly coaching	Results consistent with, or better than, those in untreated Zambia government or community schools, achieved at a third of a cost.	(Hoop, et al., 2020). (Schling & Winters, 2018).
Regional and Global					
Teacher Education in Sub-Saharan Africa (TESSA); **Countries Across Sub-Saharan Africa**	Open Learning	Need for enhanced teacher training in Sub-Saharan Africa	Manuals for teachers and teacher educators developed to them improve their professional skills, and to make effective use of resources in their classrooms. TESSA materials have been integrated into several pre-service teacher training programmes or to enhance and strengthen them, and into	Openly available resources have allowed teachers across Africa to develop student-centered teaching approaches in their own time and in spite of many traditional barriers such as a lack of finance.	(Nath, 2022)

			Government training programmes. All materials are on the TESSA website for OER, licensed under Creative Commons		
The African Storybook Initiative; **Countries across Africa**	Open Learning	Lack of access to books to improve children's basic literacy	Website with thousands of openly licensed free picture storybooks in the languages of Africa. Website contains the tools for the translation, adaptation and creation of picture storybooks for children aged 2 to 10.	The African Storybook initiative currently has 3,250+ Storybooks, 7,390+ Translations and 220+ Languages covered, providing first-time access to formative language reading for thousands of children.	(Nath, 2022)
Room to Read Initiative; **Bangladesh, Cambodia, India, Laos, Nepal, South Africa, Sri Lanka, Tanzania,**	Open Learning	Low literacy rates among school-age children	Initiative provides access to educational resources for out of school children and children with poor literacy, including book provisions, the establishment of over 18,500 libraries, and teacher training to guide children to read on their own	Core literacy skills and the reading habits of learners improved. In their first two years of being supported by Room to Read, grade 2 students in Zambia experienced gains in reading fluency two and a half times greater than in comparison schools.	(Alexander, Kwauk, & Perlman Robinson, 2016).

Vietnam, and Zambia					
UNICEF's School-in-a-Box; **Emergency Settings Worldwide**	Distance Learning	Emergency settings	A package for one teacher and 40 students of supplies and materials, such as books, pencils, and a solar-powered laptop with preloaded educational content. The laptop also has a projector, allowing teachers to deliver lessons to a larger group of students.	In 2020, UNICEF delivered over 130,000 School-in-a-Box kits, with qualitative evidence showing it helped children to learn quickly and effectively.	(UNICEF, 2020).
Learning Equality's Kolibri Platform; **37 countries**	Distance Learning	Weak distance learning access in low-resource areas with poor connectivity.	Open-source platform includes a range of educational resources, such as videos, quizzes, and interactive lessons, and is designed to run on any device once downloaded and be accessible in areas with limited internet connectivity.	Between 2017 and 2020 Kolibri grew to 6 million users in 37 countries.	(hundrED, 2020).
'Ceibal en Casa'; **Uruguay**	E-Learning	COVID-19 School Closures	Pre-Covid coaching program was adapted by for In-service Teacher Training in an online format.	90% of teachers reported feeling highly satisfied with the training and support they received during the pandemic.	(Muñoz-Najar, et al., 2021).

'Aprendo en Casa'; **Peru**	E-Learning	COVID-19 School Closures	Schedules for and information on content were sent out via multiple channels of communication including television, radio, mobile phone via text messages and WhatsApp.	During a mid-programe phone survey, 77% of students and parents reported receiving support from teachers in the past week and 89% felt satisfied with the communication.	(Muñoz-Najar, et al., 2021).
Digicel Tonga e-Learning Project; **Tonga**	E-Learning	E-learning pilot in cooperation with the Tonga High School,	Creation of a dedicated Moodle platform to enhance pupil learning through access to on-line learning materials	Enhanced computer literacy through the double learning opportunity of well-taught platform navigation and access to e-materials on platform	(Commonwealth Secretariat, 2015)
Khan Academy; **Worldwide**	E-Learning	Unequal education access due to poor quality teaching resources	Platform includes a range of topics and subjects, from math and science to history and economics	An assessment on the use of Khan Academy alongside technology in Guatemala found that the provision of tablets with Khan Academy led to a 10-point increase in math scores contra the provision of tablets alone	(Leon, 2016)
Rwanda Education Board USSD Codes for Self-Assessment;	M-learning	COVID-19 School Closures	USSD-code based self-assessment options for students, developed by The Rwandan government in	Broadened access to remote learning, through opened up information pathways for households with only basic T-9 phones.	(Mugiraneza, 2021).

Rwanda			partnership with mobile networks MTN and Airtel.		
Eneza Education; **Côte d'Ivoire**	M-learning	High Illiteracy Rate (43.8% in 2018).	Eneza iEduk platform, a virtual tutor providing affordable and quality learning, developed in-house by local teachers and aligned with the national curriculum. Students can access lessons and quizzes on any mobile phone via SMS or USSD with a daily (c. 10 cents/day), weekly or monthly subscription.	In June 2019, over 13,700 users had accessed iEduk and completed over 40,000 quizzes	(GSMA, 2019).
Ubongo; **33 African Countries**	Educational Broadcasting Services	Poor school readiness and learning outcomes among African children	Fun, localised and multi-platform educational content to help children learn, available through TV, radio and mobile phones.	Children across 33 countries who watch Ubongo's early childhood program, Akili and Me, show an average 13% improvement in early cognitive skills including literacy and numeracy. A study by the Busara Center in Kenya on solutions to COVID-19 found that boys were more likely to get access to girls than	(Ubongo, 2023)

				academic books, but that both genders were equally likely to access Ubongo programs.	
Seasame Street Workshops; **Worldwide**	Educational Broadcasting Services	Gap in inclusive early education broadcast services worldwide	Audio lessons and TV show content adapted to 40 countries	A Meta-Analysis from 15 Countries completed in 2013 assessed the impact of watching Seasame Street on children's outcomes across several learning areas, from science subjects to health and safety related practices like hand washing. An 11.6 average percentile gain in terms of education was found. This means that an average child who does not watch Sesame Street is at the 50th percentile of education level, whereas a child who watches is at the 62nd percentile.	(Mares & Zhongdang, 2013)
TeleSchool and Taleem Ghar (Educational TV at Home); **Pakistan**	Educational Broadcasting Services	COVID-19 School Closures with low digital device ownership	Punjab's School Education Department (SED) leveraged existing educational content created by the provincial government for teacher training and adapted it for	Nearly 1 in 3 Pakistanis said they have accessed TeleSchool lessons. Of those surveyed, 77% were satisfied with the educational content of TeleSchool	(Zacharia, 2020)

			educational TV lessons for students. All content was rebroadcasted or made available on Youtube, mobile apps, or public websites.		
Bridge International Academies; **Kenya, Nigeria, Uganda, and India**	Community/non-formal schooling	Low enrolment and poor-quality education outcomes	An 'Academy-in-a-Box' model, which utilises technology in every classroom to allow centralised content to be effectively disseminated throughout the academy network. All teachers are supported by technology, using tablet computers, and a wide range of processes, from fee collection (utilising mobile-telephone payment technology) to payroll, have been automated, drastically reducing the staffing requirements for management within each school.	Economies of scale across the group allow for significant investment in research and development, allowing for an adaptive and high-quality curriculum across the group. In Kenya, it has been found that compared to their peer-groups, pupils in Bridge schools saw an improvement of .32 standard deviation gain in Core Reading Skills, and .51 for Mathematics skills. This equates to almost 252, and over 288 additional days of schooling respectively	(Commonwealth Secretariat, 2015)

Promoting Equality in African Schools (PEAS); **Uganda and Zambia**	Community/non-formal schooling	Low enrolment and poor-quality education outcomes	PEAS has established an innovative model of Public-Private-Partnership, running schools that are in receipt of government funding, but independent of government control.	PEAS schools operate at 60% of the costs of a mainstream government school within Uganda, with higher learning outcomes; initial PEAs schools scored in the top 17% of private schools in the country in terms of GCSE A-C equivalent results.	(Commonwealth Secretariat, 2015)

What are the gaps and opportunities in access to ICT, internet-based eLearning, nationwide radio and TV programme coverage, and access to gadgets in Zambia?

Drawing on a combination of primary and secondary data, this section explains the factors limiting the effectiveness of AMEP in Zambia, thereby identifying areas for potential strategic investment.

Parents who reported that not all children had access to the distance learning tools known to them were asked whether access was affected by fees and/or by internet access. Of a total 142 focus groups of parents, 81% said fees affected access and 89% said internet connectivity was a limiting factor.

Subsequent focus group questions provided a more in-depth understanding of why not all students were able to access these modes of learning during school closures. Overall, in order of frequency, the most common response themes were:

- *Challenges with internet connectivity or access to electricity*
- *Lack of access to e-learning tools*
- *Financial constraints and inability to afford learning tools*
- *Parental illiteracy and lack of support for home learning*
- *Lack of materials and guidance for distance learning*

Analysis of these themes and others is presented below, providing insight into the key factors influencing Zambian students' ability to participate in, and benefit from, distance learning.

Internet access

Internet connectivity was the most frequently mentioned infrastructural barrier to distance learning. Across questions on why e-learning was not possible and how it could be improved, students and parents frequently emphasised that more widespread internet penetration is necessary for current AMEP to be impactful and equitable. For example, several parents highlighted that not all parts of Zambia are connected:

> *They could be more effective if the network services were improved in Zambia, [with] at least every part of the country having access to network*
>
> PARENT, COPPERBELT PROVINCE, COMMUNITY/PRE PRIMARY SCHOOL

Respondents able to access the internet often noted that unstable connection limited the common modes of eLearning in Zambia. Students and parents suggested

that the amount of learning they could attain during school closures was on a spectrum tied to the stability of their internet connection:

If we had stable internet connection, we would have learnt more using Zoom

YOUTH, COPPERBELT PROVINCE, PUBIC/SECONDARY SCHOOL

Student's lack of internet access is most prominently an affordability issue, though is sometimes a result of uneven network coverage. Many parents expressed that financial constraints and the inability to afford learning tools limited their children's ability to access remote learning:

The learning was expensive because it depended on having bundles of which we didn't manage at times.

PARENT, COPPERBELT PROVINCE, PRIVATE – PRE-PRIMARY SCHOOL

We don't have [internet], because we can't manage to buy. We don't have the resources to be able to afford.

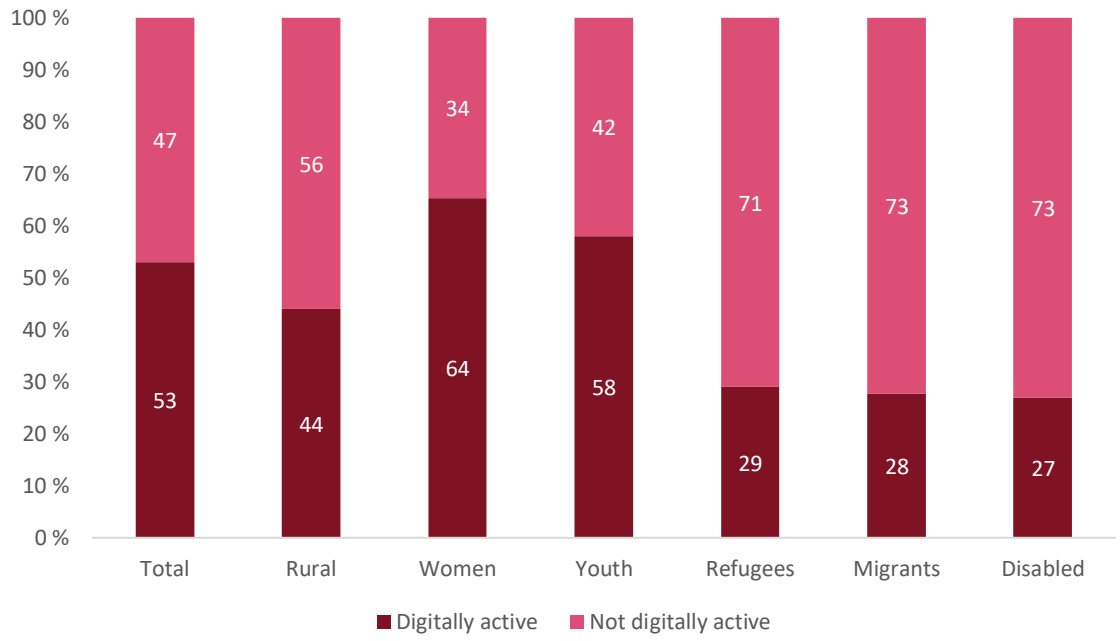
PARENT, LUAPULA PROVINCE, COMMUNITY - PRIMARY SCHOOL

Of Zambia's population of 20.29 million, 4.3 million (21.2%) are active internet users (Kemp, 2023) and 47% of its population is estimated to not participate in its digital economy. The number of unique internet users in Zambia has grown every year since 2013, with the exception of between January 2019 and January 2020 when the number of users declined 8.6% (Kemp, 2023), likely due to affordability issues (Syanseke, 2021). In UNESCO's recent sample of 4,954 students across 252 schools, 90% reported having no internet access for their e-learning during school closures, with only 6% reporting access to internet that works well for learning (UNESCO, 2022).

