




**Education, inequality
and innovation in the
time of COVID-19**

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and Jane Hofmeyr

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Acronyms and abbreviations

4IR	Fourth Industrial Revolution
CAPS	Curriculum and Assessment Policy Statement
DBE	Department of Basic Education
DBST	district-based support team
DOH	Department of Health
DSD	Department of Social Development
ECD	early childhood development
ERT	emergency remote teaching
IRI	interactive remote instruction
FNSCC	Food and Nutrition Security Coordination Committee
NAPTOSA	National Professional Teachers Association of South Africa
NEIMS	National Education Infrastructure Management System
NGO	non-governmental organisation
NSNP	National School Nutrition Programme
OLSET	Open Learning Systems Education Trust
PED	provincial education department
PIRLS	Progress in International Reading Literacy Study
PPE	personal protective equipment
SADTU	South African Democratic Teachers Union
SAMEA	South African Monitoring and Evaluation Association
SARB	South African Reserve Bank
SARS	South African Revenue Service
SBST	school-based support team
SOP	standard operating procedures
TIMMS	Trends in International Mathematics and Science Study
US	United States of America
WHO	World Health Organization

Foreword

On 13 March 2020, during the early onset of the COVID-19 pandemic in South Africa, JET Education Services (JET) released the special Bulletin, Extending the capacity of governments and communities to save lives: The role of education systems in responding to COVID-19 and other threats. This was two weeks before lockdown measures in South Africa were to commence, and the education sector in South Africa was wholly unprepared for what lay ahead of it. Of course, South Africa was not unique in this precarious situation, with many countries across the world, including many first world countries, struggling to come to grips with the scale and potential impact of the crisis they were edging towards.

It was also at this moment, as we were contemplating the role JET could play during this unprecedented time, that the notion of a collaborative educational research response emerged in a rather spontaneous manner. The preliminary paper set the stage for JET to announce the start of the ‘Researchers’ Bootcamp’, #OpenUpYourThinking, on the eve of South Africa’s lockdown on 26 March 2020. Initially planned to be conducted across six thematic areas, the bootcamp soon grew to eight, then 10 and later 12 themes, comprising over 120 volunteer researchers (mostly below the age of 35) recruited from across South Africa and, in some cases, South Africans based in China, Malaysia and other parts of the world. The volunteers were paired with senior established researchers, or theme leads, from key disciplines and were further supported by peer reviewers from local education departments, sector education and training authorities (SETAs) as well as a good number of international peer reviewers. With a strong activist leaning to the process, the key focus was on finding real-time solutions to the pressures being placed on education systems by COVID-19 using an evidence-based approach. This coordinated approach allowed for innovative, fit for purpose and agile research models and strategies to be formulated, while providing JET and other organisations with a platform to contribute real-time inputs towards other national education processes. The twin focus on agile research and the capacity building of the group of young researchers, besides keeping them meaningfully occupied during the lockdown period, soon evolved into substantive research being done across the 12 themes – in some cases extending well beyond the five-week period during which the bootcamp took place.

The problem in South Africa was that our education system – notably the early childhood development (ECD), schooling, and technical and vocational education and training (TVET) sectors (perhaps less so in the case of higher education) – was functioning far from optimally before the pandemic. And so not only were we caught on the backfoot to start with

but, more concerningly, the dominoes were lined up for the deepening of fault lines of inequality, and not much could be done to mitigate this. This is where this publication and the work that has led to its release come in. Rubeena Parker, based at the Equal Education Law Centre (EELC), but working independently, led the research team for Theme 9, *Education innovation in times of necessity - reimagining education service provision in response to COVID-19 and identifying sustainable interventions to address inequality*. Rubeena co-authored this report with Katherine Morris and Jane Hofmeyr (who also took on the role of reviewer for the Theme). Their work culminated in this important contribution you are reading today.

The publication is released in the midst of the pandemic, in July 2020, at a time when the long-term impact on education in South Africa is still to be determined, but certainly also at the exact time when the this team’s work should be taken most seriously. Their recommendations, premised on the key tenets of ‘doing no harm’, ‘getting the basics right’ and the notion of ‘building back better’, are as contemporary as they are a clarion call to decision-makers in South African and beyond.

The researchers’ bootcamp methodology has been adopted by the Southern African Development Community (SADC), with collaboration from the UNESCO Regional Office in South Africa, Rhodes University and the Open Society Foundations. Take-up of the methodology has expanded further to the entire Commonwealth, with collaboration from the Commonwealth Secretariat; and soon, back in South Africa, it will form the basis of an inter-association collaboration focusing on monitoring and evaluation. This combination of a methodology that is demonstrably fit for purpose and key research outputs like this publication certainly provides hope for a sector under duress. The work of volunteers and activists, both young and established, and the thoughtful engagement of decision-makers in government and relevant development agencies bode well for an innovative future wherein the deepening of inequality is slowed down, and ultimately reversed.

We can ‘build back better’ during and after the COVID-19 pandemic, but let’s do this in an evidence-based manner that relies on deep collaboration across government and the non-profit and private sectors. Rubeena Parker and her fellow researchers have set an important benchmark for the rest of us to follow.

James Keevy
1 July 2020

Introduction

The world is in the grip of the COVID-19 pandemic and, like other countries, South Africa is dealing with the extreme challenges and disruption that it has brought in its wake. To mitigate the spread of the virus, on 15 March 2020, President Ramaphosa declared a state of disaster, and on 27 March 2020, a national lockdown.

This resulted in the closure of all primary, secondary, ordinary and special schools, affecting nearly 13 million learners (UNESCO, 2020). After more than two months of extended national lockdown, it was announced that Grades 7 and 12 learners will return to school on 1 June 2020 under strict conditions. This was later delayed by the Minister of Basic Education to 8 June 2020 because most provinces and public schools were not ready to open safely for learners and educators, with all the necessary personal protective equipment (PPE), sanitising requirements and learning materials in place. It is as yet unclear when schools will fully reopen and when teachers and learners will be able to resume 'regular' classroom schooling.

Since this research paper was completed, the question about whether schools should be reopened or not, and if so, which grades should return to school, has become a highly contested issue with parents, teacher unions, some PEDs and some analysts, expressing fear and concerns about the lack of readiness of many schools to admit learners safely and the impact of reopening schools on the health of educators, staff and learners. The result is that the DBE, recognising the significant impediments to the safe return of educators, staff and learners to schools, has delayed the return of all grades and instead only Grades 6, 11 and R are intended to return on 6 July. However, even this plan is not certain, given push-back by some unions and PEDs. By contrast, notable paediatricians, epidemiologists and analysts are advocating that it is better for learners to return to school because the evidence shows that they are unlikely to suffer serious infection from COVID-19, and at school they are better able to learn, are safer from abuse or neglect and can receive food and other support services.

