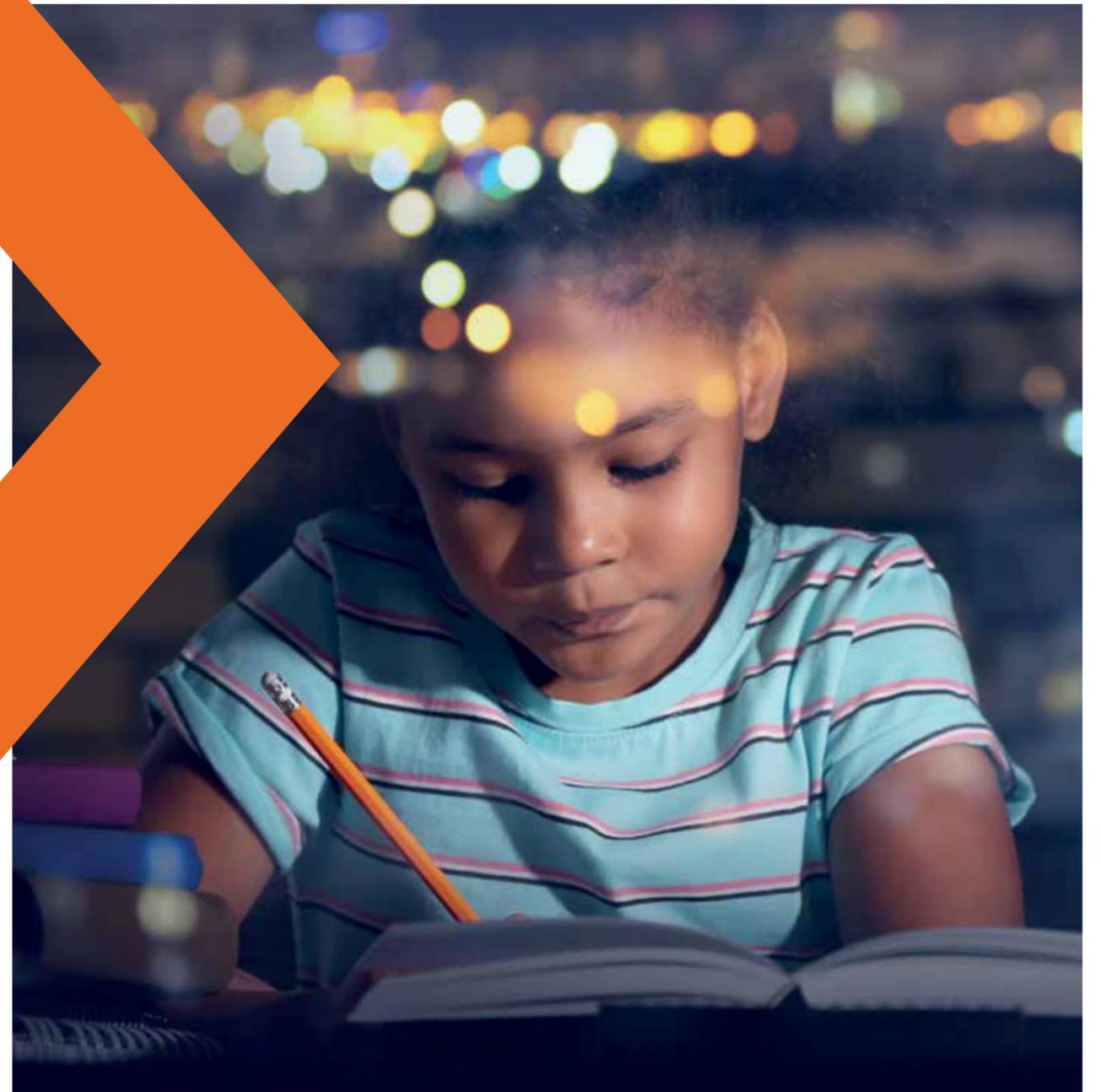


A LEARNING BRIEF



Home Learning in Low-Income Households



The Zenex Foundation

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Foreword

The disruption of learning in 2020 and 2021, caused by the closure of schools due to the Covid-19 pandemic, meant that many children from across the world had to learn from home to minimise the spread of the pandemic (WHO, 2020). Covid-19 forced the education landscape to rapidly adapt to change. The Zenex Foundation, as a donor, must continuously adopt a flexible and agile approach to its grantmaking while still maintaining an evidence-based approach. We need to stay abreast of developments in education and understand new and existing challenges so we can plan for and implement effective interventions.

The pandemic brought challenges that necessitated the education sector to consider innovative ways to support learning in the home, and specifically in low-income households. Before the onset of the pandemic, low-income households were already in a disadvantaged position with potential to further erode learning gains and be unsupportive of continued learning. Knowledge about quality home learning in low-income homes is very limited. As a responsive and progressive donor and consistent with our principle to build knowledge and understanding of what works and does not work in education support, the Zenex Foundation put out a call and then appointed a team of researchers to identify mechanisms that could enhance home learning.

This learning brief aims to provide evidence for the Zenex Foundation (and other organisations that are interested in supporting learning in the home) to support future planning and programmes.

The research team collected information from both local and international literature. The evidence supporting developments in this area is largely emerging, sometimes anecdotal and based on small-scale studies in contexts of disruption which are unlike Covid-19. There is also a shortage of research on the impact of disruptions on learning quality, especially that which evaluates the impact of interventions.

The research team communicated from the onset that the literature in education is generally developed in the context of stable school systems. The conceptualisations were thus mostly drawn from literature which speaks to ideal but not to disrupted learning environments. South Africa, as indeed many parts of the world, has not been exposed to major educational disruptions of this magnitude for a very long time. Nevertheless, the Foundation is still confident that this learning brief will contribute to conversations around and inform models for home learning in low-income households in future.