Internet connectivity is divided between rural and urban areas and along various socio-demographic lines. For example, UNCDF calculations - following a consultation with key stakeholders in Zambia's Ministry of Technology and Science - estimate that 56% of people living in rural areas do not participate in Zambia's digital economy (UNDCF, 2022). This suggests a lack of access to the tools for children's digital learning is likely the reality in rural communities. Within the categories of refugees, migrants, and disabled people, over 70% of people are not digitally active in the economy (figure 6). This signals both a gap and an

opportunity in digital education for young people within such groups; the statistics suggest a barrier exists to digital access and learning for these segments, but novel interventions have a chance for significant statistical impact.

Figure 6: Percentage of people digitally active in the economy, by socio-demographic segment



Source: Adapted from (UNDCF, 2022).

During COVID-19 the rural-urban divide in internet access created a gap in learning continuation. Students and parents answered that living in a rural area was a reason why they were unable to access online learning. Summarising the effect of geography - during a focus group consisting of students from a community primary school in a rural area within the Luapula province - one child explained that:

> *We lacked behind, we are behind and have no access to learning materials. Our colleagues in urban areas are way ahead of us due to access to internet learning, at the end of the day we'll write the same exam and us we'll fail*
>
> STUDENT, LUAPULA PROVINCE, COMMUNITY PRIMARY SCHOOL

Electricity

The issue of electricity ruled out effective learning for certain groups of the population. A lack of access to electricity was most common among respondents of community schools or public primary schools. Several respondents in the North Western province said there was no

mobile network or electricity in their area. Most respondents mentioning an electricity barrier did not say that alternative modes of learning were provided to their households.

Only 32.9% of households in Zambia (65.5% of urban residents; 6% of rural residents) are estimated to have access to electricity through a utility company (MoGE, 2020). Alternative electricity provider options tend to be less consistent and often more expensive, presenting a barrier to digital learning at home and in rural schools (Bernard & Nakamba, 2018).

Parent Support

A lack of parent support intersected with device sharing challenges within homes to disadvantage some students. Several youth respondents mentioned that parents would assign household chores over school work. In homes where devices were shared, relatives' opposing priorities could be a particular barrier to learning. For example, one student explained the need for their own phone:

> *No [I was not able to learn] because when I wanted to watch the television my parents would be sending me to do house chores… My uncle would not give me his smart phone to use if I had my own smart phone it would use it.*
>
> STUDENT FDG, COPPERBELT PROVINCE, PUBLIC SECONDARY SCHOOL

Parental knowledge of school curriculum material limited their capacity to assist home learning. Many parents reported that home learning during school closures and beyond would have been more impactful if they were equipped with the knowledge and resources to support their children:

> *I used to teach my child at home myself, he used to ask questions where he didn't understand. I feel he could have learned more if I had all the knowledge about his school work.*
>
> PARENT, COPPERBELT PROVINCE, PUBLIC/SECONDARY SCHOOL

Improving means of knowledge sharing within communities was suggested as a means of overcoming this barrier. Key stakeholders observed some parents struggling to assist children during school closures and hoped that existing community resources and knowledge could be shared. For example, one suggested that:

In terms of the self-study materials, I think it would be good to have better community support, and also to identify champions within communities to support children to engage with materials.

KII, INGO Staff Member

Parents limited knowledge of ICT was also a barrier to distance learning. Teacher focus groups often highlighted digital illiteracy from parents and students as a challenge to distance learning:

Some were illiterate about the tool

Teacher FGD, Copperbelt province, Private, Pre-Primary school

While most parents were aware of distance learning tools, but some were not. This suggests that support for parents' understanding of tool functioning may compliment the future introduction of alternative modes of education.

We don't even really know what distance learning tools are

Parent, Central Province, Public - Primary school

Across Zambia, it is estimated that only 6.8% of individuals possess basic computer skills (MoGE, 2020). Thus, digital skills training will need to be coupled with device provision and e-material creation to fill the gaps in digital learning opportunities. The provision of technology, internet, and electricity will not provide opportunities for eLearning without supplementary digital skills training.

Teacher interaction

Students receiving regular contact and strong guidance from their teachers consistently reported better distance learning outcomes. Students and partners valued access to teachers as a factor central to the success of their continued learning during school closures. Asked why distance learning did or did not work for them, and how it could be improved, students and parents often mentioned the ability to ask questions:

[My children were unable to learn because] there was no provision of asking questions because the time was limited and children couldn't ask questions

PARENT, COPPERBELT PROVINCE, PRIVATE - PRE PRIMARY SCHOOL

[Learning would be improved] If there was room to ask questions

YOUTH, COPPERBELT PROVINCE, PRIVATE SCHOOL

It's difficult for students to understand the content without a teacher's guidance

PARENT, EASTERN PROVINCE, PUBLIC - PRIMARY SCHOOL

Home assignments with clear guidance and direct remote teaching were generally seen as effective. Many respondents across parent, teacher and student focus group discussions emphasised that they witnessed a strong learning improvement when teachers spoke to children directly.

Home visits were important to ensuring that all students received some learning during school closures:

Bringing a teacher to teach my child worked well for me because I don't have a television.

PARENT, COPPERBELT PROVINCE, COMMUNITY - COMBINED SCHOOL

Guidance through WhatsApp groups had a positive influence on the likelihood of students learning from distance learning. Parents and students who said they felt able to continue learning during school closures were asked which factors contributed most to their success. Teachers support through WhatsApp groups was the third most frequently mentioned factor behind families having access to distance learning tools and the motivation of upcoming examinations.

In contrast to Zoom, WhatsApp groups worked for students with intermittent internet access, allowing them to participate in asymmetrical learning:

The WhatsApp groups worked well because the children would have access to the lessons even though they were not online at the time the lessons were sent. Zoom was a bit challenging because network was not always stable and access to gadgets at the time of the zoom class for the learners was not always there.

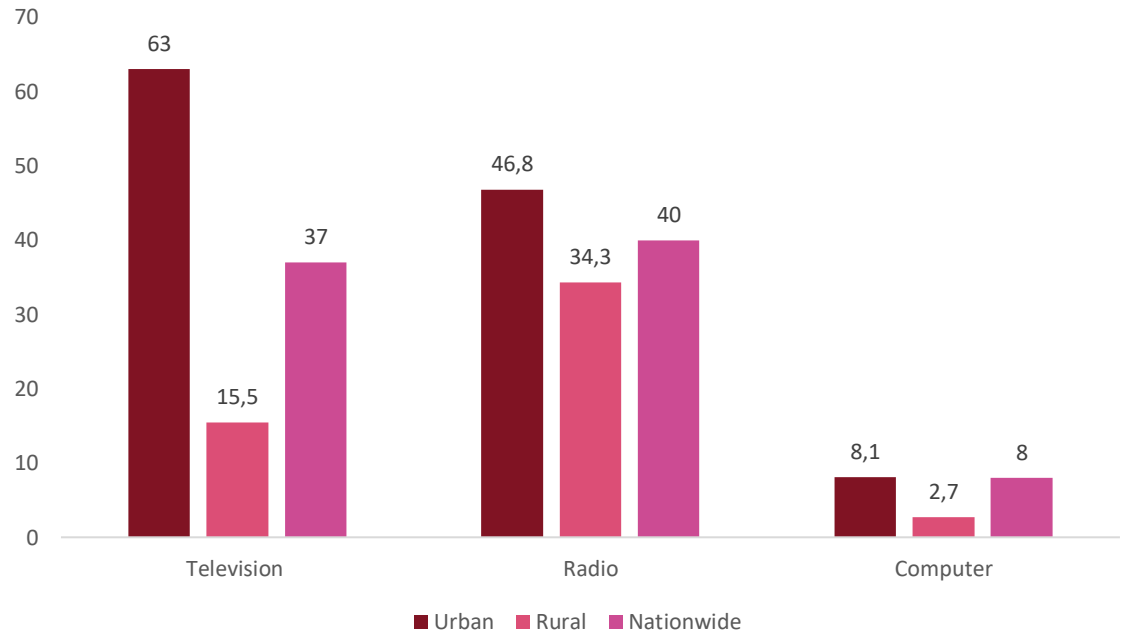
TEACHER, COPPERBELT PROVINCE, PUBLIC - SECONDARY SCHOOL

However, teachers' ICT knowledge was often a barrier to effective teacher guidance through digital means. Teachers were asked what affects accessibility to distance learning. A lack of teacher training on ICT and limited technical knowledge among school staff was cited by teachers in all regions, most prominently in Luapula.

Device access

Access to all digital devices is a barrier to distance learning programmes delivered through radio, TV, computers, and mobile phones, particularly for rural areas. According to MoGE statistics, only around 40% of Zambian households own a working radio, with 46.8% of urban households owning one and only 34.3% of rural homes reporting ownership (MoGE, 2020). Television and computer ownership was just as divided (see figure 7 below).

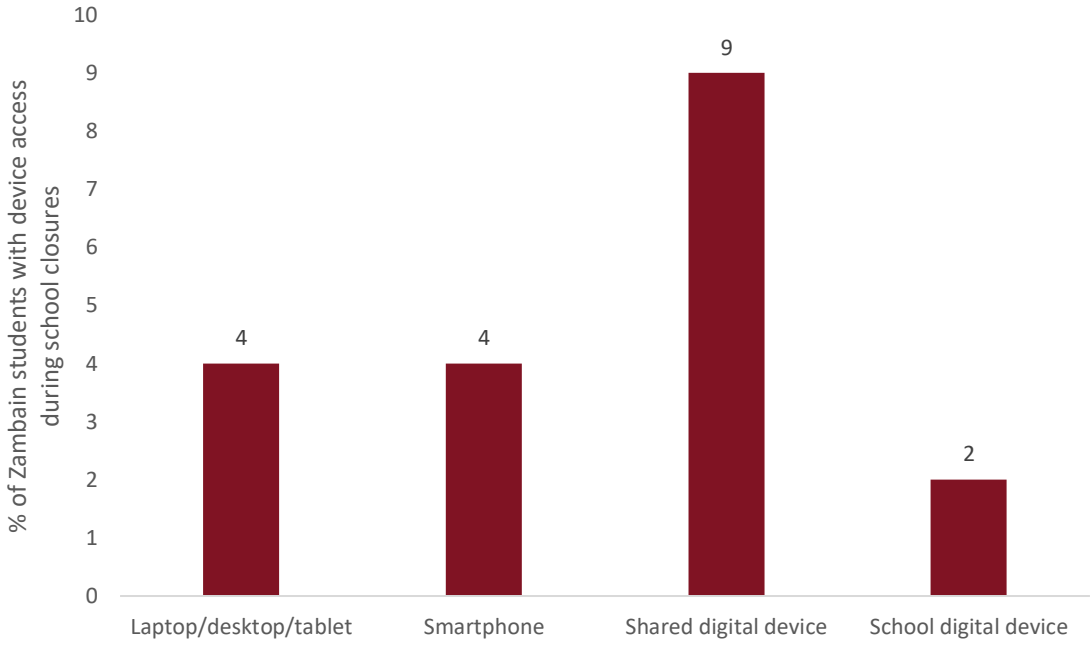
Figure 7: Proportion of households with access to digital devices, in urban/rural areas and nationwide



Source: Data from a Zambia Information and Communications Technology Authority (ZICTA), as cited in (MoGE, 2020, p. 5).