This view is also supported by some education stakeholders. Since early June it has also become clear that the supplies of water, PPE, sanitising materials,

additional classrooms and learning materials have not been provided to all schools by the DBE and PEDs. The critical provision of school feeding has also not resumed in all cases. The result is that legal actions have been initiated to ensure that government provides the essential supplies, infrastructure and school feeding. Moreover, according to the DBE's statement on 5 July 2020 (Motshekga, 2020c), 4% of schools (some 968 schools) had to close after reopening on 8 June. This means that schools need to make provision for the continuation of remote teaching and learning for all grades in the event of future school closures or teacher illness because of COVID-19.

The closure of schools has occurred against the background of persistent education inequality and a long-standing education crisis, where most learners attend under-resourced schools with poor infrastructure, ill-equipped teachers, low attainment and high dropout rates (Vally, 2019). While spending more on education (around 6% of GDP in 2018) than many advanced economies (World Bank, 2019), the fact remains that in 2016, eight out of ten Grade 4 learners could not read for meaning according to the Progress in International Reading Literacy Study (PIRLS) (Howie et al., 2017:73; Rule, 2017). According to the 2015 Trends in International Mathematics and Science Study (TIMSS), in which Grades 4/5 and 8/9 learners are tested on their mathematics and science proficiency, South Africa scored second last for Grade 5 Mathematics, and last in Grade 8 Science scores (Roodt, 2018:2). Although there is evidence that in recent years learner results have begun to improve (Gustafsson, 2020), by international standards, South Africa fares very poorly.

In line with the adage that crisis necessitates and inspires change and innovation, several education commentators have argued that the COVID-19 school closures represent an opportunity to change current trajectories and 'reimagine' and 'remake' the education system. However, where the lived realities of many learners in disadvantaged communities include dilapidated school buildings, dangerous and unsanitary pit latrines, no water supply, shortages of learning materials and large classes (Black, 2020; Jansen, 2019; Vorster, 2020a, 2020b), we have to ask whether, at

this time, it is really possible to remake an education system suffering from the deep-rooted, systemic problems that COVID-19 has laid bare. Moreover, schooling inequality is mirrored in society. South Africa is one of the most unequal countries in the world with extremely high levels of poverty and unemployment that COVID-19 and the lockdown have only increased (Bekker et al., 2020; Valodia & Francis, 2020;).

In response to the emergency presented by school closures, the Department of Basic Education (DBE) has pursued online learning as the primary mode of delivering remote learning (Brodie et al., 2020; Equal Education et al., 2020a), coupled with the use of TV

and radio programmes, downloadable multimedia content, and printed texts that could be made available to learners who cannot access online learning.

Given the acute societal and education inequality in South Africa and the effects of the pandemic, the question arises whether remote education can effectively serve the learning needs of disadvantaged learners in poor communities. Moreover, are there innovative strategies that can be introduced that will improve the quality of learning now for disadvantaged learners and, in the longer term, assist in tackling the serious challenges and reducing the extreme inequalities in the education system?

To address these questions, in this paper we examine the effects of school closures amidst the pandemic, the effectiveness of remote learning and the possibility of remaking schooling in the South African context. In doing so, we consider:

1. The effects of inequality and lockdown on the ability of children to learn remotely;
2. Whether the current measures of the DBE are serving all children, particularly the most vulnerable;
3. Current debates about schooling in the pandemic, including the reopening of schools and which learners should return to school first;
4. What role innovation can play;
5. What local and global lessons can be learnt from current responses to improve learning during the pandemic; and
6. What changes could be made during the pandemic that would improve remote learning for all children now, mitigate the education inequalities and point to the re-imagining of schooling in the longer term.



Research methodology

Initial work on this study began just as South Africa entered its national lockdown. The intention was for the study to coincide with the initial three-week lockdown period, but this was later extended as the lockdown continued.

The research team consisted of the theme leader and some ten researchers from various backgrounds, including the non-for-profit, higher education and research sectors. The experience of the team members varied, with more experienced researchers convening sub-topic research groups, each of which looked to tackle a specific component of the team's overarching theme: "Education innovation in times of necessity: Reimagining education service provision in response to COVID-19 and identifying sustainable interventions to address inequality".

The entire research process, including all team meetings, discussions and collaborative research and writing, was conducted remotely using video conferencing software, instant messaging and collaborative authoring tools. After an initial orientation and discussion meeting on 1 April, researchers were organised into various sub-themes, according to their strengths, qualifications and interests.

In order to understand inequality and innovation in the context of South African education, a qualitative approach was applied, combining desktop research with a number of online surveys to gauge the impact of COVID-19 and remote learning on teachers, learners and parents/caregivers.

Desktop research, using multiple online sources, academic literature, media reports and various think-pieces, was conducted to understand the impact of, and problems arising from COVID-19 and remote learning. Local and international responses by governments and non-governmental organisations (NGOs) to school closures, especially in terms of remote learning options, were also assessed. The research findings were tabulated to identify overlapping and cross-cutting themes, and the emerging themes were used to structure a first draft of this report.

To complement this approach, online surveys were distributed to gauge the impact and scope of problems

arising from COVID-19 school closures. Google Forms was the platform used to develop three questionnaires, one each for parents/caregivers, learners and teachers. Each questionnaire contained the relevant consent information and each survey participant (or their parent/caregiver) had to provide informed consent before they were able to participate. The surveys were sent out in early April 2020.¹ In all, we collected feedback from 444 people: 76 learners, 93 educators and 275 parents/caregivers.

Questions, both open-ended and multiple choice, were designed to assess issues relating to curriculum delivery, pedagogical change, nutritional and psychosocial support, and learning environments. Examples of potential answers were given to stimulate responses, but, through open-ended questions, respondents were encouraged to add issues specific to their situation. Many of the survey questions included an option to respond "other" or were open-ended. This means that some respondents either opted out of answering certain questions, or answered "other". Therefore, not all of the results referred to in the findings section below will add to the total number of respondents. For example, in the sample of 76 learners, 50 indicated female and 24 indicated male, and two learners chose not to respond.

The research team shared these questionnaires with their own networks through email, Facebook and Twitter. One researcher reached out to a group of 36 educators in Limpopo, whose schools were part of another pilot project being undertaken by that researcher and her organisation. These educators were interviewed telephonically, and data was captured by the interviewer. Additional primary data was collected through one-on-one telephone calls and email discussions with the staff of NGOs and members of community-based networks in order to understand, for example, how non-state actors are operating during lockdown, the services they provide, their ability to communicate with parents, teachers and learners, and challenges they face in doing so.

The interview data was analysed to identify recurring themes, and to extract and distil the key concerns as expressed by the respondents.

¹ The surveys are available from JET Education Services on request.