Gail Campbell
Chief Executive Officer



The research was guided by seven questions:

1

How do we define 'quality of learning' and the notion of 'low-income families'?

2

What are the possible impacts of prolonged disruptions in education?

3

What are the benefits and constraints of applying technological solutions in times of crises?

4

What are the challenges and opportunities created by remote learning in low-income families?

5

What traditional technologies appear to enhance the quality of learning in times of pandemics?

6

What other interventions are required for quality learning in low-income households?

7

How might we model quality enhancement of learning in low-income homes?

Chapter /01

Key inputs for quality learning

- well-trained teachers
- sufficient resources
- access to good teaching pedagogies
- effective management of resources and assessment
- effective home-school relations with parents to support learning.

Defining ‘quality of learning’ and ‘low-income households’

It is important to define ‘quality of learning’ and ‘low-income households’ so as to analyse the effects of learning disruptions amongst disadvantaged learners.

Quality of learning is a concept that is both dynamic and multifaceted. The literature review concluded that it is generally conceptualised in two ways: input and outcome perspectives.

Input perspectives suggest that quality learning is achievable when these key inputs are available:

- well-trained teachers;
- sufficient resources;
- access to good teaching pedagogies;
- effective management of resources and assessment; and
- effective home-school relations with parents to support learning.

Outcome perspectives view quality learning in the context of learner success rates, enjoyment and satisfaction of the learning experience, progression rates to higher levels of education and training, and access to employment opportunities.

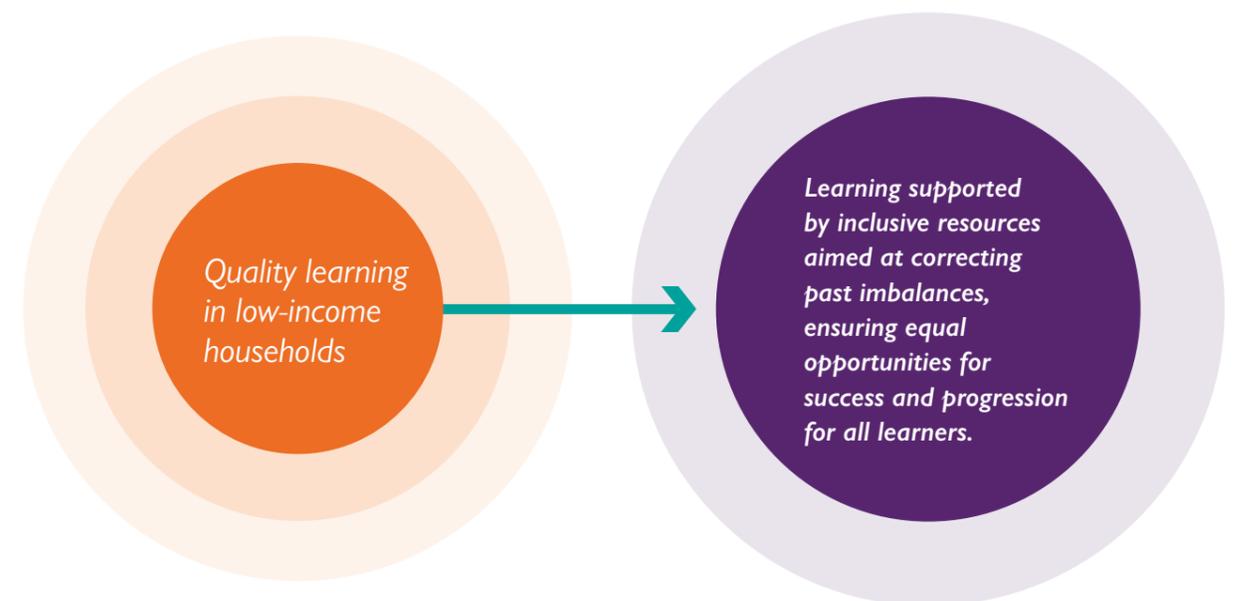
For the purposes of this learning brief, a third conception, a social justice perspective, was included, because it was not captured sufficiently by the input and outcome perspectives. In a South African context, a post-colonial/post-apartheid society, education should:

- be sensitive and corrective of existing inequalities;
- shift more educational resources to the disadvantaged;
- place a high priority on effective learning amongst the most vulnerable; and
- provide equal opportunities for success and progression for all learners.

Although the idea of **low-income households** is context-specific, it is intricately connected to poverty.

Interventions need to take cognisance of the different levels of disadvantage. Generally, in South Africa, low-income households are found in informal settlements, townships, rural areas, farming and mining communities (Census Bureau SA, 2019). Such families tend to share small living spaces, have limited or no access to electricity and running water, do not have adequate furniture, have limited access to Wi-Fi and the internet, and are located in high-crime and noisy neighbourhoods.

“ Although the idea of **low-income households** is context-specific, it is intricately connected to poverty. ”



Chapter /02



Internally

Disruptions could be caused by absentee teachers or learners, disruptive behaviour, and school holidays, amongst others.



Externally

They can be caused by vandalism, theft, destruction of property, floods, earthquakes, nuclear disasters and pandemics, as under current circumstances.

The impact of prolonged disruptions in education

Learning disruptions in schools can be caused by **internal** and **external** factors.

In 2020, the Covid-19 pandemic led to school closures in over 190 countries across the world, and consequently, more than 90 per cent of school going learners experienced disruptions (UNESCO, 2020c). There has been resurgences or further waves that resulted in further school disruptions in some parts of the world, particularly in the United Kingdom and South Africa. While evidence of the impact of the disruptions varied depending on context, severity, and school and government preparedness for effective responses, there seems to be agreement that disruptions:

- erode learning gains and reduce the opportunity to achieve at higher levels, thus limiting learner progression and future economic activities; and
- tend to induce negative psychosocial effects in learners because of the isolation, boredom and exclusion (UNESCO, 2020a).