UNESCO's MILO study shows that this divide affected students during the pandemic, with an estimated 82% of Zambian students having no digital device access, and 47% of those that did only having access to a shared device (UNESCO, 2022) (figure 8):

Figure 8: Primary device used by students for distance learning during school closures, % of grade 5 population, sample size = 4,954



Source: (UNESCO, 2022, p. 70)

Across FGDs, families unable to afford particular TV channel subscriptions, internet bundles, or gadgets, were likely to reporting struggling with distance learning. Many parents simply did not have the devices. For example, asked if their children used a distance learning tool during closures, one respondent said:

> *Yes, just radio and TV though majority of us here don't have*
>
> PARENT FGD RESPONDENT IN LUAPULA PROVINCE AT A COMMUNITY - PRIMARY SCHOOL

Asked what affects the accessibility of distance learning Teacher FGD respondents in Southern Province at a Public - Adult Education schools said:

> *The availability depends on access to electronic devices some students cannot afford to own.*

TEACHER FGD RESPONDENTS IN SOUTHERN PROVINCE AT A PUBLIC - ADULT EDUCATION

Parents, teachers and students made it clear that only smartphones or tablets provided distance learning options. Throughout focus groups, it was emphasised that smartphones (or at a minimum WhatsApp compatible devices) were needed for the type of m-learning provided. For example, teachers and parents said:

Our community does not have internet so it was difficult to use distance learning tools. Plus, the majority of our students have no access to gadgets that can go to the internet

TEACHER, COPPERBELT PROVINCE, PUBLIC - SECONDARY SCHOOL

[Distance learning was] not effective because majority don't have them, simply because they can't afford to buy [gadgets]. [Learning could be improved] by making them [gadgets] cheaper for us to afford and also let the government provide for those that can't afford at all because of poverty levels are too high.

PARENT, LUAPULA PROVINCE, PUBLIC - PRISON SCHOOL

We don't have smart phones, we can't afford computers, the school has no computers or tablet.

PARENT FGD RESPONDENT, LUAPULA PROVINCE, COMMUNITY - PRIMARY SCHOOL

School finances and resources

Shortages of books, workbooks, handouts, and past papers were mentioned by teachers and parents as factors limiting students' ability to learn. A lack of handouts and past papers were most prominently mentioned in Luapula and Eastern provinces, but funds for additional resources were mentioned in all provinces:

[Distance learning could be improved] if there were sufficient funds like for printing handouts to the learners.

COPPERBELT PROVINCE, PRIVATE - PRE PRIMARY SCHOOL

The quality of schools' equipment also affected the ability of teachers to provide alternative modes of education provision. Many teachers said that they felt under resourced to provide distance learning through digital means.

The school doesn't have enough desks. No virtual equipment like computers, projector and electricity.

TEACHER, NORTH WESTERN PROVINCE, COMMUNITY - COMBINED SCHOOL

Individual Differences and Learning Styles

Distance learning was challenging for students who struggle with concentration. Asked if they benefitted from the distance learning tools they used, students often reported that their struggle with concentration and motivation issues prevented AMEP being impactful. Parents also regularly mentioned that a lack of concentration among their children was an issue.

Distractions at home also a prominent issue. Without quiet spaces for concentration, many students felt unable to concentrate on learning.

No because it was challenging… because of being disturbed

YOUTH FGD RESPONDENT IN COPPERBELT PROVINCE AT A PRIVATE - PRE PRIMARY SCHOOL

Concentration was easier when teachers were teaching live, and students could follow along or ask questions. Parents who said that their children used distance learning tools were asked whether their children enjoyed using them. A high proportion of respondents (43/70) said that there was a need for guided learning and teacher interaction to ensure that children enjoyed and benefitted from guided learning. For example, one parent said that their child was excited to see their teacher live on screen:

Yes he enjoyed because he use to follow as they teachers would teach. My child used to enjoy a lot he even knew the time for the lessons. My child even improved in spoken and written English.

PARENT, COPPERBELT PROVINCE, PRIVATE - PRIMARY SCHOOL

However, if students could not keep up then learning was difficult. There was a gap in additional support for struggling learners during school closures.

No because they couldn't understand in time it took long for them learn.

PARENT, COPPERBELT PROVINCE, PUBLIC - SECONDARY SCHOOL

Not really because there was poor concentration. Not really because if there was no room to ask questions.

PARENT, COPPERBELT PROVINCE, PRIVATE - PRE PRIMARY SCHOOL

Examinations and syllabus coverage

Students learning for upcoming examinations or clear syllabus completion goals were most able to continue learning during school closures. Asked why students were able to continue learning even through school closures, the factor of examinations as a motivator for teaching and learning was the second most commonly mentioned factor behind access to distance learning tools.

Students with upcoming examinations were prioritised by teachers, sometimes to the detriment of other students. Across both teacher and parent FGDs, many respondents – most prominently public-school students and those in the Copperbelt or Luapula province - mentioned that students in examination classes were prioritised and most able to continue learning.

[They continued learning] because they were in an exam class, because they had access to smartphones and revised past papers using the Examination council of Zambia app and because teachers made contact with us to encourage our children to keep on studying.

PARENT FGD, PUBLIC SCHOOL PARENTS, COPPERBELT PROVINCE

For some they just closed and waited especially for our kids who were not in exam classes as teachers most prioritised the ones who were about to sit for exams.

PARENT FGD, PUBLIC SECONDARY SCHOOL PARENTS, COPPERBELT PROVINCE

Concluding remarks

Despite these gaps, there are several opportunities for improving access to eLearning in Zambia. The country is described to have a strong regulatory and policy environment for digital providers to operate in, suggesting a potential role for the private sector involvement in the e-learning space (UNDCF, 2022). Additionally, there has been an increase in the use of mobile phones to access educational content (Sintema, 2020), and some organisations are developing innovative solutions to address the challenges of access to eLearning utilising mobile technologies (Siaciwena & Lubinda, 2008).

What are the beneficiaries' needs, demands, and expectations with regard to distance education and remote learning in Zambia? To what extent have these needs, demands, and expectations been met by the existing provision?

This section draws on primary and secondary data to consider the education gaps AMEP could fill in Zambia, the need for further research, and the challenges facing remote learning providers. It subsequently considers the specific demands of students for more user-friendly, interactive, and personalised tools.

Need and demand for AMEP provision

The needs, demands, and expectations of beneficiaries in Zambia with regard to distance education and remote learning are diverse. They depend on various factors such as age, gender, socio-economic status, and geographical location. Recent research conducted on behalf of USAID shows that needs related to learning loss from the pandemic are greater for already marginalised groups, including rural children, those with lower socioeconomic status, girls, and children with disabilities (Flemming & Mwaanga, 2021). One quote from a civil society organisation member captures this finding:

> *There were so many plans and ideas for distance learning, but they just were not equitable and a lot of children could not engage*
>
> KII WITH A CIVIL SOCIETY ORGANISATION (CSO) MEMBER, 2020. QUOTE SOURCE: (FLEMMING & MWAANGA, 2021, P. 24)

Distance education holds the potential to reverse uneven learning outcomes resulting from girls' exposure to child marriage and early pregnancy. Rates of child marriage and teenage pregnancy grew over the course of the pandemic across the world and in Zambia, where nearly 30% of girls become pregnant before 18 in an average year (UNFPA, 2022). The USAID study on Zambia's pandemic resilience found no significant gender differences in examined classes (Flemming & Mwaanga, 2021). However, numerous respondents speculated that the outputs of alternative education provision may be different for non-examined classes (ibid). This is consistent with a pre-pandemic study which shows that pregnant or married girls needs have not been met by non-formal schooling to the same extent boys needs have. The study found that in many sub-Saharan African communities' girls' education is deprioritised due to social norms that prioritise ensuring they marry over educating them (Inoue, Gropello, Taylor,

& Gresham, 2015). Key stakeholders consulted for this investigation emphasised the ongoing need for distance education solutions to help young mothers:

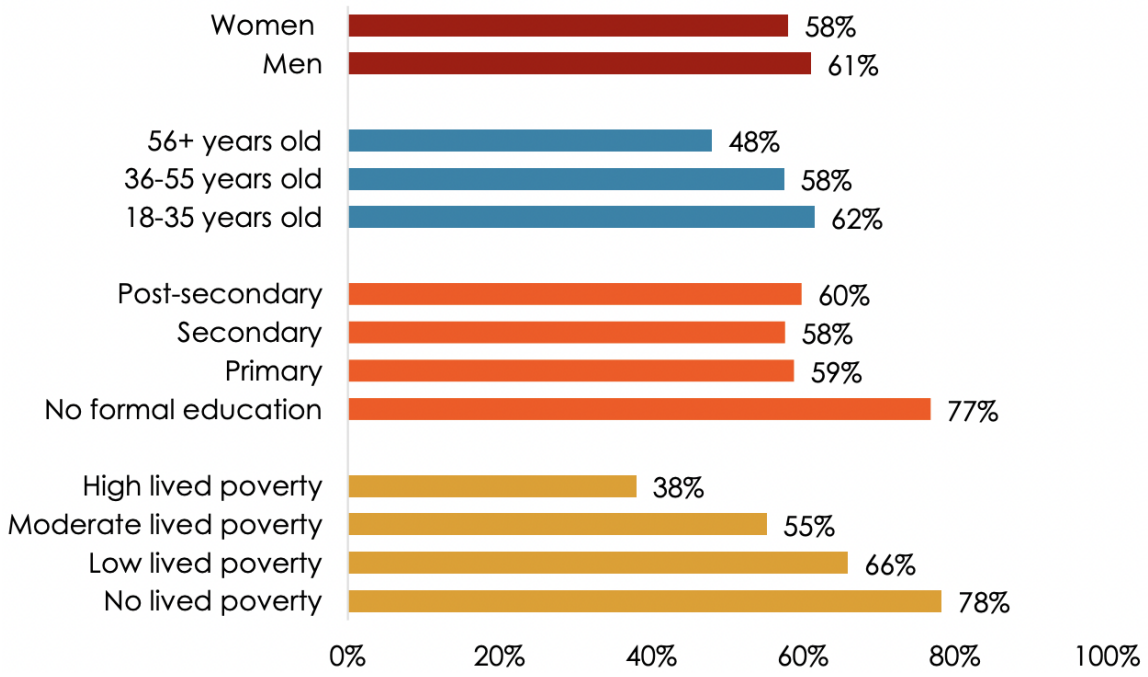
> *There is a policy in place for girls to remain in school, but no clarity and follow-up. There is a need for a mechanism in place to ensure mothers able to care for babies while also continuing education.*
>
> KII, Government Ministry Staff Member

The progress of alternative education provision in Zambia faces the challenge that the greatest beneficiary need is located in areas where existing provision is weakest. This is true because many of the barriers to alternative provision are the same challenges facing formal education; in the broadest terms a lack of finance, resources, and infrastructure (UNESCO, 2020).

No systematic primary data collection effort has been undertaken to compare the performance of alternative education for different groups in Zambia. However, an Afrobarometer survey of 1,200 adult Zambians in 2017 gives indication into which socio-demographic groups formal education is underperforming for, and into how non-formal education is viewed relative to formal education. More respondents answered positively about non-formal education than formal education when asked about their respective levels of effectiveness, improvement, and access (see figures 9, 10, and 11 below). While the categories of non-formal and alternative education are not consistent, positive reception of the former alongside dispersed demand for better formal education suggests that certain groups have a relatively greater need for provision alternative to mainstream education options (Afrobarometer, 2019). The graphs and analysis below indicate which groups may hold this need:

Groups living in poverty, women, and older people are less likely to feel that the government is providing adequate education. In terms of overall educational demand, the survey perspectives reveal that slightly less women than men feel the government is effectively addressing existing education needs in Zambia. Plus, respondents living in high levels of poverty are significantly more likely to feel that the government is not addressing educational needs well than any other socio-economic group (see figure 9). This may relate to high rates of absenteeism and dropouts among children of the poorest households: out of school rates are 26.9% among Zambia's poorest families compared to 4,3% among its richest (USI, 2014).