When the first round of research was completed, with sub-theme coordinators submitting draft write-ups focusing on their particular sub-questions, the theme leader consolidated these write-ups into a single draft document. At the same time, the research findings relating to local and international remote learning and related support measures were distilled and tabulated (see Annexure A).

Contributions were made by each of the participants to the research, but after the initial lockdown period ended, the participatory research process was frustrated because many of the participants were unable to dedicate additional time to the project. In the end, a core group of researchers and the reviewer refined and completed this report.

It must be noted that a key limitation of this research is that online surveys tend to exclude the most disadvantaged groups from responding because they do not have adequate access to digital media and platforms. This means that concerns raised by the respondents are unlikely to reflect those of the most vulnerable adults and children and thus are not representative of the South African population. In addition, the online surveys were conducted in early April and, after months of school closures, the import of the responses may well be different. As this research paper was completed in early June, subsequent developments in both policy and practice around COVID-19 and schooling are not covered.

Key terms

Remote learning

Through our research of education inequality, remote learning and innovation in the time of COVID-19, it became clear that there are many different terms used to describe education not delivered through face-to-face interaction in a classroom. To clarify the discussion in this paper, we have provided a set of definitions to distinguish between the most common terms and their different meanings. We have decided that the generic term we will use in this paper is **remote learning**. Remote learning is explained in an online article by Ray (2020):

Remote learning provides an opportunity for students and teachers to remain connected and engaged with the content while working from their homes. Opportunities for remote learning are typically linked to emergency situations that pose a threat to student safety.

A key point made by Ray (2020) is that in remote learning environments brought about by an emergency, “the learner and teacher are not accustomed to having distance during instruction”. This means that the

transition to remote learning is challenging for the teachers and learners. She also points out that remote learning can encompass many modes of delivery, such as online learning and printed materials.

Because remote learning is so often the way education is delivered during an emergency, it is often referred to as **emergency remote teaching (ERT)**:

Emergency remote teaching refers to the temporary shift of instructional delivery to an alternate mode of delivery during a time of emergency or crisis. It uses remote teaching solutions to deliver education that would otherwise have taken place face-to-face or as part of a blended mode of delivery. The aim of ERT is to provide temporary access to learning instruction that is relatively quick to set up. Emergency remote teaching is distinct from online learning. (Hodges et al., 2020)

Another generic term often used is **distance learning**; however, that does not convey the sense of an emergency situation, as remote learning and ERT do:

Distance learning has typically meant providing learning access to geographically distanced students. As technology developed, computers have come to replace the use of printed materials, as well as augment distance learning options using video conferencing for remote engagement. Online, e-Learning, and digital learning offer modes and tools for enabling distance learning. (Moore et al., 2011)

Technology in education

The term technology in this paper is used in its educational sense. To the lay public, ‘technology’ refers to the “instructional use of computers, television, and other kinds of electronic hardware and software” (Technology in Education, 2020). However, specialists in educational technology prefer the term instructional technology because it draws attention to the instructional use of educational technology, which has a much wider meaning than electronic hardware and software. Instructional technology represents

both a process and the particular devices that teachers employ in their classrooms. According to the Association for Educational Communications and Technology, “Instructional Technology is a complex, integrated process involving people, procedures, ideas, devices, and organization for analyzing problems, and devising, implementing, evaluating, and managing solutions to these problems. (Association for Educational Communications and Technology, 1977:4)

Other terms found in this paper that require definition include the following.

Digital learning

Digital learning refers to 'technology enhanced' learning, where some or all the learning experience, including instruction and assessment, occurs in a digital environment. A distinction must be made between 'learning with technology' and 'learning through technology'. 'Learning with technology' implies that some learning occurs through technological means, whether accessing a programme at a school computer lab, or receiving instruction at home via Google Classroom. 'Learning through technology' implies that technological means are the sole mode of delivery (adapted from Wheeler, 2012).

e-Learning

e-Learning refers to learning, usually in module format, in which instruction, engagement with lessons, tasks and activities, and assessment occurs exclusively online, usually through a single system (Layton, 2017; Stauffer, 2020). "In simple language, e-learning is defined as 'learning that is enabled electronically'. Typically, e-learning is conducted on the Internet, where students can access their learning materials online at any place and time" (Tamm, 2019).

Interactive radio instruction (IRI)

Interactive radio instruction is a form of traditional technology that has evolved to offer new means of support. IRI is described as a "distance education system that combines radio broadcasts with active learning to improve educational quality and teaching practices" (World Bank, 2005). IRI differs from conventional broadcasting by utilising an active learning pedagogy requiring both teachers and learners to respond verbally and physically to activities, experiments and questions presented by radio characters. The World Bank (2005) has developed a toolkit for policy-makers and planners setting out an implementation strategy for IRI.

Mobile learning

Mobile learning or m-learning denotes the use of mobile devices to make course material available to learners and to create new learning experiences (DePaul Teaching Commons, undated).

Online learning

Online learning is a variety of digital learning. While the term is used interchangeably with others to imply a mode of 'technology enhanced' learning, in the context of this paper, online learning will refer to learning that takes place online, and where online technology enables all or part of the learning process and environment. This includes e-learning, receiving instruction via a platform such as Google Classroom, accessing content via mobile devices, or video conferencing.

EDUCATION




COVID-19 in South Africa

When South Africa entered its first phase of lockdown, the confirmed COVID-19 cases numbered 927. The initial 21-day lockdown period was intended to provide the South African healthcare system with much needed time to prepare for an influx of COVID-19 patients, while strict social-distancing measures were enforced to limit the spread of the virus, ‘flatten the curve’ and delay the peak of the infection (Ramaphosa, 2020). International and domestic travel was prohibited, businesses were shut down, schools were closed, and all South Africans, except essential service employees, were asked to stay at home. The country entered one of the strictest lockdowns in the world, which included no movement outside homes except to obtain medical services and medication, food and other essential supplies, as well as a ban on the sale of alcohol and cigarettes (UNICEF, 2020:1).

At the same time, some 28 000 healthcare workers were deployed across the country to conduct door-to-door testing, while “the government provided relief

(cash grants, financial aid and food donations) to the most vulnerable populations (children, elderly, the unemployed)” (UNICEF, 2020:1). A host of economic stimulus measures were implemented by the government in partnership with the National Treasury, the South African Reserve Bank (SARB), the South African Revenue Services (SARS), and South Africa’s major banks, to assist large and small businesses and individuals through tax incentives, various relief funds, debt relief and payment deferral schemes.