Literature review

The literature review focused on school closures due to natural disasters and disease and concentrated on studies in the developing world such as Indonesia (Rush, 2018), Nepal (Ezaki, 2018; Mu et al., 2016), Pakistan (Andrabi, Daniels & Das, 2020), Philippines (Cumiskey et al., 2020), Sierra Leone (Powers & Azzi-Huck, 2016; Rasul, Smurra & Bandiera, 2020), and Rwanda (Thomas, 2010). Reports on the 1916 polio pandemic in the US (Meyers & Thomasson, 2020) and Hurricane Katrina (Hill, 2020) were reviewed since they were used to predict the impact of Covid-19.

There is little research published in peer-reviewed academic journals and most of it appears in reports, blogs and other web-based publications, and is reported by international aid agencies and non-profits. Not surprisingly, research is mostly quantitative and based on relatively large samples. It is also not surprising that the authors and publishers are generally based in the developed world and/or associated with institutions in the global north who receive funding from aid agencies. However, the research was unanimous that disasters impact the poor most severely, and this has knock-on effects that extend to schooling (World Bank, 2020c).

Studies showed that the effects are most severe in learners from low socio-economic backgrounds (UNESCO, 2020b). This may be related to the general lack of resources to recover from all aspects of a crisis. Replacement pedagogies, like radio, TV and online learning, are often absent and there may be lower levels of education amongst parents. Also, education is a lower priority in a household that is fighting for survival.

Inappropriate interventions after a crisis, for example a business-as-usual approach and a rush to cover the curriculum, can lead to content overload. School disruptions thus perpetuate and reproduce inequalities in societies.

Concerning **disruptions in school attendance**, some studies (e.g. Ezaki, 2018; Powers & Azzi-Huck, 2016) reported that attendance typically returns to pre-crisis levels over time, but learning does not necessarily, as the section below explains. Other studies found that girls generally experience greater negative effects because of menstruation, pregnancy or mothering responsibilities, as well as a lack of family investment in their education. However, in some contexts, such as farming, male children can make a greater contribution to household income and therefore might not return following disruptions (Mu et al., 2016).

In general, the disruptions have a greater impact on secondary schools (Rush, 2018), because learners typically live closer to their primary school. Younger people were also identified as being less at risk of infection and were more likely to return (WHO, 2020). Lower attendance by older learners may be a result of family expectations to contribute income, or sometimes older girls are married off to alleviate the impact of disruptions in low-income families (Mu et al., 2016; Lowe, 2019).

When it comes to **disruptions in learning**, the research showed that learning loss is greater for younger children and accumulate over time, so they may be unable to learn new content later because of earlier gaps. Some learners in a Pakistan study tested on-level six months after the earthquake, but were found to be a year behind when they were assessed again three years later (Andrabi, Daniels & Das, 2020). On the other hand, they will have more time in school to benefit from corrective and catch-up intervention programmes.

The research typically focused only on performance in literacy/language/reading and numeracy/maths and unanimously found that there is a greater impact on performance in numeracy/maths, which is not surprising, given the hierarchical nature of mathematics and the importance of building solid foundations.

Chapter /03

“

The default intervention when schools close in many parts of the world, including here in South Africa, is to turn to online teaching and learning.

”

Challenges that learners in low-income households face

- Affordability
- Accessibility
- Connectivity
- Infrastructure
- Usability
- Pedagogy.

The benefits and constraints of technology-driven teaching and learning

Impressive recent advances have been made in using technology to enhance teaching and learning.

Technology's benefits include its ability to make learning more interactive and collaborative, networking opportunities, flexibility and self-paced learning. However, research on digital edge and equity has clearly shown that learners from low socio-economic backgrounds are faced with a myriad of challenges when it comes to technology-based education. Also, technology cannot replace a teacher, as learners need the social presence, motivation and feedback from teachers.

The default intervention when schools close in many parts of the world, including here in South Africa, is to turn to online teaching and learning.



This solution presents numerous challenges for learners in low-income households. They include the following:

- **Affordability:** Hardware (like laptops and iPads), Wi-Fi and data bundles are costly and out of reach for most poorer households.
- **Accessibility:** Affordability and accessibility are closely related as families could possibly raise money to buy devices but might not provide enough access to their children because they would rather keep the devices safe.
- **Connectivity:** Many communities remain either poorly connected or unconnected (Rodriguez, 2009). Even if devices are donated, it remains impossible to realise home schooling using technology. In times of crisis, governments and internet providers should establish schemes to provide affordable and accessible internet for distance education (Arthur-Nyarko & Kariuki, 2019) and could even organise for some resources to be viewed offline.
- **Infrastructure:** It is difficult to deploy technology-based methods in homes that have no or irregular supply of electricity. Rodriguez (2009) discovered that, in the

remotest areas, people prioritise charging their simple phones as these have less demand for electricity as opposed to laptops and computers. It is therefore wise to make use of low-cost phones and battery-powered radios to promote quality learning in low-income homes.

- **Usability:** Some gadgets that are donated are low-quality and difficult to use because of the poor user interface (Rodriguez, 2009) and because designers are ignorant of the context into which they are donated (Trucano, 2014). As a result, such devices are useless in low-income communities.
- **Pedagogy:** Many teachers simply use face-to-face resources for online teaching and learning. Using these pedagogies in online platforms has the potential to cause learning and cognitive dissonance and this effect tends to be more pronounced amongst learners from low-income homes (see for example Mehanna, 2016).

Learners from low-income households require interventions that address all the challenges discussed above. These constraints, including their socio-economic status and living in under-developed areas, are beyond their control.