Figure 9: Percentage of people who feel the government is addressing education needs 'fairly well' or 'very well', by socio-demographic group



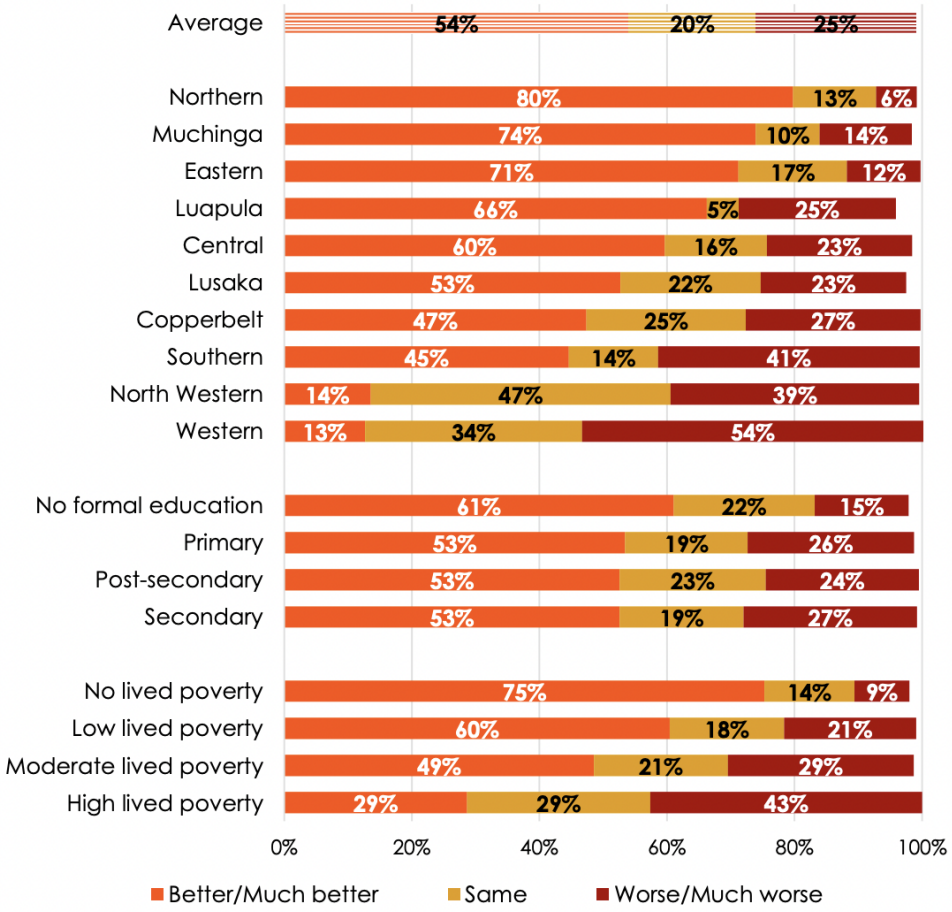
Source: (Afrobarometer, 2019, p. 3)

Key stakeholders interviewed for this investigation further emphasised the challenge of providing education to children of poor families reliant on their income contributions. For example, one stakeholder explained that:

> *[Alternative modes of education provision are needed for] older children who are OOS and are engaged in economic activities; you can't keep them in school for fixed hours because they are responsible to provide for their households. We need to come up with flexible solutions because they also need education.*
>
> KII, Government Ministry Staff Member

Expectation for the government to provide better education coverage further varies by region. In 2017, 88% of adults in the Western region felt that education has not improved in the last few years, implying they demand more from the government and its strategic partners (figure 10). Notably, 61% of overall respondents felt that non-formal education was getting better, suggesting non-formal education provision is making a big difference to the education of families and may be usefully supported and leveraged as AMEP is moved towards.

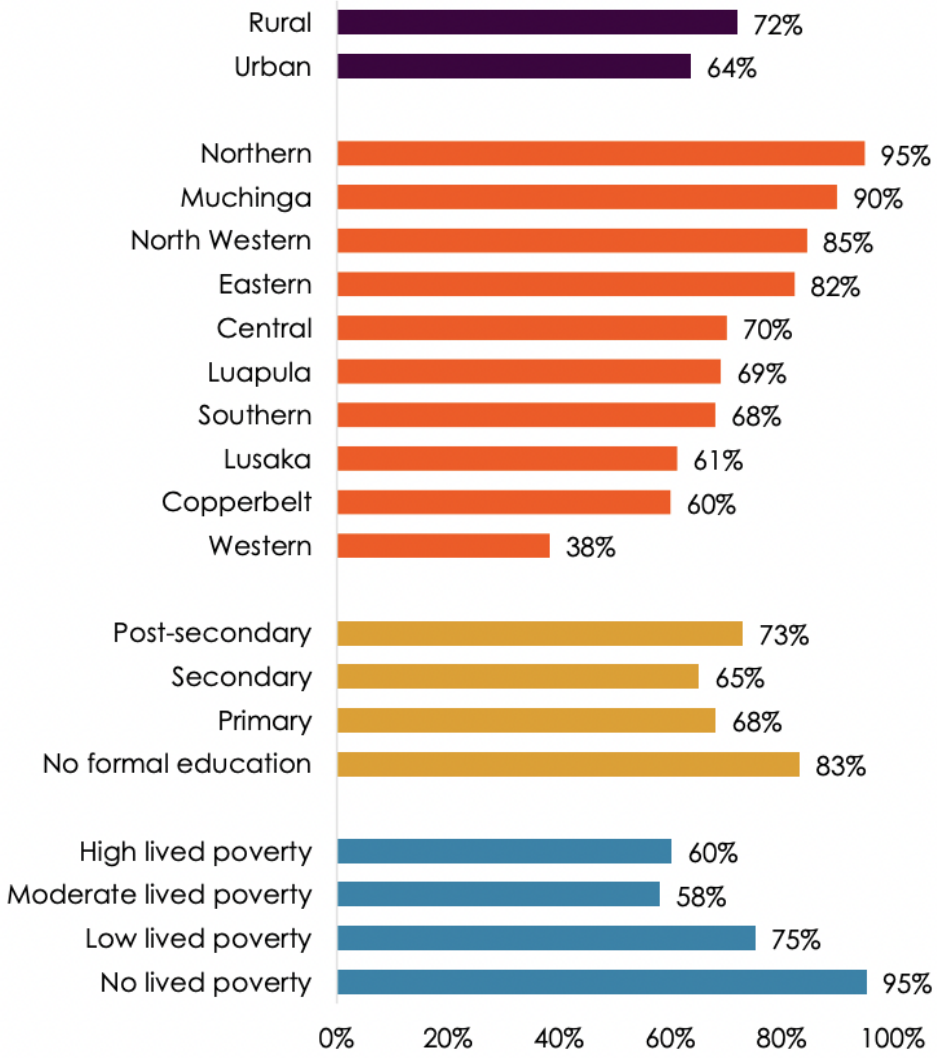
Figure 10: Responses to whether the government's effectiveness in addressing educational needs is better or worse than a few years ago



Source: (Afrobarometer, 2019, p. 4)

The geographical distribution of demand for greater government education provision is mostly consistent with levels of access to public school services across the country. One notable exception that there is a widespread perception that the government is not improving its effectiveness in addressing educational needs in the North Western Province (figure 10). This is despite most adults in this region reported that schools and officials make it easy for them to access the services they needed (figure 11). This suggests that enduring educational needs in the North Western Province will not be resolved simply by expanding access to educational services, but will require substantial improvements to education quality.

Figure 11: Percentage of respondents (who reported contact with a school in the last 12 months) that found it easy to obtain the services they needed from teachers or officials, by socio-demographic group



Source: (Afrobarometer, 2019, p. 8)

AMEP holds strong potential for groups who struggle to access public schooling or feel let down by it. Figures 9 and 10 show that in Zambia, these groups include those with high lived poverty and certain geographical regions such as the Western province. In this location, only 38% of adults who had recent contact with a school agreed it was easy to obtain services from school officials (figure 11), suggesting that both education access and quality is an issue.

Demand for distance learning tool improvement

This sub-section focuses more narrowly on the Zambian population's needs, demands, expectations for distance learning tools. It explores students FGD responses to the question 'what would you like from a distance education tool or program'. Responses are organised by theme, with denotation of the frequency of responses relating to each (within a total sample of 155 youth FGDs).

Accessibility and flexibility (**38 mentions):** Respondents hope that distance learning tools will allow them to access education anytime and anywhere, regardless of school closures or other barriers like distance from school or weather conditions. They specified that this will require offline access and consistent access to tools.

Continuity of learning (37 mentions): Echoing sentiments towards other questions (see below), 37 focus groups of students emphasised that tools ensuring continuous access to educational progression through syllabus and examination content regardless of circumstance would be ideal. Students stated that this will require all tools to be aligned to the national or international curriculum they are following, and offer additional content on more difficult topics.

Research and additional resources functions (27 mentions): Respondents mentioned that distance learning tools would be more engaging if they also allow them to research topics and access additional resources beyond what is provided in school.

[Tools should] help us learn more on some topics where we don't have books. [Ideally] we can download materials.

YOUTH FGD RESPONDENTS IN WESTERN PROVINCE AT A NON-FORMAL - COMBINED SCHOOL

It's useful because it's not everything you can get from class when the teacher is teaching but you can use it to research more and understand what you couldn't understand in class.

YOUTH FGD RESPONDENT, COPPERBELT PROVINCE, COMMUNITY - PRE PRIMARY SCHOOL

Improved understanding and concentration (25 mentions): Respondents mentioned that distance learning tools would help them better understand lessons, if they could repeat content modules, pause, and focus on specific areas they struggle with. eLearning options with hybrid online/offline functionality were popular in this regard.

[I would like a distance learning tool] to help us have a wide range of educational information for us to understand the subjects at hand in depth

YOUTH FGD RESPONDENT, NORTH WESTERN PROVINCE, COMMUNITY - SECONDARY SCHOOL

Students requested regular assessments through distance learning tools to keep learning challenging. Respondents also hoped that tools would be distraction free and not have adverts, yet contain interactive games, to help them resist the urge to procrastinate:

Give us questions and tell us if it's wrong or correct, a test and results… It should be for educational purposes only. It should have educational games to keep it interesting.

YOUTH FGD RESPONDENTS IN COPPERBELT PROVINCE, PRIVATE SECONDARY SCHOOL

Interaction with teachers and peers (18 mentions): Respondents mentioned the ability to ask questions, interact with teachers, and have group discussions with other learners as key to impactful educational development through distance learning tools.

Students mentioned that they would like to be able to ask questions in a variety of formats, to save time and feel comfortable using the tools regardless of their preferred learning style.

I would like to be able to ask the questions on the smartphone without typing and it should answer my question in both audio and written and because it's quick I don't have to waste time.

STUDENT, COPPERBELT PROVINCE, PRIVATE - PRIMARY SCHOOL

[Distance tools are useful if they are] able to link to the teachers. Able to add knowledge if it is convenient. If it is able to give a specific answer to a specific question.

STUDENT, COPPERBELT PROVINCE, PRIVATE SCHOOL

Customisation and personalisation (11 mentions): Respondents mentioned that if distance learning tools could be customised to their needs, then they would help them to learn more effectively. Students hoped for tools that would be able to store their personal notes, allowing them to build incrementally on prior learning.

[The ideal tool would be] Able to bring information that I research. It should be user-friendly not complex. It should be easy that am able to locate notes.

STUDENT, COPPERBELT PROVINCE, PUBLIC - SECONDARY SCHOOL

Confidence and inclusivity (11 mentions): Respondents mentioned that distance learning tools could be helpful for shy or underprivileged students, as well as those with disabilities. Students also hoped that distance learning tools would feature a translation function to help them understand difficult topics in their local language.

[I hope tools will feature] translation from English to local language.