While President Ramaphosa was praised by the World Health Organization (WHO) for the government’s swift and decisive response to the COVID-19 pandemic (Maromo, 2020), the economic and social reality of the situation has resulted in severe hardship for the majority of South Africans. Valodia and Francis (2020) argue that “the lockdown has illuminated how the spatial, economic and social inequalities which were characteristic features of the apartheid period have persisted in post-apartheid South Africa”, noting how



The economic and social reality of the lockdown has resulted in severe hardship for the majority of South Africans

unevenness in terms of testing, access to transport and enforcement paint a “stark picture” of South Africa’s economic inequalities.

According to recent data from a Statistics South Africa business impact survey (StatsSA, 2020:5; BusinessTech, 2020a), “one in five SA businesses surveyed ... have laid off staff due to the impact of the coronavirus pandemic”, with others requiring staff to take substantial pay cuts, while “the SARB forecasts that the SA economy will contract by 6.1% in 2020” (BusinessTech, 2020a). In all, “a recent study by the Southern Africa Labour and Development Research Unit ... found that the poorest 10% of households will most likely lose 45% of their income through the shutdown” (Valodia & Francis, 2020).

As the economic crisis unfolds, access to essential supplies, including food, water and sanitation is precarious. While wealthier households have access to indoor water and sanitation, and have sufficient income to bulk-buy food, medication and other essentials, the reality for South Africa’s poor is radically different. It is estimated that some 1.4 million people living in informal settlements do not have adequate access to water in their homes or in their yards, while access to running water and basic sanitation for millions living in rural areas is unreliable (Graham, 2020). Moreover, breaks in wage payments, retrenchments and insufficient access to cash and social grants means that South Africa’s majority cannot afford to bulk-buy. The exclusion of spaza shops, street traders and small farmers as ‘essential service providers’ in the early lockdown resulted in a food security crisis for people living in informal settlements and rural areas, where price and distance reduce access to formal supermarket retailers (Hall et al., 2020). Observing strict social-distancing measures and practising good hygiene and frequent handwashing in informal settlements is often impossible.

As of 30 May 2020, South Africa’s confirmed COVID-19 cases had escalated to a total of 30 967, with 16 116 recoveries and 643 deaths (NICD, 2020). The bulk of infections are in the major metros of Cape Town, Durban and Johannesburg.

Amid calls for greater transparency of available data, a consortium of researchers presented their models of COVID-19 projections to the public and the possible health and financial impacts of the coronavirus on the

country (López González, 2020). One estimate forecasts 40 000 deaths by November 2020, and “anywhere from 1.2 to 1.6-million symptomatic cases during peaks in July or August” (López González, 2020). While the vast majority of those infected would only present with “mild symptoms”, “475 000 to 680 000 would however, require hospitalisation” (Cowan, 2020), and with infections estimated to peak between August and September, “the number of available hospital and ICU beds will likely be exhausted by July” (López González, 2020).

How soon the lockdown should be eased has produced a vigorous debate. Many commentators have argued that the loss of life and livelihood through extreme hunger, insufficient social welfare grants, inability to work, and limits to public and private capacities to provide support will outweigh any benefit associated with an extended period of lockdown (see Abel, 2020; Lapping, 2020; Omarjee, 2020a). According to data from the COVID-19 Democracy Survey collected between 13 and 27 April (Bekker et al., 2020), “thirty-four percent of people in South Africa now go to bed hungry” with the largest number of cases from respondents living in informal housing (between 42% and 46%), while the “the largest increases were among people living in what might be regarded as ‘middle-class’ housing” (between 23% and 30%), indicating the ongoing effect of COVID-19-related job and income losses on individuals across the country’s income spectrum (Bekker et al., 2020).

Projected job losses have ranged from 1 million to as many as 7 million, raising the country’s unemployment rate to a frightening 50% according to the National Treasury (Omarjee, 2020b). The socio-economic effects of COVID-19, including “interruptions to public health programmes, loss of access to educational and other child support services, growing challenges with mental health, and increased gender based violence are collectively deepening destitution in many communities” (de Kadt, 2020).

To try to balance all these factors, amid fears that an extended lockdown will ‘do more harm than good’, the government decided to lower the national COVID-19 alert level to level 3 from 1 June so that most businesses could open, but under strict regulations in accordance with health and safety measures to curb the spread of the virus.

COVID-19 and schooling

On 18 March 2020, when the Minister of Basic Education, Angie Motshekga, announced the closure of all schools across the country, initially the plan was to compensate for lost teaching time by shortening mid-year school holidays by one week, and resuming classes on or around 14 April (Mokati, 2020).

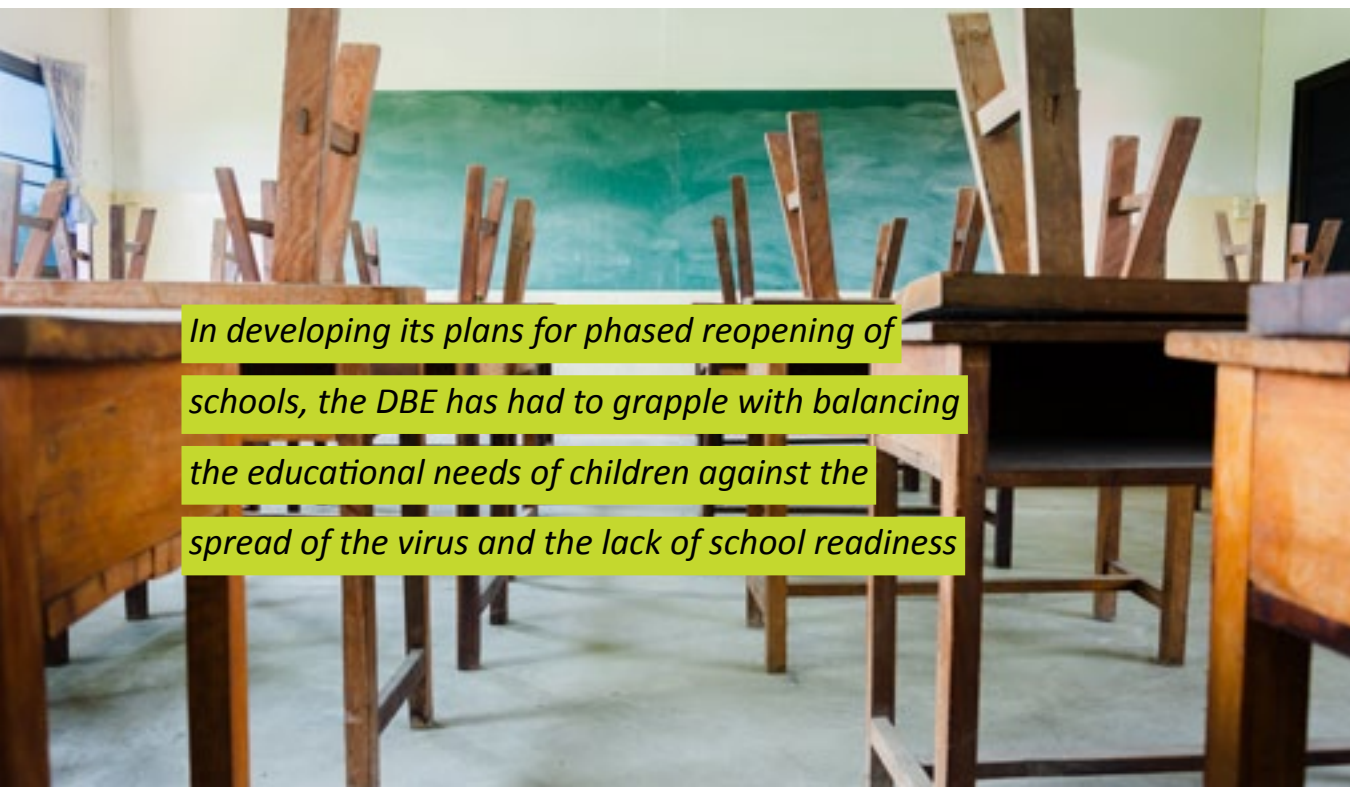
Faced with the immediate need for remote learning, the DBE has relied mainly on online learning. However, to complement online learning and ensure ongoing access to education, the DBE, in partnership with several government departments and bodies, as well as business and not-for-profit organisations, made available additional learning support initiatives. Some key interventions introduced included:²