Chapter /04



The challenges and opportunities in the home environment

Reducing inequalities in education has remained a persistent challenge in many educational spaces worldwide, even in the absence of pandemics.

“

... in the UK, children from poor households with less-educated parents tend to spend less time on schoolwork when studying at home compared to their classmates from well-off families.

”

Just like all other previous pandemics, the Covid-19 pandemic forced unprecedented upheaval in lives, careers and education systems. The rapid shifts in education also reproduced and deepened educational inequalities. The majority of the families that were negatively impacted fall within the low-income bracket. It is a well-known reality that the majority of children from these families receive the government's Child Support Grant (Stats SA, 2019). There is a multitude of constraints that affect **learners** in low-income homes, including:

- learners struggle to have fixed and adequate time for learning because of limited time with parents and guardians;
- there are fewer parent-child verbal interactions and less access to resources (Cullinane & Montacute, 2020), including learning materials (Benzeval et al., 2020);

- learners face an increased risk of developmental delay and poor school achievement (Cullinane & Montacute, 2020);
- the presence of technology without adult supervision make them vulnerable to cybercrimes;
- younger learners in child-headed families are not adequately supported (Newlin, Reynod & Nombutho, 2016);
- living spaces are small or crowded due to inadequate housing (Cunningham & MacDonald, 2010);
- electricity for study and recharging technological devices is restricted or absent;
- neighbourhoods are noisy and unsafe or violent;
- financial resources to purchase data are inadequate; and
- parents possess limited educational or literacy levels.

Research illustrated that, during pandemics, **parents** are expected to assume new roles of encouraging and helping their children to learn. However, three significant barriers stand out:

- Firstly, there might be time constraints for parents from low socio-economic communities because they are most likely to engage in essential services jobs (Cullinane & Montacute, 2020).
- Secondly, parents with literacy issues may lack confidence and struggle to engage with the curriculum in helping their children (Nkamnebe & Nkamnebe, 2018).
- Thirdly, increased stress arising from the pandemic may make it difficult for teachers, parents and learners to engage (Bugarukayo & Kalema, 2015).

In another study, Bayrakdar and Guveli (2020) argued that online or home schooling virtually transfers schooling to families and parents, some of whom are not well-trained to assist

their children with the intricate demands of the curriculum. They also observed that, in the UK, children from poor households with less-educated parents tend to spend less time on schoolwork when studying at home compared to their classmates from well-off families. Furthermore, single-parent homes could face more challenges supporting young children in low-income family homes (Watt, 2019).

Although it is also critical to engage every parent, Kagitcibasi, Sunar and Bekman (2001) reported that at least one parent should be involved. Two studies in the Turkish Early Enrichment Project spanning ten years found that home-based early enrichment through the mediation of the mother had numerous sustained effects in terms of school attainment, including:

- higher primary school grades and vocabulary scores;
- more favourable attitudes towards school; and
- better family and social adjustment.

According to Green et al. (2009) maternal literacy is more important than paternal literacy, and so too is general parental literacy more important than educational qualifications to support meaningful learning. Consequently, engaging the parents, especially the mothers, might be one of the crucial factors when we want learning to happen in low-income households. Parents can play a significant role in promoting home schooling in families in general, but in the low socio-economic household, they possibly have limited understanding of the curriculum and face language barriers (Benzeval et al., 2020; Platt & Warwick, 2020). They therefore become detached and distance themselves from their children's learning and may need support with coping mechanisms and stress management.

Chapter /05

Using traditional technologies in times of pandemics

“For a variety of reasons, including issues of accessibility, affordability, internet and Wi-Fi availability, online teaching and learning tend to be more suited to learners from high socio-economic backgrounds.”

The abrupt turn to online teaching and learning during pandemics, despite its acknowledged affordances, has the potential to leave behind millions of children.

For a variety of reasons, including issues of accessibility, affordability, internet and Wi-Fi availability, online teaching and learning tend to be more suited to learners from high socio-economic backgrounds.

This section explores the role of traditional technologies like radio, television, print media, solar- and/or battery-powered technology, and simple cell phones in the context of low-income communities. Case studies in other parts of the world that successfully used technology to reduce the inequality gap are discussed. However, the context must always be considered and the technology modified to be compatible. For example, if electricity is limited or unavailable, technology that is battery- or solar-powered should be explored. The engagement of parents is also critical when learning happens at home. We could have all the methods in place, but if the parents are detached and lack the know-how, home-learning might not happen.



Radio

Radio stations began broadcasting in the 1920s (Ackerman, 1945). Initially used for entertainment and news, an interest in using it for education arose later (Haworth & Hopkins, 2009). Instructional radio is considered to be a pioneer in educational technology, and Casey (2008: 46) maintained that “instructional radio paved the way for distance learning opportunities through television technology.” Cavanaugh et al. (2004: 5) argued that, based on the educational radio implementation model, “television, audio and video conferencing, the Internet, and other technologies have been adapted for the needs of young learners.”

With its origin in the west, educational radio has traditionally been purposed to complement existing curricula that had a strong reliance on written text (Casey, 2008). Efforts were also made to make its effects as far-reaching as print material. However, one of the barriers was the lack of availability of radio transmitters and receivers. In the context of challenges of electricity supply, there is a need to prioritise solar- and/or battery-powered radios. Despite some barriers, the reach and immediacy of radio provide educational institutions with a new and potentially powerful medium through which to support and modify education (Ackerman, 1945).