STUDENT, LUAPULA PROVINCE AT A COMMUNITY - PRE PRIMARY SCHOOL

To what extent are the existing distance education and remote learning opportunities for Zambian children enrolled in various learning pathways effective?

As this study as thus far explained, several factors intersect to determine effectiveness of distance learning opportunities, including the mode of delivery, the quality of instructional materials, and the availability of infrastructure and resources (Siaciwena & Lubinda, 2008). In Zambia, the effectiveness of distance learning initiatives for enrolled children is limited by teacher training, community involvement, language barriers, and access to digital devices (UNESCO, 2022).

This section first explains the limited capacity of Zambia educators to assess the effectiveness of AMEP, then evaluates the role distance learning can play to be an effective addition to students learning in Zambia.

How distance learning effectiveness was assessed

Quality assurance is a prominent issue limiting the effectiveness of distance and remote learning opportunities. Siaciwena and Lubinda (2008) conclude this in their article on Zambia for the International Review of Research in Open and Distance Learning:

Distance learning programs] do not have adequate monitoring, research and evaluation base that is needed to support informed policy choices. Therefore, there is insufficient information on the performance of programmes and this raises doubts about their quality and tends to reinforce negative attitudes towards open and distance learning

QUOTED FROM: (SIACIWENA & LUBINDA, 2008, P. 11).

Teachers did not have formal or consistent ways of tracking whether students learnt through AMEP during COVID-19. Teachers were asked how they knew whether students continued learning during school closures. The most common response was that they had provided assignments, study materials, or homework. The second most frequent was that teachers had witnessed students use of alternative learning methods such as WhatsApp groups, television and radio programmes. Third, teachers mentioned that they were able to witness changes in students' performance (positive and negative) after schools reopened. Overwhelmingly, teachers who said that students did not continue learning gave no specific reason but simply gave the response "because we did not teach during closures" (or similar). This suggests that there are gaps in teachers' ability to ascertain whether their students are making progress or not outside of traditional teacher-student interactions.

You may post but others will have an excuse that we didn't have bundle

COPPERBELT PROVINCE, PUBLIC, COMBINED SCHOOL

Key stakeholders also emphasised the need for improvements to the assessment of student progress:

When we look at the radio broadcast, it would be good to have a more strengthened monitoring system, but also to check whether the learning was happening, or some form of exercise to show that children are actually engaging and listening.

KII, INGO STAFF MEMBER

Teachers who gave regular assessments felt able to assess students learning and ensure distance education was effective. Teachers confident that they knew students were learning often specified that they could tell through tests or daily exercises:

We would give tests and assessments and tell from their performance, daily exercises to see if they learnt from the lesson

TEACHER, COPPERBELT PROVINCE, PUBLIC - SECONDARY SCHOOL

Observations were also a widely used means of ensuring learning effectiveness, though contingent on teachers' time and school facilities. Teachers said they were able to assess students' progress through observation, but emphasised that they required the facilities and time to do so:

In the first place we have experienced them and observed how they work… schools with those facilities improve the performance of learners

TEACHER, LUAPULA PROVINCE, COMMUNITY - PRIMARY SCHOOL

There was also a lack of consistency between teacher responses on what observation entailed, with some specifying certain core cognitive skills such as memorisation, while others judged participation and contribution as a measure of learning success:

[I could tell learning was effective] through the pupils' remembrance or memorisation, ability to read and write once taught

TEACHER, LUAPULA PROVINCE, COMMUNITY - PRIMARY SCHOOL

"[I judged learning effectiveness] from the participation, number of engagement and contribution of learners.

TEACHER, COPPERBELT PROVINCE, PUBLIC - SECONDARY SCHOOL

Thus, a first step to enhancing the effectiveness of distance learning in Zambia is to ensure that it can be meaningfully assessed in a measurable and comparative way.

Student, parent, and teacher feedback on learning effectiveness

Teachers and parents who said that the children under their care were able to learn during the pandemic said that the programs had mixed outcomes. Parent respondents reported that some students benefitted from distance learning while others struggled to learn on their own or faced learning continuity challenges from internet bundles expiring. Teachers, particularly those in community schools, reported that outcomes varied due to under resourcing and poor access to gadgets.

They were not effective because of the environment… They can improve by having supplementary books

TEACHER, LUAPULA PROVINCE, PUBLIC/PRISON SCHOOL

Youth respondents also reported mixed outcomes. In line with the findings in previous sections, students cited concentration and motivation issues, and challenges such as lack of internet bundles or difficulty understanding lessons on television.

Distance learning in Zambia has been effective as a supplement to traditional teaching, but not yet as a replacement. Across youth responses to whether distance learning tools were effective and whether they would use distance learning tools again, it was emphasised that a class setup is better but that the distance learning tools could be used to help students stay on track:

Yes If schools where closed again we would use it to study. Depends on the situation we would use it again. During holidays I would use it a little to keep me on track so that I don't forget about school work.

YOUTH FGD RESPONDENT IN COPPERBELT PROVINCE AT A PRIVATE - SECONDARY SCHOOL

Yes we would use it again. A class setup is better. But looking at the conditions at that time we had no option

YOUTH FGD RESPONDENT IN COPPERBELT PROVINCE AT A PRIVATE - SECONDARY SCHOOL

It's not everything you can get from the teacher

YOUTH FGD RESPONDENT IN COPPERBELT PROVINCE AT A PUBLIC - PRISON SCHOOL

Yes if the tools are improved especially during holidays because for our school it's mandatory for all examination classes to remain in school and if the school adopted online classes during holidays it can be nice.

YOUTH FGD RESPONDENT IN COPPERBELT PROVINCE AT A PUBLIC - SECONDARY SCHOOL

In fact, the reception of any given mode of distance learning – radio, TV, eLearning or print materials – was tied to whether teachers were taking the time to give guidance and explanation. Students regularly mentioned a lack of 'explanation' and 'practical interaction' as a reason for distance learning ineffectiveness, or said that provision worked well due to careful teacher instruction. For example:

Handouts worked well; they would explain when giving handouts.

PARENT, COPPERBELT PROVINCE, PRIVATE - PRE PRIMARY SCHOOL

Teachers also hoped for tools that encouraged interaction, and allowed learners to learn at their own pace:

[I would like a tool] to be able to record classes so that we can send to learners to watch and learn from [them]. To have both video and audio when teaching so that learners can see and hear during the lessons, and have a way to upload handouts on the platform

TEACHER, PUBLIC – SECONDARY, COPPERBELT PROVINCE

Future Strategies for AMEP in Zambia

How can the existing distance education and remote learning opportunities for children enrolled in various learning pathways be strengthened?

The effectiveness of distance-learning enabling technologies, including print materials, depends on the strength of national networks and connectivity to technology. In any country, the availability and reach of service providers and devices to schools', parents and learners must be strong for impactful remote learning. Moreover, country-specific market realities, such as taxes and incentives, can strongly bolster opportunities for remote learning if strengthened in the right ways.

This section combines primary and secondary data under thematic headings to make suggestions improvements for improvements to Zambian AMEP that are routed in the feedback of teachers, students, and parents.

Overall, in response to the question on 'how can distance learning tools be improved' the most commonly mentioned requests across all focus groups, in order of frequency mentioned, were:

Table 9: Summary of responses to 'how can distance learning tools be improved?', across focus groups with students, parents and teachers

Theme	Specific requests
Access to technology and gadgets	Provision of tablets, smartphones, and computers to students
Internet accessibility and affordability	Cheaper data bundles Free Wi-Fi in schools Improved internet speed and network coverage
Parental involvement	Parents working with students Programmes to sensitise parents on the use of ICT
Availability of materials	Enough materials for individual use More printed materials for all students
Consistency in educational programs	Regular airing of educational programs on TV Clearly communicated broadcasting schedules
Offline functionality	Tools that can work offline and upload work later
Teacher support	Guidance from teachers Real-time interaction between teachers and students
Ease of use and availability	Making tools simple and easy to use Making the same tools consistently available for use

Improved tool features	Video call capability for more learners E-writing and E-whiteboard functionality Facility to record lessons Option to administer timed tests and quizzes
Local language support	Lessons in local languages

Infrastructure development

Infrastructure development is perhaps the clearest pathway for the strengthening of distance education and remote learning opportunities in Zambia. Experience shows that the sustainability of alternative modes of education provision is compromised when suppliers try to assume all infrastructure and service costs (UNICEF, 2022). Maintaining roads, widening the power grid, and expanding affordable internet are all steps that would reduce the overhead costs of distance education providers and allow more funds to be directed towards improving distance education quality.

Recent government policies enable digital infrastructure investment, but ensuring education outcomes are delivered will be key. With current internet currently not reaching the last-mile in all ten provinces, commentators have called for ZICTA and the MoGE to recommend policies encouraging private companies to partner with government and catalyse the roll out of national ICT infrastructure (Mukosa & Mweemba, 2019). This appears to now be taking place, with the Zambian government announcing in October 2022 that it would zero-rate imports of telecoms equipment in a bid to encourage investment into the country's ICT sector (Barton, 2022). With much of the expected investment expected in areas such as fintech and commercial projects, it will be vital to ensure that Edtech investments are also incentivised and that cross-sector infrastructure can be leveraged for the strengthening of alternative education pathways (Železný-Green & Metcalfe, 2022).

An array of partnerships In distance education will be key to improving access to technology and infrastructure, increasing funding for eLearning initiatives, and providing support to learners and educators. Partnerships between the government, private sector, NGOs, and civil society will ensure existing resources are best leveraged to support various learning pathways (IBRD, World Bank, 2020).

Legislation in its correct form and meaningful private sector partnerships can also ensure that the burden for the maintenance of infrastructure is shared. Faturoti (2022) reviews alternative provision responses to Covid-19 from across Africa to conclude that government policies and laws can do more to ensure schools benefit from the innovations of individual service providers (ISPs). For example, government partnerships with telecoms companies have potential for much larger impact in the education sector. During school closures, South Africa's Telkom zero-rated several educational facility websites to allow its subscriber base to continue learning for free (TechCentral, 2020). Providers including the MoGE working with

telecom networks to make specific learning websites and platforms free for end-users may initiate more equitable opportunities and outcomes for remote learning in Zambia.

Address socioeconomic disparities

Strengthening opportunities for remote learning will require addressing the socio-economic disparities at the root of unequal access to education. Support for vulnerable families both directly and indirectly will be essential to enabling children to remote learn. Direct modes of support may include the provision of digital devices and internet connectivity in homes or in locations such as IRCs. Indirect mechanisms may range from programmes discouraging teenage pregnancy (World Bank, 2015) to the boosting of WASH provisions in communities to make all spaces safe learning spaces (NatuReS, 2022).

Improving teacher capacity

Alongside giving communities the tools and spaces for distance education, the capacity of providers must be strengthened for opportunities to meaningfully improve. Teachers hold a critical role in the success of eLearning initiatives but many lack the knowledge or ICT skills to deliver impactful programs (Nyemba & Deka Zulu, 2020). Training and capacity building programs will provide them with the necessary skills and knowledge to deliver quality instruction through distance learning initiatives and eLearning platforms. Materials such as UNESCO's Rapid Teacher Training Programme should be leveraged by these programs (UNESCO, 2022).

Hodges et al (2020) explain that effective online learning requires adequate skills among staff, proper planning and suitable platforms. Planning depends on class size, alongside other factors.

Curriculum development

Developing curriculum content easily adaptable to distance and e-learning will help to ease the burden on teachers to engage students. E-learning content should align with content taught in schools, allowing for a smooth transition between the two modes of learning for students (Zholdoshalieva, Teng, & Tu, 2022). This will help to make distance learning pathways more inclusive, allowing learners to access it when the time is right for them, and ensuring that those reliant on alternative modes of education provision are not disadvantaged when it comes to examination (Malungo, Nabuzoka, Paul, & Sachingongu, 2018). For example, in Pakistan, the 'Broad Class: Listen to Learn' IRI programme provides education for DPs, out-of-school youth and adults, and Afghan refugees. Its content is consistent with the national educational curriculum, allowing disadvantaged children to keep pace with those taught in schools (Zholdoshalieva, Teng, & Tu, 2022).