- Access to multimedia, reading and study material through the DBE website containing learning material per grade and subject;
- Access to zero-rated educational web resources in partnership with network operators;

- Siyavula Maths and Science textbooks for downloading;
- Broadcasting of curriculum programmes to learners in Grades 10, 11 and 12, as well as early childhood development (ECD) programmes through various national and local/community radio stations; and
- Televised broadcasting of educational programming on SABC and DStv.

When the lockdown was extended and it became clear that schools would remain closed for far longer than originally expected, the DBE began developing recovery plans and plans for the phased reopening of schools. Unfortunately, communications from the DBE regarding these plans have kept changing, resulting in considerable anxiety and confusion among the public and education stakeholders (Equal Education et al., 2020b; Jansen, 2020c).

² A more comprehensive list of interventions is contained in Annexure A.



In developing its plans for phased reopening of schools, the DBE has had to grapple with balancing the educational needs of children against the spread of the virus and the lack of school readiness

On 19 May 2020, the Minister of Basic Education announced at a press briefing that a 1 June start-date had been approved by the National Coronavirus Command Council for Grades 7 and 12 learners under strict conditions, such as social distancing, sanitising, reduced class size and screening (Motshekga, 2020b). Soon after the Minister's briefing, the DBE published on its website various key planning documents for the phased reopening, including standard operating procedures (SOPs) (DBE, 2020b) to be followed when schools open, a trimmed down/reorganised curriculum for Grade 12 learners, and guidelines outlining various timetabling options, including learners going to school on a rotational basis, learners alternating classes on different days of the week, and a platooning system.

In developing its plans for phased reopening of schools, the DBE has had to grapple with balancing the educational needs of children against the spread of the virus and the lack of school readiness. This has given rise to robust debates about whether and when schools should reopen, which grades should return to school first and how much of the curriculum could be realistically salvaged in 2020. Commentators have underlined the negative effects of continued school closures on learning, nutrition, family income and learners' mental health, the limits of remote learning where children are forced to, or parents choose to have them learn at home, and the role of innovation in addressing these issues, and the danger to children, educators and households if schools open without having met the requirements for preventing the spread of the virus (Hoadley, 2020; Jansen, 2020a; Spaul, 2020c; Taylor, 2020a, 2020b). Teacher unions, governing body associations, parents and researchers have all weighed in on these debates.

The debates will be discussed in a later section, but it is first necessary to describe the context of schooling in South Africa.

Education inequality

The COVID-19 pandemic, the resulting lockdown and school closures have magnified existing inequalities in society and education. According to Vorster (2020a), for South African children living in poverty, these inequalities manifest most clearly when it comes to questions of health and nutrition, safety and education access.

The 2019 Child Gauge, published by the Children's Institute, reports that nearly 60% of children in South Africa (some 11.6 million) live below the upper-bound poverty line, a measure linked to the minimum

requirements for nutrition and other basic needs (Shung-King et al., 2019:52; 221–222). The Child Gauge also reports that child poverty remains most prevalent in rural areas, where 81% of children are estimated to be living below the poverty line, compared to 44% of children in urban areas.

Economists estimate that the lockdown, and its impact on the informal sector, schools and school feeding programmes, has resulted in an "additional 4 million" people now living under the food poverty line or in "extreme poverty" (Bassier et al., 2020 cited in Spaul, 2020b). They also project that "in the absence of an intervention targeted at vulnerable households, the extreme poverty rate among these households will almost triple" (Bassier et al., 2020).

Hunger levels are also significantly affected by the disruption of the state feeding scheme, the National School Nutrition Programme (NSNP), during the school closures. For many learners in poor households, the meal received at schools is often the only meal for the day (Equal Education et al., 2020c). Hunger and malnutrition compromise children's ability to learn effectively at school and leave children immunocompromised during the pandemic.

Technology and data-related constraints in South Africa are also considerable. According to the 2018 General Household Survey only around 10.4% of South African households have access to the internet at home, and in rural Limpopo, for example, this is as low as 1.7% (StatsSA, 2019:58). Mobile internet access is slightly higher with 60.1% nationally and 43.3% in Limpopo (StatsSA, 2019:58). By contrast, radio has a higher penetration than television, newspapers and the internet, "reaching over 88% of people in rural and urban centres aged 15 years and older in a typical week in South Africa" (Stuart & Chotia, 2016:111).

Moreover, recent statistics from the National Education Infrastructure Management System (NEIMS) indicate that even at school sites, online learning would only serve the privileged. Out of 23 258 school sites, only 4 695 or 20% had access to internet connectivity for teaching and learning purposes. A further 12 587 schools, the majority of which are in Limpopo, Eastern Cape and KwaZulu-Natal, indicated that they had no computer centres whatsoever (DBE, 2019a).

When it comes to teaching and learning, months of school closures will worsen existing problems and the inequalities of South Africa's "two education systems" (Spaul, 2012) will be exacerbated. These two systems comprise, on the one hand, 75% of the public schooling system, which is populated by poor, predominantly black learners, and characterised by overcrowding, inadequate resources and underperformance. On the

other, the remaining 25% comprise schools which are adequately resourced and supported, including for technology-mediated remote learning, and deliver a high quality of education (Vally, 2019).