Several studies indicated that radio has been a suitable medium for education delivery that has proven educational worth in both pedagogical significance and geographical reach (for example, Ho & Thukral, 2009; Saldana, 2020). Moreover, it is cost effective and capable of applying good learning effects (Thukral & Jennifer, 2009). Recently, the South African government also broadcasted lessons on community radio stations around the country (Mhlanga & Moloi, 2020). Isola (2010) reviewed studies in teaching and learning in developing

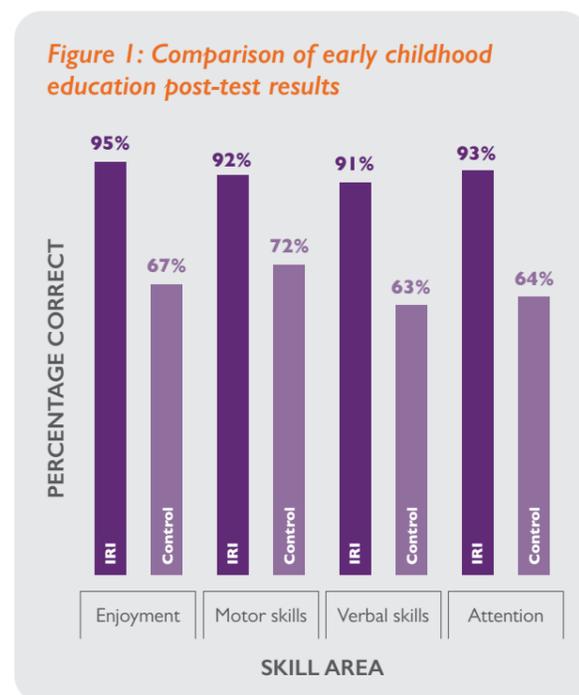
countries and concluded that radio can teach as well as present new information and concepts to learners (for example, Casey, 2008; Saldana, 2020).

In a related study, Mokwetsi (2020) discussed how Zimbabwe’s Ministry of Education, with support from UNICEF, introduced radio lessons. The study found that vulnerable children especially are excited about lessons because it is helpful to revise and grasp new learning concepts (Mokwetsi, 2020). However, these radio lessons had their challenges, particularly because children cannot answer questions or interact with teachers.

Thukral and Jennifer (2009) valued interactive radio instruction (IRI) in raising students’ outcomes. IRI is a teaching tool designed to allow active participation by learners. Ho and Thukral (2009: 2) further explained the strategies and methods involved:

“Audio lessons are developed to guide the teacher or facilitator and students through activities, games, and exercises that teach carefully organized knowledge and skills. During short pauses built into the radio scripts, teachers and students participate in the radio program during the course of an academic year, often more than 100 times in daily half-hour lessons, reacting verbally and physically to questions and exercises posed by radio characters. Actual formats vary according to the subject and grade level being taught. Learners also participate in group-work, experiments, and other activities suggested by the program. In this way, IRI exposes learners to regular, curriculum-based content and models effective teaching and activities for teachers.”

Ho and Thukral (2009) argued that this kind of instruction is beneficial, especially for those hard-to-reach children. A study was conducted in Bolivia to assess the impact of IRI on students in low-income homes. The research involved two groups: the treatment and the control groups of learners in the Foundation Phase. It measured learners' levels of verbal communication, physical activity, positive effects and engagement, and skill levels in performing designated tasks. The results indicated that learners in the treatment group performed far better than those in the control group (Ho & Thukral, 2009), as shown in Figure 1:



Source: Ho and Thukral (2009: 9)

The same experiment was done with learners in remote areas of El Salvador, Honduras and Indonesia. In all cases, achievement among the experimental groups was significantly higher than those in the control group (Ho & Thukral, 2009). Anzalone and Bosch (2005) concluded that the intervention has shown its effectiveness in improving educational quality and retention rates at the primary school level. Studies also demonstrated IRI's value as a mechanism to introduce new pedagogy and curriculum. It is also argued that IRIs provide a cost-effective means for delivering educational

experiences to low-income households (Anzalone & Bosch, 2005).

Television

TV has a long history of application in education, especially in the field of distance teaching and learning (UNESCO, 2002). In South Africa, almost 75 per cent of households had TVs in 2010 (World Bank, 2020). Although most of these households use analogue technology, an increasing number are now using satellite. TV licenses in South Africa are also relatively affordable, and all one needs in addition to the license is electricity. Due to frequent loadshedding in South Africa, which tends to affect low-income residential areas more (Lawrence, 2020), using TV can have the potential to exclude learners from low-income households.

TV programmes have been and still are rolled out on dedicated educational channels. For example, in South Africa the public broadcaster, the South African Broadcasting Corporation (SABC), and Digital Satellite Television (DStv) provide channels entirely dedicated to education. Moreover, the SABC added two dedicated studios from which teachers deliver real-time lessons to learners. The virtual classrooms allow learners to experience lessons as they would in a physical classroom. Through e.tv (a South African privately owned free-to-air TV station), the government also allocated a dedicated channel for learners for three months on the open-view platform (Mhlanga & Molo, 2020). However, Watson (2020) argued that numerous children in low-income contexts do not have TV access at home and, to make matters worse, they might be prevented from watching programmes at communal locations due to social distancing restrictions. However, it remains the case that educational TV could mitigate the adverse effects of school closure for many who can access television technology.

Lessons conducted on TV, however, should not be in the form of didactic lectures. Research has

shown that the most beneficial TV educational channels utilise cartoons, stories, anecdotes and jokes, and provide opportunities for learners to have exercise breaks (UNESCO, 2002). They also deliver greater benefits if there are ways to have social interaction, for example through phone-in facilities, which allow learners who may not have phones to listen to other learners ask questions or reflect on the content of the lessons.

Print materials

According to Cook and Nemzek (1939), the invention of printing and textbooks gave considerably to education in its present form. Print media has been in existence in education ever since the beginning of formal education. When compared to other technologies, print material, when carefully selected and sequenced, provides content that is understood more clearly and may enhance learning (Ahmed, 2017). Moreover, print material is more reliable than electronic tablets, radios and TVs.