Ensuring curriculums and distance learning content are engaging for all students will also be essential to strengthening alternative learning pathways. Distance learning can be difficult for some students to engage with if it is not made interactive enough, potentially leading to poorer academic performance and ultimately high drop-out rates as has been the

case in South Africa (Stats SA, 2022). In Kenya, the M-Schule program provides SMS learning options for children requiring additional learning. By allowing children to choose their own learning pathways with the entering of USSD codes, it has engaged its participants and has received many positive student testimonials. The service requires further content contextualisation to achieve suitability for all communities and markets in Kenya, but the positive reception of its interactivity provides a lesson on the importance of this factor in AMEP success.

Enhancing inclusivity

Furthermore, AMEP must be assessed for their inclusivity, with data disaggregated by outcomes for different genders, ages, levels of disability, and other socio-demographic factors. For example, the Dogme training programme in Jordan, which serves English-language teachers in refugee communities with better pedagogical techniques, has adapted its program several times to include content for teachers of different segments of child learners based on user feedback. As a result, 92% of teachers using Dogme resources reported that the techniques taught were relevant to their teaching context (Zholdoshalieva, Teng, & Tu, 2022).

Zambia has monitoring and evaluation mechanisms in place for formal education, but currently lacks it for most forms of AMEP, relying on irregular evaluations of specific programs to inform its decision making. This was made clear in the MoGE's Education Contingency Plan for Novel Coronavirus, which budgeted to collect such data on both learning gaps and AMEP success (MoGE, 2020). In doing so, the plan took a step towards best practice in AMEP, which requires evaluating and incrementally improving existing provisions.

What other alternative modes of learning could be effective, contextually relevant, affordable, and sustainable for Zambia?

> *E-learning opportunities are also emerging, but its implementation is at a nascent phase.*
>
> (MoGE, 2020, p. 5)

Distance learning programs that allow for effective use of a mobile device may be effective in Zambia. The share of social media users accessing sites from a mobile device – a proxy for mobile vs computer-based internet access–- was a high 98.2% in 2022 (Kemp, 2023). This suggests that opportunities for internet-based eLearning via computers may be even more

limited that internet penetration rates suggest, as most Zambian use phones to access the internet. It also implies that opportunities exist for mobile-learning (m-learning) initiatives and phone-based education related communication. Evidence suggests that a transition towards this occurred naturally during COVID-19, with 12% of school administrators from the SCREAM sample of 501 schools reporting relying on WhatsApp for COVID-19 guideline communication to students (ZANEC, 2020), a finding supported by this investigation's primary data collection. Mobile leaning can be used to deliver short lessons, quizzes, and assessments, as well as to provide feedback and support to learners. Alongside Zambian teachers' practice during Covid-19, Kenya's M-Shule mobile learning platform and the uses of WhatsApp during Peru's Aprendo en Casa program both provide examples of this (Zholdoshalieva, Teng, & Tu, 2022; Muñoz-Najar, et al., 2021).

Peer-to-peer learning is a growing form of learning in many parts of the world and may be contextually relevant for Zambia. Peer learning allows learners to collaborate and learn from each other, reducing their dependence on teachers whose time is often stretched (Tooley, 2013). Peer mentoring has shown to build positive relationships and aid children's development in Zambian schools, but student-teachers require clearer mentor guides and better resources and training (Chuka Hakwendenda & Njobvu, 2019). This will be particularly true for AMEP involving a peer-to-peer element, as student-teachers may not have the benefit of having experienced the context they are guiding younger students through.

As aforementioned, programs teaching locally relevant skills show strong potential in Zambia and could be a highly effective alternative mode of education if invested in. Community-based learning involves learners engaging in learning activities that are relevant to their community, such as community service projects or entrepreneurship programs. Approaches falling under what Kan''ombe & Sichula (2021) label 'education-with-production' may make learning more meaningful and relevant to Zambians facing constrained socio-economic mobility, while also promoting community development.

In time, blended learning approaches may become a contextually relevant means of delivering learning outcomes in Zambia. A blend of traditional classroom-based learning with eLearning and other modes of distance learning may offer children more flexibility, help promote the importance of education to parents, and help to keep learning engaging for students. However, such an approach risks being unstructured and first requires aligned curriculums content and strongly coordinated administration from schools (UNESCO, 2022).

In the meantime, integrating more technology into traditional classroom learning may help to increase students' exposure to digital devices and underpin future efforts in remote e-learning. World Vision's 'Fun2Learn' Project administered educational tablets to three schools in Zambia's Bwacha Area. Pilot project results showed that children's reading improved across several tests as a result of using the tablets, demonstrating their potential as a learning tool (iSchool, 2017). Similarly, a 2011 report from Apivate and the Centre for Commonwealth Education at the University of Cambridge shows that digital technology can

be used to embed interactive forms of learning and learning into Zambian classroom practice (Haßler, et al., 2011). The researchers evaluated a variety of educational ICTs in two Zambian primary schools over 30 visits in a period of 6 months. They found that ICTs had the potential to support more interactive forms of learning in schools, making students more engaged in learning (ibid). However, merging the findings of their observations with a review of contemporary literature on ICTs in school, they conclude that:

> *It is a recognised problem that initiatives often work in isolation, starting from scratch, or are technology-focused, ignoring the crucial role of teacher support in promoting innovation and encouraging experimentation with teaching styles if necessary. Research shows conclusively that if ICT is simply dropped into schools, it will be used rarely or poorly.*
>
> QUOTED FROM: (HAßLER, ET AL., 2011, P. 9)

What are the conditions for effective delivery of AMEP for disadvantaged children and adolescents from pre-primary to secondary (grade 12) and children with special education needs and disabilities?

Across the world, children with disabilities are more likely to be out of school, and less likely to have foundational reading and numeracy skills, or to have access to distance learning materials during situations like COVID-19 (UNICEF, 2022). To address these issues, Zambia ratified Article 24 of the United Nations Convention on the Rights of Persons with Disabilities (CRPD) in 2008. The Article ensures inclusive and equitable quality education for all. Later, Zambia's Persons with Disabilities Act of 2012 committed the following to people with disabilities:

- ***Free primary education***
- ***Inclusion in access to secondary and higher education in the communities in which they live***
- ***Vocational training on the basis of disability and guarantees special schools for persons who cannot be enrolled in schools offering inclusive education.***
- ***Physical access to educational institutions***
- ***Individualised support and access to alternative forms of communication***
- ***Allowances to cover extra costs attributed to learning.***

Source: (Government of the Republic of Zambia, 2012) cited in (Malungo, Nabuzoka, Paul, & Sachingongu, 2018, p. 9).

A study on the Ministry of Education's progress in delivering these commitments reveals implementation falls short of their written goals for children with disabilities (Malungo, Nabuzoka, Paul, & Sachingongu, 2018). For example, the introduction of the policy of free education for all in 2002 had a significant impact on the enrolment of children without disabilities, but left around a quarter of eligible children with disabilities out of primary school in spite of this (Eide & Loeb, 2006).

Malungo et al's (2018) qualitative investigation into the reasons children with disabilities (CwD) are often excluded from mainstream education provides useful insight into the pre-conditions for inclusive AMEP. The researchers interviewed 94 young persons with disabilities, 83 family members and friends, and 104 service providers. Specialised teachers and assistants, an adapted curriculum, and disability friendly educational resources are all lacking from the formal education system and would need to be tailor made for AMEP for CwD (ibid). Zambian teachers report that children with disabilities are often enrolled without any increase in spending or additional training for teachers.

Like formal education, AMEP involving CwD requires specialised materials and assistive technologies. Teachers focus groups undertaken for this investigation emphasised the need to adapt tools according to specific needs and disabilities. Teachers were optimistic that tailored tools were useful to including children with disabilities in learning:

For the visually impaired there are gadgets that have sounds. They have special computers for them too

TEACHER, COPPERBELT PROVINCE, PUBLIC - PRISON SCHOOL

Not all of them have access to distance learning tools. Most of them relay on in person learning because they require special kind of teaching which may be a challenge on a distance learning tool

PARENT, COPPERBELT PROVINCE, PUBLIC - SECONDARY SCHOOL

Materials did not cater for that [educating children with disabilities]. No braille materials for example. These children were completely left out, despite efforts to ensure continuity.

KII, GOVERNMENT MINISTRY STAFF MEMBER

Therefore, budgeting for adaptive learning materials such as books in braille or specialised digital devices is a necessary condition for AMEP programs to succeed.

Adequate and adapted modes of assessment are an essential condition for successful AMEP delivery to children with disabilities. This includes both pre- and final- assessments. Children with disabilities require a clinical assessment before they can enrol in school, but teachers and parents report that the quality of assessment varies depends on the clinician's subjective opinion and experience (Malungo, Nabuzoka, Paul, & Sachingongu, 2018). With no formal tests, children in Zambia are not optimally assigned to classes according to their intellect, the availability of support for them, or the suitability of the classroom environment (ibid). Alternative modes of education provision are well suited to teaching children with disabilities at their level, often offering flexible learning pathways. However, effective pre-learning assessments are integral for establishing benchmarks against which children's assignments, progress, and needs can be decided.

Similarly, appropriate mid-term assessments and adapted exams at the end of children's time learning through AMEP must be developed for successful AMEP outcomes. Malungo et al (2018) explain that not all current educational institutions in Zambia cater for CwD sitting written exams. When they are allowed, exams are often not suitable for CwD or systems are not well equipped to process students' results. For example, children with hearing impairments have been forced to sit Standard English written exams despite only learning in sign language, and blind student's braille scripts have gone missing after examiners mistake them erroneous standard exam papers. As a result, many students with disabilities fail to qualify for further education or employment, fostering a sentiment among the parents of CwD that school is not a worthwhile endeavour. Thus, before children with disabilities are enrolled in AMEP, it is necessary that meaningful modes of assessing and qualifying their learning efforts are guaranteed.

Appropriate training for teachers of AMEP for CwD is a further necessary condition for effective alternative special needs education. A recently published study on teachers' understanding of curriculum adaptation for children with intellectual disability in Zambia found teachers' knowledge and perception of curriculum adaptation to be mixed. Some teachers saw adaptation as limited to subject content, while others made efforts to adjust instructional strategies, learning resources, and learning environments for CwD. Plus, although many teachers performed such practices, they were made challenging by feelings of ill-preparedness, long periods of time spent preparing classrooms, and limited resources to achieve adaptation ambitions (Chinyemba Kandimba, Mandyata, & Simalalo, 2023). All of these challenges, alongside inconsistencies in understandings of curriculum adaptation, could be helped by trainings. Considering that curriculum adaptation for CwD in AMEP are likely to be more specialised than that in mainstream education, it is integral that sufficient support is given to teachers such that they feel resourceful and efficient in adaptation practices.

Parent and community engagement is also crucial for the effective delivery of AMEP. Parents play an essential role in supporting their children's learning, and must be provided with the necessary information to be able to do so (Zholdoshalieva, Teng, & Tu, 2022). Moreover, parents can drive forward the development of AMEP, for example by taking on organisation and innovation roles in community-based learning centres and parent-teacher associations (Hebert, Lungwangwa, Nance, & Saasa, 2002).

Engaging parents and communities will require talking stigma and discrimination where it exists. The accounts of key informants interviewed by Malungo et al's (2018) reveal children's potential to participate in alternative modes of education may depend on parents view of the potential of their child with disability to develop. As one informant explained:

Some people ... like a child is there ... wants to play with others ... "no ... no ... no ... no ...! Come back, here, sit here." If it is work, the wife can get annoyed that you are troubling this child, "don't you see that he/she is disabled, you are a very unfair and exploitative person

KEY INFORMANT INTERVIEW, SOURCE: (MALUNGO, NABUZOKA, PAUL, & SACHINGONGU, 2018, P. 24)

This was echoed during the primary data collection for this investigation. Several parents mentioned that children with disabilities are often not prioritised during distance learning programming.