What are the causes of the deep inequality? Economists at the University of Stellenbosch have identified four binding constraints in the schooling system that result in extremely weak educational outcomes, the most alarming of which is “the failure of most children to learn to read fluently and with comprehension” (van der Berg et al., 2016:65). The economists argue that these four binding constraints must be addressed if learning outcomes for poor children are to improve: (i) weak teacher content knowledge and pedagogical skill, (ii) wasted learning time and insufficient opportunity to learn, (iii) weak institutional functionality, and (iv) undue union influence (van der Berg et al., 2016). These four constraints interact dynamically, and have resulted from a weak “administrative core” in the state, and a weak “instructional core” in the interaction between teachers, learners and content in the classroom (van der Berg et al., 2016:26). These constraints and weaknesses have bearing on the challenges of remote learning.

Teachers are at the centre of any education system and their quality directly affects learner achievement (CDE, 2015:33). In South Africa, many teachers lack basic levels of content knowledge and pedagogical skills. The results of two assessments of Grade 6 Mathematics teachers and their learners, the 2007 SACMEQ study and the research of Venkat and Spaull (2015), revealed that between 68% and 79% of Grade 6 Mathematics teachers in South Africa had a content knowledge below the level they were currently teaching, with most of these teachers concentrated in the poorest four quintiles of schools (van der Berg et al., 2016:9).

Moreover, during apartheid and in the more recent past, the bulk of teachers have been ill-educated and under-trained. This is the result of poor quality initial teacher education, as government bodies and independent researchers have found (CDE, 2015:11).

In the case of remote learning, the teacher age profile is a significant factor because the great majority of the teaching force are older teachers. It has been projected that by 2025, the bulk of teachers will be between the ages of 50 and 59, nearing retirement age, and only a small number of teachers will be aged between 40 and 49 years (CDE, 2015:25). Older teachers with few digital skills are likely to struggle to come to grips with the online and remote learning demands and the inevitable pedagogical changes that COVID-19 and the lockdown involve.

This is compounded by the fact that, even under regular classroom conditions, studies have shown that teachers cover less than half of the official curriculum in a year and fewer than half of the officially scheduled lessons are actually taught (van der Berg et al., 2016:9). This suggests that if most teachers struggled to complete the Curriculum and Assessment Policy Statement (CAPS) for schools before the lockdown, they will be further stressed by having to “cram into the heads of anxious pupils the information in an already crowded CAPS curriculum” to make up the lost teaching and learning time from the lockdown (Jansen, 2020b).

The inequalities in the schooling system manifest in other ways too. The system does not cater adequately for learners with disabilities and learners who need psychosocial support, especially those in rural areas and poorly functioning schools.



Months of school closures will worsen existing problems and the inequalities of South Africa's "two education systems"

The DBE's Education White Paper 6, *Special Education Needs: Building an Inclusive Education System* (2001), makes provision for learner support structures in the form of school-level and district support teams. District-based support teams (DBSTs) should include a combination of specialist learner and educator support personnel, such as "social workers, therapists, educational psychologists and district officials" (Human Rights Watch, 2015:87), and school-based support teams (SBSTs) must engage with DBSTs to identify and meet the support needs of those within the school. SBSTs ought to include teachers, support staff, heads of department, and principals or deputy principals (Veriava et al., 2017).

Despite the establishment of these support structures, "the government has acknowledged that not all support teams ... are fully functional, particularly in rural areas" (Human Rights Watch, 2015:87). Indeed, Inclusive Education South Africa has stated that "children with disabilities, particularly in rural provinces, still experience 'dual apartheid' discrimination based on race and disability" (Inclusive Education South Africa, 2018).

In the case of learners with disabilities, there is a lack of accurate enrolment data. According to Human Rights Watch (2019):

An estimated 600 000 children with disabilities remain out of school in South Africa, but the government has not published accurate data. In 2015, according to government data, nearly 121 500 learners with disabilities were in 'ordinary' schools. Over 119 500 learners were enrolled in special schools and, in 2017, close to 11 500 children with disabilities were on waiting lists to enrol in special schools.

Given the sobering facts above, any proposed innovations need to take cognisance of the deep-seated inequalities and significant constraints in the schooling system, failing which, innovations are likely to be ineffective and/or entrench existing inequalities, leaving the most disadvantaged even further behind.

Key issues

Since the lockdown, a host of articles have been published, and more appear daily, about the effects of remote learning, school closures and reopening, support for learners and the possibilities of innovation during the pandemic. The key issues that have been raised are grouped below.

Key issues raised since lockdown



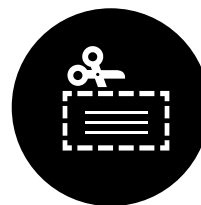
Online learning



Safety of educators



Reopening of schools



Trimming of the curriculum



Psychosocial support



Learners with disabilities



Online learning

The DBE's over-reliance on online learning has resulted in strong criticism in the media from educators, analysts and researchers, who have pointed to the vast digital divide in South Africa and problems of online learning for most learners who do not have access to reliable connectivity and/or cannot afford the high cost of data. Even where data and digital technologies are accessible, learners may not have the digital literacy skills, the time, space, ability to self-regulate, and the parental or other support required to transition to online learning and use these tools effectively.

Many articles have pointed out that online learning means that the majority of school children do not have any real access to learning materials, or the kind of support or environment that will enable them to continue learning under lockdown (Black, 2020). The result is that most learners have been left behind (Brodie et al., 2020; Equal Education, 2020a). Indeed, in a national briefing on 30 April the Minister acknowledged that during the lockdown, unfortunately "very few learners are reached, and even those who are reached, schools tell us the impact is less than 20% of what would have happened in the classroom" (Govender, 2020a).

According to Ntaka (2020):

It is mostly marginalised communities and children who bear the brunt of the effects of school closures as they are the most vulnerable. For a country like South Africa, already battling demons of socio-economic inequality, disruption of the academic calendar has exacerbated the existing disparities in the education system.

Moreover,

Those learners who do not have access to stable electricity, television, internet connections and computers will need to play "catch-up" once schools open, racing against time to do so.

Thus, numerous commentators have urged the DBE to 'save' the school year by using the full range of instructional delivery mechanisms available for remote learning, and especially printed learning materials (Mhlanga, 2020; Taylor, 2020b). As has been noted above, the Minister, with other partners, has announced that other forms of remote learning have been initiated to supplement online learning. However, Hoadley (2020) indicates that despite good intentions, the DBE's "efforts at providing television and radio

offerings have been piecemeal, uncoordinated, poorly publicised and, for the lower grades especially, unconnected to the curriculum".