Print materials are one of the most preferred methods in assisting scholars in learning independently from home (Maringe et al., 2020). It is cost-effective and it seems the easiest and quickest way to engage with learners, especially when dealing with learners from low socio-economic households. Research has demonstrated that if young people and adults are encouraged to read newspapers and magazines, it often leads to a lifelong habit of reading all sorts of other printed material too (Doyle, 2020; Elisha, 2020). Print materials delivered to learners at home with motivating messages to both learners and parents help to alleviate illiteracy and improve learners' reading (Maringe et al., 2020).

Many schools across the world have already engaged in textbook and workbook delivery to learners in low-income homes (World Bank, 2020a). For example, many Irish schools have been delivering textbooks and workbooks along with food parcels to learners (Doyle, 2020). However, Doyle argued that sending

only books to the learners of parents who have been described as having literacy challenges may not help the situation (Jæger & Blaabæk, 2020). Boonk et al. (2018) maintained that parents, especially those from low-income homes, are so detached from the school activities that they could not help or motivate their children to read. Therefore, there is a real need to engage the parents.

Solar- and/or battery-powered tablets

The electronic tablet currently seems to be a popular form factor, replacing the laptop in the popular consciousness (UNESCO, 2020a). However, electric-powered tablets are not usable in low socio-economic homes that have no electricity. Hence tablets that are solar- or battery-powered have been designed.

Technology is often blamed for distracting or harming learners. Therefore, it is critical to load the tablets with what is helpful and filter and block any unwanted or harmful content. Heavy usage of tablets is believed to cause eye strain, blurred vision and headaches, so it would be useful to alternate the use of electronic tablets with print material (Sheppard & Wolffsohn, 2018).

Mutter (2015) reported the great work done by a not-for-profit developer and publisher of educational apps who wanted to help Malawian teachers educate rural children with the help of technology. A solar-powered projection solution that would enable teachers to share material with every child in the class was designed. The organisation produced a set of high-quality resources on a variety of topics that could be operated from a tablet connected to a projector. Teachers were given access to a curated collection of engaging and valuable apps, videos and books to help children learn the critical skills of numeracy and literacy in both their home language and in English. The intervention impacted more than one million children in rural and remote homes (Mutter, 2015). In another study in Malawi, learners were provided with solar-powered

tablets preloaded with numeracy and literacy material. Findings indicated that the intervention raised Malawian school children's performance by almost 5.3 standard deviations (Dizon-Ross, 2017).

Simple cell phones

Cell phones became increasingly popular by the late 1990s and, by 2002, there were calls to reconsider bans in schools. Although cell phones were once perceived as distractions in the classroom, they are now considered a valuable tool in education. They are cheaper than smartphones, uncomplicated to operate, and use familiar and existing technology. Teachers can also send educational voice memos to learners. Doyle (2020) managed to show the impact of sending educational voice memos via simple cell phones. Learners engaged with educational content more than once, which helped to boost their understanding. Research done in Pakistan showed that students who were sent short quizzes via text messages helped them and their families to gauge how well they understood topics discussed in class (Trucano, 2014). There are multiple benefits, including improved learning outcomes and increased engagement among students. However, as with all tools, teachers need to plan to ensure that cell phones are used appropriately within the classroom.

Trucano (2014) argued that the main challenge with using sophisticated technology, especially in rural contexts, is the fact that often it is developed internationally and forced to fit into challenging contexts. Using simple cell phones to send messages to parents to help their children at home yielded positive outcomes. For example, in an experiment done in Chile, it was shown that frequently sending updates of learner outcomes (absenteeism, grades and conduct) improved learner educational outcomes in a sample of 1 500 students in eight elementary schools in a low-income region (Berlinski, Busso, Dinkelmann & Martinez, 2016).

Following this example, Bettinger, Cunha, Lichand and Madeira (2020) conducted a study with two groups of parents. One group received weekly text messages on their child's attendance and school effort, while the second group received messages without child-specific information that tried to redirect their attention. Although there was an impact on both groups, a higher impact was noted in the group where parents received specific information about their children. Consequently, the results suggested that alternative interventions that manipulate attention can produce a higher positive impact at lower costs (Bettinger et al., 2020).

Mayer et al. (2019) conducted a field experiment that provided parents with an electronic device preloaded with children's books. The school sent daily text messages reminding them to read to their child and also emphasising the importance of reading. Also, the parents were asked to commit in advance to how much time they planned to spend reading to their child in the coming week. Parents who met this goal received a congratulatory text message. Thus, with the use of three common behavioural tools – a commitment device, reminders and a social incentive – they found the duration of time that parents read to their child doubled during the six-week intervention.

A study by York et al. (2019), in which parents received three text messages per week from the school, found that parents were motivated to develop their children's academic skills, provided examples of specific activities were incorporated into the family's existing routines and reinforced the parents' behaviour. They discovered that the intervention increased parental engagement and improved children's literacy scores by 0.11 standard deviations. The intervention illustrated the significance and central role of parents when learning happens at home.

Table 1 summarises the value, opportunities and success factors associated with the traditional educational technologies that were discussed in this section.