More awareness is needed with students with disabilities. They are usually not looked after very well concerning such opportunities

PARENT, NORTH WESTERN PROVINCE, COMMUNITY - PRIMARY SCHOOL

Lastly, the effective delivery of AMEP for CwD requires more data on why gaps in educational access exist for the population segment. Malungo et al's (2018) qualitaitve investigation sheds light on barriers to effecitve AMEP for CwD that must be overcome, but does not quantify the relative signifiance of each. A lack of data on CwD in Zambia complicates the design and delivery of effective AMEP.

During study across FGDs with parents and teachers, the following challenges to meaningful AMEP for children with disabilities were mentioned:

Table 10: Issues affecting the ability of children with disabilities to benefit from distance and open learning, mentioned across parent, teacher, and student focus groups

Issue		Number of mentions	Province mentioned in
	Students with disabilities overlooked or neglected by community led distance learning programmes	12	North Western
	Devices unaffordable for parents with CwD	5	Western
		2	Luapula
	Lack of adapted computers, particularly for the blind and physically challenged	5	Copperbelt
		2	Eastern
	Need for teachers trained in working with CwD	6	Luapula
	Need for community sensitisation	6	
	Disabled students not attending school due to shame or a lack of resources	5	Western
	Additional digital skills training required for CwD	4	Luapula
	Lack of access to distance learning tools among CwD	3	Copperbelt

Upscaled research into these initial findings, with a sole focus on disability related issues, will help to provide a meaningful evidence base for alternative education inclusivity interventions and programs.

Partners and Key Stakeholders Mapping

Who are the critical partners and key stakeholders in the education sector that could coordinate alternative modes of education and remote learning provision and provide guidelines for implementing partners?

Advancements in cooperation and collaboration made during COVID-19 must be built on. Key stakeholders interviewed for this investigation emphasised that new partnerships were born out of the challenge of the school closures. This included a technical working group for the provision of distance learning. The insight and reflections of this group should be drawn on to inform best practice in collaboration for future AMEP delivery.

> *The technical working group for all different partners and stakeholders involved in education sector brought in a lot of learning and sharing. Connected a lot of players, helped us understand who was doing what in which location, how we can avoid duplication of efforts.*
>
> KII, Government Ministry Staff Member

To implement AMEP and remote learning, Zambia's MoE will require close coordination with the Zambia Information and Communication Technology Authority (ZICTA). ZICTA has already offered technical and financial assistance the MoE in the form of computing devices for 190 centres across the country and assistance in the administration of ICT based courses and examinations (ZICTA, 2023).

Depending on the type of AMEP, coordination between stakeholders across multiple government ministries may be necessary. For example, UNESCO suggests that for care, protection, and participation in ECE to be enhanced, Zambia needs a clearer policy to facilitate coordination among the Ministry of General Education, Ministry of Youth, Sports and Child Development, and Ministry of Community Development and Social Welfare (UNESCO, 2016).

Teachers' unions also play a crucial role in the education sector in Zambia. They represent the interests of teachers and could provide guidelines on how to conduct remote teaching and learning. Historic evidence shows that a lack of voice in decision making has demotivated teachers in Zambia (Verhagen, 2001). As strategic directions are decided for novel AMEP

initiatives, engaging teacher unions in the decision-making process may help to secure teacher support and thereby enhance AMEP success.

One existing channel for cooperation on remote learning provision development is The Open and Distance Learning Association of Zambia (ODLAZ). The association was established around 2014 to enhance collaboration among all ODL institutional founders and stakeholders, consisting of several universities and the DODE. Although the association was founded principally to support the development of university level distance learning, it's research and discussion activities will also support open learning development in general.

As listed in a 2017 report published by the Association, the objectives of ODLAZ are to:

a. To promote professional and ethical standards in the provision of Open and Distance Learning;

b. To promote awareness of the importance of Open and Distance Learning in the nation and to convince the government and other interested parties to fund distance education programmes adequately;

c. To promote provision of quality Open and Distance Learning, its potentialities and achievements using various technologies and methodologies;

d. To promote and coordinate research and publications in methods of Open and Distance Learning (ODL);

e. To promote networking and partnerships among members, business houses and government in sharing ideas concerning the promotion of Open and Distance Learning

Source: (ODLAZ, 2017, p. 5)

Notably, the private sector grew its involvement in the charitable provision of radio learning during the pandemic. After the outbreak of COVID-19, mining firm First Quantum Minerals launched the School-on-Radio initiative. It implemented the initiative in collaboration with the district education board in north-western Zambia's Solwezi where its Kansanshi Foundation is registered (Xinhau, 2020). At a national level, the Zambian government worked with state-run telecommunication firm Zamtel and the Examination Council of Zambia to launch an e-learning platform and smart revision portals for at home learning (Xinhau, 2020). Continuing to work with private sector actors, particularly with ICT development expected following Zambia's zero-rate policy on technological imports, may open new opportunities for both private sector CSR initiatives and AMEP aligned investments.

In this context, one other notable group of stakeholders for digitally enabled AMEP is the 'The Global System for Mobile Association of Zambia (GSMAZ)' in Lusaka. The group, recently established by mobile operators, is designed to promote collaboration for digital

inclusion alongside coordinating business opportunities (Muchiya, 2022), presenting a potential platform for government and private sector cooperation for e-learning.

Finally, non-governmental organisations are a key stakeholder group with experience coordinating alternative modes of education in Zambia. Several NGOs have been mentioned in this report (see table 11 below). An extensive mapping - facilitated by the Zambian government - of NGOs role and experience of AMEP in Zambia, would benefit education sector stakeholders seeking partnerships.

The following regional actors have been identified by Thuso as potential partner organisations from a global, regional, and country specific opportunity:

Table 11: Matrix of potential partners for enhancing AMEP in Zambia

	Organisation name	Head Office Location	Programming Details	Target Audiences	Partnership prospects
Internet Connectivity and Accessibility					
FOUNDATION	Rodger Federer Foundation	Zurich, Switzerland	School Readiness Initiative & Early Learning Kiosk (Zambia) "Currently we are conducting School Readiness programs in six countries in Southern Africa (Lesotho, Malawi, Namibia, Zambia, Zimbabwe, South Africa) plus Switzerland. Since its start the foundation has spent 77.5 million CHF for its education initiatives conducted in 13'000 primary school and preschools. Over 2.4 million children have been benefiting from a better quality in education due to our engagement for almost 20 years. Each child receiving education at an institution supported by the foundation will only be counted once in the process." [Source: https://rogerfedererfoundation.org/what-we-do/overview]	Pre-School Children	The Foundation makes all opportunities to tender for funding publicly available and open to competitive submission. General enquiries can be directed to foundation@rogerfederer.com
BRITISH COUNCIL	British Council	London, England	Increasing information to citizens and service providers on entitlements and minimum standards in the delivery of education services. Creating spaces or forums for citizens and service providers to dialogue and use the information gained to resolve service delivery challenges.	Communities, education service providers, SCOs,	"The Zambia Accountability Programme (ZAP) is working to increase accountability in the delivery of public goods and services. Through technical assistance and grant

			Increasing the capacity of citizens and Civil Society Organisations (CSOs) to complement each other's voice in influencing policy formation and implementation in the delivery of education services. Promoting the use of simple tools to gather and inform the quality-of-service delivery in education as well as to help citizens and service providers to dialogue and resolve challenges. [Source: https://www.britishcouncil.org.zm/zambia-accountability-programme]	concerned citizens	mechanisms to partners, the programme aims to ensure that public policy and democratic processes are more credible, inclusive and transparent, and represent citizens' interests. Particular emphasis is placed on promoting gender equality and social inclusion including strengthening the livelihoods of the most vulnerable, supporting girls to remain in school, and increasing women's representation in political processes." [Source: https://www.britishcouncil.org.zm/zambia-accountability-programme]
Learning hardware and materials					
IMPACT NETWORK	Impact Education	Brooklyn, United States	Elearning Hardware School Supplies Solar Rural Security Building Care	Schools, Teachers	Enquiries over funding opportunities may be directed to: INFO@IMPACTNETWORK.ORG

	Children in Need Network	Lusaka, Zambia	The Children in Need Network is listed by the Nexus Commonwealth Network as a provider of educational advancement opportunities. However, the organisation does not enjoy a strong internet presence.	--	The network can be researched at CHIN@ZAMNET.ZM
Adult Digital Literacy					
Avencion	Avencion	Houston, USA [Zambia office in Lusaka]	Digital Literacy Programme The digital literacy program being undertaken by Avencion includes digital communication and productivity skills to AGYWs in Zambia. The training is tailor-based to integrate leadership and entrepreneurship skills to build capacity for self-employment or job readiness. [Source: https://avencion.com/digital-literacy-program/]	Young people (teenage and young adult)	Inquiries over inclusion in the Digital Literacy Program may be directed to: info@avencion.com
Teacher Training - Inclusion					
DAPP Development Aid from People to People in Zambia	Development Aid from People to People (DAPP)	Kabulonga Lusaka, Zambia	DAPP Mkushi College of Education (pre-service training) 'Working with children, youths and women in developing vocational, entrepreneurial and literacy trainings, DAPP Zambia believes that quality education for all and the promotion of learning for life are fundamentals for the people and the communities to be in control of their own development.' Education accounts for 7% of DAPP's in-country spending (source: https://www.dappzambia.org/who-we-are)	Trainee Teachers	DAPP Partnership Office can be contacted at 13 Antelope Close, Kabulonga, Lusaka, Zambia, or by email at info@dappzambia.org
FAWEZA Equalising Opportunities for Girls Education	Forum for African Women Educationalis	Lusaka, Zambia.	'We Confront Girl Child Education Gaps' 'Girl Child Empowerment with Education'	Students, OOS girls	FAWEZA can be contacted at +260 211 295482

	ts of Zambia, The (FAWEZA)				
	Zambia Union of Teachers (ZNUT)	Lusaka, Zambia	ZNUT is listed by the Nexus Commonwealth Network as a provider of educational advancement opportunities. However, the organisation does not enjoy a strong internet presence.	--	ZNUT may be contacted directly at: +260 211 236670
Teacher Training – Community Engagement					
	Open University	Milton Keynes, UK	ZEST (Zambian Education School-based Training) programme	Teachers	Provision of open educational resources (OER) and trainings to teachers.
General					
	USAID	Washington D.C., USA	Edufinance Let's Read Transofrming Teacher Education	Students	Competitive funding application process details are available for review at: https://www.usaid.gov/partner-with-us/find-a-funding-opportunity
	Basic Education Teachers Union of Zambia (BETUZ)	Lusaka, Zambia	Regional Teacher Interaction Programmes ANTUSA - is a southern Africa teacher interaction programme consisting participation from Zambia, Namibia, Botswana, South Africa, Mauritius, Zimbabwe and Lesotho. Various activities are organised by the board to ensure teachers share ideas and educate each other on better ways to deliver the service of teaching.	Teachers	Under financial support, BETUZ provides the following description of services: 'The union encourages teacher members' continuous professional development. The union has embarked on a financial support programme in order to encourage primary appointed teachers to upgrade

					themselves and continue on their career path as primary school teachers. The union encourages teachers to upgrade their qualifications by giving the teachers education assistance to supplement their efforts.' The organisation can be contacted on +260211255362. Alternatively, by email at: info@betuz.org.zm
	Zambia Community Education Initiative	Cornell Univeristy, USA	ZCEI is primarily directed towards the construction of schools and supporting local contracting partners. Further education-related engagements may be posed directly to the organisation.	Teachers and Communities	'The Zambia Community Education Initiative (ZCEI) is both a student organisation at Cornell University and a 501(c)3 non-profit organisation that aims to develop sustainable secondary education in Zambia by working with local communities to make education accessible to all.' [Source: https://www.zcei.org/whoweare]
	Campaign for Female Education	Accra, Ghana	CAMFED serves girls and young women in impoverished districts in rural sub-Saharan Africa, tackling the pressing and interlinked challenges of poverty and gender that limit their education and opportunity.	School age girls	Details of partnership opportunities can be found here: https://camfed.org/ignite-change/become-a-partner/

Conclusions & Recommendations

Conclusions

Overall, the expansion of AMEP in Zambia has strong potential but must be approached with caution. Primary data indicates that prior to the COVID-19 pandemic, most students and parents in Zambia were not aware of the existence of distance learning tools or programs. This lack of awareness was more prevalent among community school students and parents compared to public and private school counterparts. During school closures, Zambian students' awareness of distance learning options widely expanded, yet access to their benefits remained highly unequal. Mixed feedback on student access to, and attainment from, alternative modes of learning demonstrate the need to address a series of underlying barriers to effective AMEP.