The importance of "text not tech" has been highlighted by Hoadley (2020) who argues that every Grade 1 to 4 learner must be given a copy of the DBE's Mathematics workbooks for the previous grade, enabling them to revise content already taught. She also proposes providing them with a copy of the *Vula Bula* reading anthologies, which can be printed rapidly and at a very low cost by the existing contractors. She notes that as the Minister has already given permission for learners to collect books when schools reopen, every child can access the key learning materials that they need for languages and mathematics. Taylor (2020b) concurs that study materials in print are the best way to reach all children and that those who do not have them must be able to collect them from schools, with all the necessary safety conditions in place for them to do so.

In this regard, it should be noted that long before COVID-19, a shortage of printed learning materials has been a perennial problem in many schools, resulting in learners having no textbooks for certain subjects or having to share them. A 2019 media report highlighted that the Mpumalanga Department of Education would not be procuring additional textbooks for the 2019/2020 financial year owing to insufficient funding, despite the fact that many learners in Grades 8 to 12 had not had a textbook for more than a year, and had to share with other learners (Sithole, 2019).

Ntaka (2020) observes that:

Many commentators have emphasised the need to move toward digital learning and have often associated it with the Fourth Industrial Revolution. However, a true discussion of online learning can only happen if, in parallel, we hold discussions on how better to create access – through providing infrastructure and computer training for teachers and learners – as well as consideration of the socio-economic factors that pupils face.

However, it is important to bear in mind that

for schools in township and rural areas – with little to no infrastructure – online learning has been almost impossible. Thousands of children have been left behind, some sitting at home for close to two months with no learning taking place.



Safety of educators

As early as 28 April 2020, the South African Democratic Teachers Union (SADTU), the largest teacher union, stated that schools should remain closed and advised its members not to return to work “until the minimum requirements set out by the education department to ensure safety at schools on Level 4 of the COVID-19 lockdown are met” (Banton, 2020). A list of non-negotiable demands was tabled by SADTU, which include, among others:

The fumigation and disinfection of schools, proper school infrastructure in the form of proper toilet facilities, observance of social distancing inside the classrooms and in courtyards, reduction of class sizes, provision of soap, sanitisers and masks, screening of learners, teachers and support personnel, social distancing in the transportation of learners to and from schools, provision of psychosocial services to assist learners as well as teachers to build resilience and calm down fears among learners and teachers. (Banton, 2020)

This list of SADTU’s requirements was followed by most provincial education departments (PEDs) informing the DBE that they were not ready for the reopening of schools because they did not have the necessary PPE and/or the other sanitising requirements and learning conditions in place (Mthethwa, 2020b). At the same time, the National Professional Teachers Association of South Africa (NAPTOSA), the other major teacher association, called for a full risk assessment before schools open.

The Minister’s confirmation on 19 May 2020 that schools would reopen for Grades 7 and 12 learners on 1 June 2020 resulted in more negative reactions. Mugwena Maluleke of SADTU declared that schools would never be ready by June, and Basil Manual of NAPTOSA indicated that there was evidence of non-delivery of PPE to schools, and that the reports the Minister relied on were “optimistic” and “embellished” and they wanted her information to be independently checked (Govender, 2020b; Taylor, 2020b).

Their warnings appear to have been justified. By 25 May 2020, the date on which teachers and support staff were meant to return to school, the PEDs and unions in most provinces urged educators not to return because the schools were not ready to open safely (Govender, 2020b). Resistance to the reopening of schools increased as it became evident that the majority of public schools were not fully equipped to handle the safe return of learners. Faced with the threat of court cases, petitions and protests by thousands of parents, and powerful opposition from all the unions involved

in schooling, governing body associations and civil society organisations against schools reopening on 1 June, the Minister held consultations with the affected parties and finally postponed the reopening to 8 June (Govender, 2020c).



Reopening of schools

Debate has also centred around why and how soon schools should reopen. Taylor (2020b) argues that schools should reopen immediately. He points out that numerous experts have indicated that South Africa has passed the tipping point where the negative effects of the lockdown outweigh the potential negative effects of returning to school. He asserts that the health, nutrition and education of poor children are negatively affected by the lockdown. By staying at home, poor children are not being screened for diseases such as tuberculosis (TB) and HIV-Aids and nor are they getting vaccinated against diseases like measles. Moreover, for many poor children, the meal they get at school can be as much as 100% of the food they receive daily (Taylor, 2020b).

Taylor points out that learners in good public schools and independent schools have been using technology and print materials that were given to them to take home before the lockdown to continue with their schoolwork. However, “poor children, with no educational guidance, are falling further and further behind. These poor learners and their educators are slipping out of the habit of working, while parents are becoming increasingly anxious about the future of their children’s education” (Taylor, 2020b).

Taylor (2020b) concludes that schools should reopen because the lockdown is exacerbating the huge inequalities and poverty that together constitute the country’s greatest socio-economic problem.

In sharp contrast to Taylor’s (2020b) argument, Jansen (2020b) argues that schools should not open because children will not be safe from contracting COVID-19 and warns that pupils will be “sitting ducks” for the COVID-19 virus. He predicts that when schools reopen there will be spikes of infections around the country, a number of schools will be closed, and the academic year will be lost for many children.

Black has also cautioned against reopening schools too hastily (Mthethwa, 2020b). During a recent webinar, she pointed out that reopening schools would not be smooth sailing and “sometimes schools are going to be opened for two days, and closed for a month” (Mthethwa, 2020b).

In line with Taylor’s (2020b) arguments, Spaul (2020a:1, 2020c) claims that the criteria for sending children back to school include three key considerations,

namely: “(1) Risks to children of illness and death, (2) Transmission of the virus from children to adults and the need to ‘flatten the curve’, and (3) The social and economic costs of keeping children at home.”

Spaull (2020a, 2020c) points to emergent research indicating that young children (0–10 years) are less likely to become infected with, or transmit the virus to each other or to adults, and that children are highly unlikely to become seriously ill with COVID-19. Consequently, he advocates that when children go back to school, the youngest should go back first.

Besides the point that young children are less likely to contract the virus, Spaull (2020a) emphasises the economic effects of continued lockdown, arguing that inequalities will only worsen as the costs of childcare responsibilities for parents escalate. Spaull also maintains that young children require more attention and interaction to learn effectively, and that children and families’ mental and general well-being will improve when children, among other things, can interact with their peers and access school meals again.



Trimming the curriculum

Hoadley (2020) agrees with the views of Taylor and Spaull that the early grades should return to school. She makes the point that according to the early schedules of the DBE’s phased-in approach, by the time learners in the early grades are due to return to school, some 82 days of schooling will be lost for Grade 3 and 92 days for Grades 1 and 2.

Because educational activity has essentially stopped for young learners, Hoadley (2020) proposes that the early grades return to school and that the already overloaded curriculum be drastically reduced to the two essential foundational subjects: Languages and Mathematics. She argues that: “It is critical that the foundational content” in core subjects like English and Mathematics “is covered for progression to the next grade at the end of 2020”. Her sentiments are echoed by Bailey (2020), who argues that only core subjects should be formally assessed to “take away any pressure of formal assessments or the need to finish the curriculum in non-core subjects”.