Table 1: Value, opportunities and success factors associated with traditional educational technologies

Value and opportunities	Key success factors
 Educational technology: Radio <ul style="list-style-type: none"> • Easy to use, local and cost-effective • Promotes active learning through interactive radio 	<ul style="list-style-type: none"> • Interactive radio rather than still radio instruction delivers higher benefits, especially to learners from low-income homes
 Educational technology: Television <ul style="list-style-type: none"> • TV can be adapted for interactive viewing • The benefit of using one device to reach many learners at once is cost-effective • Audio-visual content develops and enhances content understanding • It provides various strategic approaches in learning • Content is taught within a context • TV brings aesthetic value to teaching and learning 	<ul style="list-style-type: none"> • Interactive television material yields greater learning benefits in low-income households
 Educational technology: Print media <ul style="list-style-type: none"> • Print enhances students' literacy • It inculcates the culture of reading • It can be carefully selected and provides no distraction • Print is more reliable than technology 	<ul style="list-style-type: none"> • Short, personalised materials with specific action points for learners deliver greater benefits to learners
 Educational technology: Tablets <ul style="list-style-type: none"> • Tablets can provide offline access to a vast number of online resources • It is useful when manipulated to suit the environment • Students can engage with content more than once and at their own pace 	<ul style="list-style-type: none"> • If used with renewable energy sources and high-quality resources, tablets develop and boost excitement in learning
 Educational technology: Simple cell phones <ul style="list-style-type: none"> • Useful, easy to use, affordable and context-relevant 	<ul style="list-style-type: none"> • Already owned technology is easy to maintain and user-friendly • Learners engage with content at their own pace • Communication is faster and less expensive

Chapter /06

We have to strengthen our current resources

- Familiar and affordable technologies
- Personalised messaging
- Parental resilience
- Learner resilience.

Other interventions required for quality learning

The most efficient way of ameliorating the effects of disruptions is to use what we already have.

We should pay attention to what research tells us about the limitations of the traditional resources, and more particularly, about how higher gains can be obtained for the most vulnerable in our societies by strengthening our current resources:



Familiar and affordable technologies

In research done in Afghanistan, Trucano (2014) concluded that, to improve home schooling in low-income households, affordable technologies with which people are already familiar (like solar-driven and/or battery-powered tablets, radios and simple phones), should be utilised. He stated that the best technology is the one you already possess, know how to use, and can afford.



Personalised messaging

Differentiated and personalised messages to parents could narrow the parent-school gap in home learning. Doss et al. (2019) discovered that personalised

messages have a greater impact than general ones. They argued that schools and teachers should, for example, inform parents how well their child knew a particular skill based on the child's performance in formative assessments. They also campaigned for a differentiated text that aligns the activity more closely to the child's skill level. Findings indicated that differentiation and personalisation increased parental involvement and students were 63 per cent more likely to move up a reading level than their peers (Doss et al., 2019). In another study, Dizon-Ross (2017) used email, text messages and phone calls to inform parents of their child's academic progress. The information given was student-specific and detailed, often containing specific class assignments and page numbers, and personalised for specific parents and students. The intervention led to a 21 per cent of a standard deviation increase in student GPA and a 25 per cent increase in assignment completion.

It should also be noted that supporting parents has to go hand-in-hand with supporting teachers. So, the communication cannot be done by an NGO, but by the school, and the class teacher specifically. This points to the need to reskills teachers to make at-home learning work.



Parental resilience

Since parents have proved to play a pivotal role in improving literacy skills, Doss et al. (2019) saw a significant need to boost resilience in parents. Cabell et al. (2019: 1) argued that one approach to ensure that children acquire their literacy skills is to "improve parental engagement in learning at home." In tandem, Devercelli (2020: 18) stated that parents are the "first-line respondents for children's survival, care and learning." Therefore, parents need support, encouragement and practical ideas to promote their child's learning at home.

In a study undertaken in Jamaica, several initiatives were put in place to support parents. The initiatives included parental advice on creating structure as well as safe and supportive learning spaces at home (World Bank, 2020a). In South Africa, the Department of Basic Education has a website that includes a section for parents. It has different pedagogical recommendations for parents to use in an effort to continue the learning at home (World Bank, 2020a).

Green et al. (2009) argued that literacy is more important than education among parents of low-income households, especially when assisting young learners in homes. Thus, a focus on building resilience in literacy levels amongst mothers carries with it greater potential for cognitive growth in younger learners.

Strategies to develop greater effectiveness and the quality of learning amongst older children who tend to be more independent from their parents include:

- help learners establish learning communities with other learners from the same communities;
- enrol parents in computer and literacy classes;
- get teachers to invest in pedagogies for remote teaching and learning, and
- enlist role models to work with learners from within the communities (Zhang, Washington & Yin, 2014).



Learner resilience

Several scholars, for example, Morales and Trotman (2004) and Ebersohn et al. (2015), have researched resilience in underprivileged learners who succeed against the odds. For Morales and Trotman (2004: 8), academic resilience constitutes "the process and results that are part of the life story of an individual who has been academically successful, despite obstacles that prevent the majority of others with the same background from succeeding." The potential of such learners can be used for the benefit of siblings and other learners within the community. According to Morales (2010), this kind of intervention focuses on success rather than barriers, while Bailey and İnanç (2018) argued that resilience does not necessarily fight structural barriers but functions in the presence of such barriers. Thus schools, communities and families have three roles to play:

- identify students within the families and communities who are successful amidst such adversities;
- harness their potential for helping other students who are struggling; and
- boost resilience for striving students and teach resilience to those who are struggling (Jæger & Blaabæk, 2020).

Chapter /07

A model for quality learning in low-income households

“
Disruptions have major consequences on learning and the quality of learning, and the impacts are most severely felt in low-income households.”

South Africa is characterised by vast disparities in income.

This, on its own, creates a basis for a vicious cycle of poverty and disadvantage and nowhere else is the evidence of this more clearly demonstrated as in the education sector. This section provides a model which can be used both as an analytical tool for exploring issues that mitigate quality of learning in low-income households, but also as framework for developing strategies that aim to enhance the quality of learning in these spaces.

Disruptions have major consequences on learning and the quality of learning, and the impacts are most severely felt in low-income households. Schools and teachers alone have limited capacity to mitigate the effects of disruptions on the quality of learning in low-income homes. The evidence gathered in this learning brief envisages a multi-level model involving government, social institutions, schools, parents, and the learners themselves, to enhance the quality of learning in low-income households.