During the COVID-19 school closures, access to continued learning was uneven in across school types in Zambia. While private school students were more likely to continue learning, community school and non-formal school students faced significant challenges in accessing learning materials, gadgets, and internet connectivity.

Most barriers to AMEP are faced nationwide. With the exception of a need for local language content and consideration for community attitudes towards household chores, early marriage, and children with disabilities, most issues pervade Zambian geography to affect at least some groups of children in every part of the country. Practical barriers such as internet connectivity, electricity, device access, and school resource constraints are greatest in rural areas, but affect students across the country, including in Lusaka province. Meanwhile, factors such as communication channels, teacher guidance, and parent and teacher capacity to use digital devices are equally widespread determinants of AMEP outcomes, yet have less obvious solutions.

This section presents conclusions on each of the status of the various alternative modes of open and distance education in Zambia. It then spotlights findings on the core factors – practical and personnel capacity related – that influence the reach and effectiveness of these education types. Lastly, a series of recommendations on ways AMEP in Zambia can be enhanced are delivered.

Modes of open and distance education in Zambia

Radio:

Successful implementations: Radio programs such as 'Learning at Taonga Market' (LTM) has had widespread success in enhancing rural populations' educational

progress. Successful radio programs feature simple content and playback features including pauses for teachers to explain or translate content.

Key issues: Challenges such as poor communication of broadcasting schedules and limited interactivity have limited the effectiveness of radio lessons in school closures and at present. Combining radio programs with teacher-led learning and addressing infrastructure issues is essential for maximising the benefits of radio-based education.

Television

Successful implementations: Some students and parents reported that television programmes were an enjoyable way of learning. However, success was limited and questions over the quality of TV broadcasts have been raised.

Key issues:

Focus group findings highlight that the lack of interactivity in television broadcasts during school closures hindered students' understanding and engagement. The inability to ask questions or pause programs hindered students' ability to reflect on and digest the content, resulting in limited learning outcomes. This issue was exacerbated for students with different learning styles and concentration difficulties, who struggled to stay engaged during the broadcasts.

This has also study revealed that limited access to electricity and televisions, as well as the requirement for costly subscriptions, posed significant barriers to students' engagement with educational television programs. Additionally, inconsistent broadcasting schedules and the repetition of content hindered students' ability to prepare for learning effectively. Ensuring equitable access to educational television programs and improving communication of schedules are crucial for enhancing the impact of television learning.

eLearning

Successful implementations: E-learning platforms, despite facing challenges related to internet access and connectivity, have demonstrated depth and interactivity, offering comprehensive educational resources and easy explanations.

eLearning in Zambia is multifaceted, with students reporting the use of Zoom, WhatsApp, Youtube, Google, and combinations of all, to receive teaching and complete their assignments.

The recently developed national 'Learning Passport' eLearning platform shows significant promise, with building on the success of past open educational resource (OER) efforts in Zambia to support students and teachers alike.

Key issues: The limited availability of Zambian syllabus content on platforms like YouTube restricted their effectiveness. Enhancing the availability of curriculum-specific content and improving internet access for students are crucial for leveraging the potential of e-learning platforms.

Print Materials

Successful implementations: During school closures, print materials were often more conducive to focused learning compared to digital assignments, as they provided clear and isolated tasks.

Key issues: Distribution difficulties and under-resourcing hindered the reach of print materials to all students. Addressing distribution challenges and ensuring an adequate supply of print materials are necessary for their effective utilisation.

Factors influencing the success of open and distance

Internet affordability and connectivity

Internet connectivity was the most frequently mentioned infrastructural barrier to distance learning in Zambia. Parents and students emphasised that more widespread internet penetration is necessary for the current distance and open learning approaches to be impactful and equitable. Financial constraints and the inability to afford learning tools limit access to the internet, while uneven network coverage further exacerbates the issue. The lack of stable internet connectivity hindered the use of common e-learning platforms like Zoom, impacting students' learning outcomes.

Internet connectivity is divided between rural and urban areas in Zambia, with a significant portion of the rural population lacking access to the tools necessary for digital learning. Estimates suggest that a majority of people living in rural areas do not participate in Zambia's digital economy, highlighting the lack of digital access and learning opportunities for children in rural communities.

Studies indicate that specific demographic groups, such as refugees, migrants, and disabled individuals, face significant barriers to digital access and learning. A large

percentage of these groups are not digitally active in the economy, signalling the need for targeted interventions to address the digital divide and provide equal learning opportunities for all segments of the population.

Access to tools

Community school students are less likely to feel able to use distance education tools compared to public and private school students. Additionally, within all school types, there are students who do not have access to the necessary tools for distance learning, as reported by teachers and parents.

Limited access to digital devices, such as radios, TVs, computers, and smartphones, posed a barrier to distance learning, particularly in rural areas. Ownership of these devices varied significantly between urban and rural households. Affordability was a significant challenge, with many families unable to access TV channel subscriptions, internet bundles, or gadgets necessary for distance learning.

Electricity

A lack of access to electricity is a widespread issue, particularly affecting students of community schools and public primary schools. Many respondents mentioned the absence of mobile networks or electricity in their areas. Alternative electricity options were less consistent and more expensive, posing a barrier to digital learning at home and in rural schools.

Student-Teacher Interaction

Regular contact and strong guidance from teachers were consistently mentioned as crucial for successful distance learning. Students and parents emphasised the importance of being able to ask questions and receive direct instruction from teachers. Home visits by teachers were seen as effective in ensuring learning continuity.

WhatsApp groups emerged as a valuable tool for two-way communication between teachers and students, allowing for clarification of doubts and assignment submission.

However, reliance solely on WhatsApp groups posed challenges when not all students had consistent access to the internet. Clear communication of assignment

timings and incorporating other communication channels alongside WhatsApp groups can address these challenges.

Peer, Teacher, and Parent Support

Insufficient support from parents and device-sharing challenges within households disadvantages some students.

Parental knowledge of the school curriculum and ICT literacy were also limiting factors in supporting home learning.

Teachers' limited ICT training and technical knowledge further hindered distance learning, particularly in rural areas.

Inconsistent governance and resource allocation

This study has revealed an inconsistent implementation of national policies and challenges in resource allocation for community schools. Despite efforts to create better-resourced community schools, progress remains challenging. Inconsistent governance and confusion surrounding the upgrading process hinder the improvement of community schools and perpetuate inequalities in education.

Recommendations

Address uneven internet connectivity and affordability

- Ensure that the platforms are accessible offline and require minimal data usage.
- Invest in improving internet connectivity in underserved areas and provide affordable internet bundles for students to access e-learning platforms.
- Collaborate with telecommunication companies and NGOs to extend internet coverage and offer affordable data packages for students

Bridge gaps in device access

- Implement measures to improve internet connectivity and ICT infrastructure in underserved areas, particularly in community schools.
- This includes providing access to e-learning platforms and ensuring schools have the necessary equipment such as computers and projectors.

Enhance digital literacy through skills training

- Implement comprehensive digital literacy programs for students, parents, and teachers to ensure they have the necessary skills to utilise digital tools effectively.
- This includes providing training on internet usage, online safety, and navigating e-learning platforms.
- Empower teachers to integrate digital technologies into their teaching practices and provide ongoing support and professional development opportunities.

Strengthen governance and policy implementation to address resource constraints

- Improve coordination and consistency in governance and policy implementation for community schools.
- Enhance collaboration between the Ministry of General Education and stakeholders involved in community school development.
- Provide clear guidelines and resources to support the upgrading process and ensure that community schools receive adequate resources for quality education provision.

Establish effective communication pathways between broadcasters, schools, and households

- Develop a centralised and easily accessible schedule for educational television and radio programs, clearly indicating the timing and grade-level focus.
- Implement consistent airing of educational content to enable students to plan their learning effectively.
- Improve communication channels to inform students and parents about upcoming programs and any changes in the schedule.
- Provide means

Focus on program interactivity

Enhance the interactivity of distance education tools and programs by incorporating features such as interactive quizzes and opportunities for student engagement.

Interactive distance learning may include:

- Radio programs with pauses for teacher instruction or worksheet completion
- TV programs with questions, answers, games, and challenges
- eLearning platforms with instant feedback on correct answers, functions for additional research, and personal note saving.

Strengthen radio network infrastructure

- Invest in improving radio network infrastructure to ensure broader coverage and better reception in all parts of the country.
- Develop interactive radio programs that encourage student participation and engagement.
- Train teachers to effectively utilise radio lessons and integrate them into their teaching practices.
- Pre-broadcast programs to teachers, or provide teachers with recordings of broadcasts, to allow them to explain difficult content to students and prepare additional materials for struggling learners.
- Provide clear guidance on the alignment of radio lessons with the curriculum.

Create consistent curriculum content across all modes of distance learning

- Collaborate with content creators and educators to develop curriculum-specific educational resources for e-learning platforms.

Make content openly accessible to all

- Expand the availability of educational content on free-to-air channels to reach a wider audience.

Invest in teacher training and support

- Teachers should be provided with meaningful options and support for the application of distance learning tools.
- This includes training on how to effectively use these tools, addressing concerns about equity, and identifying and addressing gaps in access to ensure all students can benefit from distance learning.
- Offer comprehensive training to teachers on utilising distance learning tools effectively.
- Provide teacher guides and pedagogical materials for digital platforms like the Learning Passport.
- Promote continuous professional development opportunities for teachers to enhance their digital skills and adapt teaching methods to distance learning environments.

Provide additional support for children with disabilities

- Develop tailored programs and initiatives to address the specific needs of children with disabilities.
- This may involve providing specialised equipment, assistive technologies, and inclusive learning materials to ensure equal access to digital education.
- Collaborate with relevant organisations and stakeholders to design and implement targeted interventions.

Monitor and evaluate interventions

- Regularly monitor and evaluate the effectiveness of distance learning interventions, considering the specific needs and challenges of different school types.
- Collect data on access to distance learning tools and infrastructure to inform targeted interventions.

- Use feedback from teachers, parents, and students to identify areas for improvement and ensure that interventions are reaching the intended beneficiaries.

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Annex III: Key Stakeholder KIIs[9]

The following key stakeholders were identified by UNICEF and the MoE to be interviewed. These are alongside key stakeholders that were identified within the primary data collection, but the schools, centres and sites visited:

Name	Title	Organisation	Interviewed
Dr. Machaka Botha	Director DODE	MoE	☑
William Nyundu	Director PI	MoE	
Dr. Charles Ndakala	CDC	MoE	☑
Hideko Miyagawa	Chief Education	UNICEF	Scheduled
Clarke Denise	Chief of Party	EDC_USAID Lets Read Activity	☑
Esther Nkumbwa	Education Technical Specialist	Save the Children	☑
Cleopatra Muma	Executive Director	ZOCS	☑
Annely Chibwe	Country - Influencing Specialist	Plan international	☑
Dr. Francis Sampa	Program Manager	World Vision	☑
Batra Kasimbo	SEO-ODL	MoE	☑
Karen Mwansa	SEO-ODL	MoE	Reached out
Milton Kambanji	SEO-ODL	MoE	Reached out
Elizabeth Banda	SEO-ODL	MoE	Reached out
Winfred Hakoola	SEO-ODL	MoE	Reached out
Trudy Siameja	SEO-ODL	MoE	Scheduled
Ogar Kambole	SEO-ODL	MoE	Reached out
Enid Habweza	SEO-ODL	MoE	Reached out
Ginno Sichilima	PESO	MoE	☑
Bernard Bwalya	SEO-ODL	MoE	Reached out
Choolwe Magaya	D/Incharge of Education	Zambia Correctional Services	Reached out

[9] Ongoing

Jeffrey Kanguma	Educational Broadcasting Services	DODE	Reached out