The model provides a set of interlinked dimensions including a set of assumptions suggesting that in post-colonial countries transitioning from a highly segregated system to a more democratic and equalitarian society, interventions designed to promote quality have to begin by putting in place promotion of equity.

Government should commit investment towards developing curriculum content for platforms such as TV and radio. It could also support the development of solar-powered tablets and laptops to guarantee access to online teaching. A major social education programme focused on raising parental, and especially maternal literacy levels, could drive up the quality of learning through greater engagement with schools, but also more directly through providing meaningful support to their children in these circumstances. This could be done in conjunction with schools and other social services institutions.

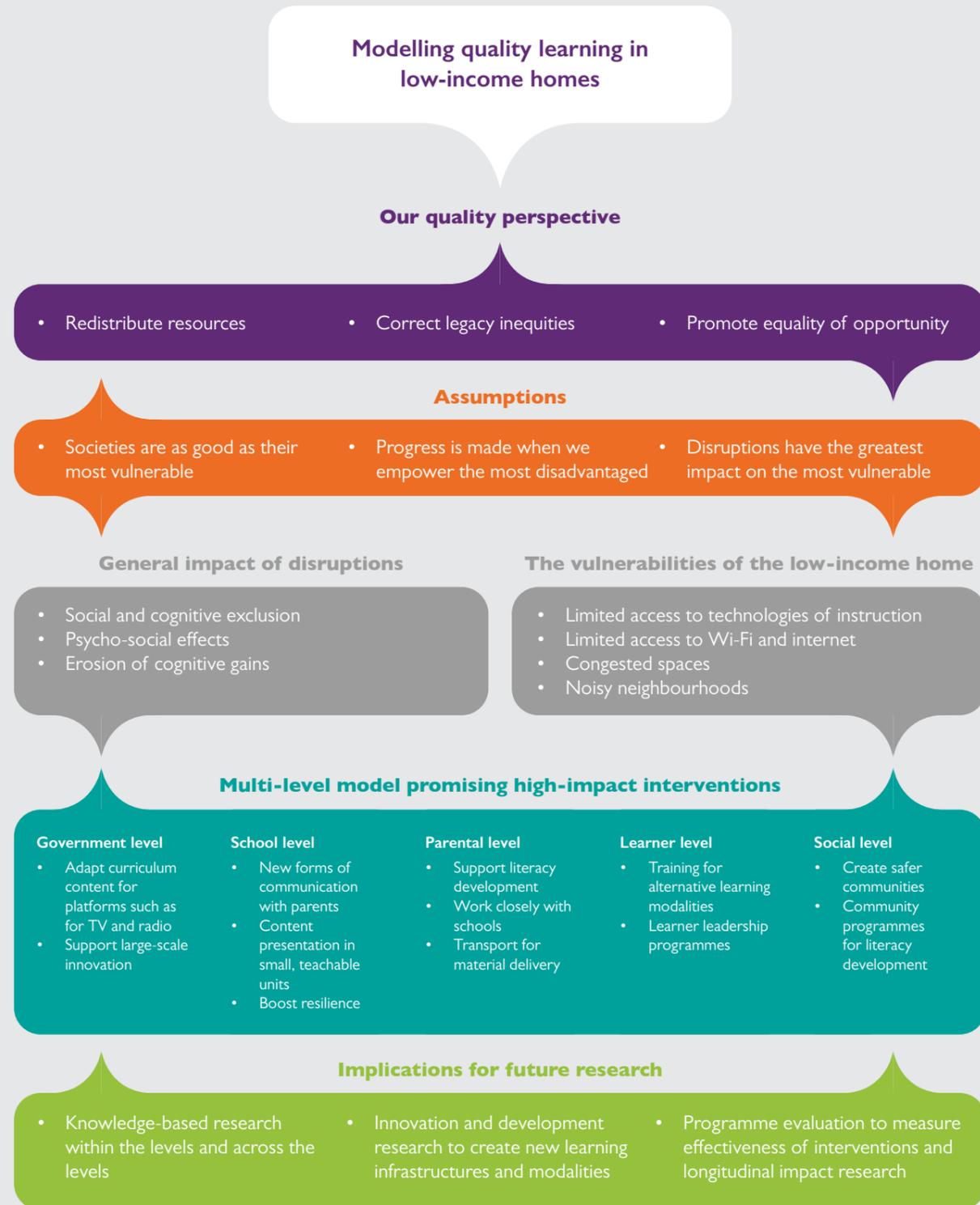
At **schools**, provincial and district education levels, the focus has to be with continuous professional development activities which promote new pedagogical thinking and action around teaching curricula in schools. A key thrust in schools is to develop bite-sized learning materials which have been found to promote effective remote learning, and especially among learners in low-income households.

Parents and schools need to prioritise arrangements for transporting learning materials during periods of crisis. Many children, especially in rural areas, would need to travel long distances to collect materials sent through postal services, increasing chances of infection and, of course, eroding substantial amounts of learning time.

Personalised communication with **parents and learners** is more effective than using general circulars. In respect of the learners, they have to be trained to learn remotely and some could be taught learner leadership skills to provide a fulcrum for more effective peer learning in times of crisis.

In conclusion, there is always a danger that schools and education departments revert to counterproductive solutions which serve the needs of privileged children, while the children from low-income households and other spaces of multiple deprivation are generally ignored and left to pick up the pieces. Solutions which do not work in circumstances of multiple deprivation serve to reproduce and perpetuate inequalities. A successful model will involve all role-players to enhance the quality of learning in low-income homes.

Multi-level interventions to enhance the quality of learning in low-income households



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