On 23 May 2020, the DBE issued a circular dealing with revisions of annual teaching plans for Grade 7 and 12 learners to “assist schools, teachers and all other key stakeholders in education involved in the curriculum implementation process, with meeting the key requirements of the curriculum in the remaining part of the academic year” (DBE, 2020a). The circular highlights that June examinations have been cancelled to allow for more teaching time and schools will administer final controlled examinations in key subjects

in Grades 4 to 11. It states that the Grade 12 CAPS has been reorganised for efficient utilisation of teaching time.



Psychosocial support

As the period of lockdown has extended, calls are increasingly being made for decision-makers to consider the mounting psychosocial aspects of COVID-19. It is recognised that the isolation, anxiety and stress experienced by individuals and families during lockdown has had, and will continue to have, a negative effect on learners’ ability to learn, and on their learning experience once schools reopen.

Bailey (2020) cautions that the lockdown and school closure is “a period of heightened stress and anxiety for everyone, and for too many of our children, it will be a period of increased danger from domestic violence, a period of hunger, and a period of mourning as the virus spreads and takes the lives of caregivers and family”. Sheer hunger has been identified by Orkin et al. (2020) as the strongest predictor of psychological stress. The 9 million school learners who are dependent on school feeding schemes are thus likely to experience significant psychological distress from hunger.

Where it is possible for learning to continue, other psychosocial stressors manifest. Various articles (Mthethwa, 2020a; Taylor, 2020a) indicate that a general lack of contact with teachers during this period has caused anxiety as learners are unable to ask questions and receive guidance on their work. Other stressors include being overwhelmed by the number of assignments and general workload and how to catch up with missed content post-lockdown. Senior learners are anxious about their ability to successfully write their year-end exams, and apply for tertiary study (Mthethwa, 2020a).

Jansen, (2020a) argues that given all these stressors, it is necessary to provide “massive emotional and psychological support for teachers and pupils ... [where the] biggest mistake would be to treat children as cognitive machines that can simply be switched on again after the trauma of COVID-19”.

The DBE is aware of the need to provide emotional support to learners, educators and other school staff because of the psychological effects of the pandemic (DBE, 2020b:21–22). The DBE SOP document explains how to identify those who need help and requires SBSTs and teachers to be briefed on the psychosocial impact of COVID-19 on learners. However, it places the onus on schools to identify organisations, stakeholders and partners in the community or district that can provide additional social, emotional and psychological support. The Employee Health and Wellness Programme in the

PEDs is also identified as a resource for psychological support, and various not-for-profit organisations are listed with their contact details.

As SBSTs and DBSTs hardly function in poorly resourced schools in disadvantaged communities and rural areas during a normal school year, it is very unlikely that in practice the kind of support needed for the poorest and most vulnerable learners will be provided adequately.



Learners with disabilities

Arguably, learners with disabilities are among the most vulnerable during this time. The 2019 Child Gauge reports that in 2018, a total of 1.15 million children in South Africa were estimated to have sensory, developmental, cognitive and motor disabilities (Shung-King et al., 2019:97).

The WHO states that persons with disabilities will be “impacted more significantly” by the pandemic. There may be additional barriers to people with disabilities in implementing social distancing, underlying health conditions may put them at greater risk of developing more severe cases of COVID-19 if they become infected, or they may be disproportionately impacted because of serious disruptions to the services they rely on (WHO, 2020:2).

Consequently, the WHO points out that this impact can only be mitigated if “appropriate actions and protective measures are taken by key stakeholders” (WHO, 2020:1). Schools are enjoined to “ensure

continued education for students with [disabilities] who may be required to study from home for longer periods” (WHO, 2020:6).

For most learners with disabilities, the tools that other children are using to make remote education possible, such as online platforms, may not be accessible – often online platforms are not compatible with assistive technology, and even when they are, problems often arise. In some cases, radio, television or even printed materials may be equally inaccessible (Hill, 2020).

In order to ensure that education continues for learners with disabilities during school closures, creative measures must be put in place, not only so that learners are able to continue their studies during prolonged school closures, but also so that they are able to receive the support they need to learn.

Apart from urging “those who raise learners with special education needs to get in touch with the department should the need arise” (Motshekga, 2020a), government has not provided adequately detailed plans to accommodate learners with disabilities during this time.

However, several organisations have developed materials for parents and caregivers to be disseminated on online platforms. These materials aim to inform families about COVID-19, its prevention and to present ways in which information relating to COVID-19, and the societal changes taking place in response thereto, can be explained to children (Western Cape Forum for Intellectual Disability, 2020a, 2020b).

In order to ensure that education continues for learners with disabilities during school closures, creative measures must be put in place



Innovation and technology in education

The term ‘innovation’ is something of a buzzword and is being used more than ever in the search for solutions to a range of COVID-19-related challenges. Black (2020) refers to author Naomi Klein’s (2007) reflection on Milton Friedman’s (1982:ix) observation that, “Only a crisis – actual or perceived – produces real change. When that crisis occurs, the actions that are taken depend on the ideas that are lying around.” Klein points out that good ideas need to be lying around, failing which bad ones might take hold. Klein’s observation can be expanded – if the ideas lying around ignore fundamental realities, then at best they will be ineffective and at worst, harmful.

For this reason, and for the purposes of this paper, it is important to clarify what we mean when we refer to ‘innovation’ in the context of the unequal South African education system. We need to seriously consider to what extent it is possible to radically innovate and rethink our approach to schooling in South Africa in this context.

For Greg Satell (2017), the core purpose of innovation is to problem-solve. He argues that four different kinds of innovation exist, each of which is dependent on the problem at hand and how well that problem, and its domain, have been defined. Where the problem ‘domain’ (the skills and tools required to solve the problem) is poorly defined, two kinds of innovation exist: ‘**general**’ innovation, which occurs on a daily basis through ongoing research, and occasional ‘**breakthrough**’ innovation, where novel solutions to tricky problems are discovered, often by looking to alternative fields or tools for an answer.

On the other hand, where both the ‘problem’ and the ‘domain’ are well defined, there are two more familiar kinds of innovation: ‘**incremental**’ innovation, and so-called ‘**disruptive**’ innovation (Satell, 2017). Incremental or sustaining innovation refers to the most common type of ongoing innovation, which happens bit-by-bit, usually in the form of small improvements, as in the development of mobile phone technology,

and where the problem and the skills and tools needed to solve it are well understood.

The concept of ‘disruptive innovation’, first coined by Clayton Christensen in 1997, has come to denote a kind of radical, ambitious, ‘start-up’ innovation that reconfigures an entire market, such as Uber’s disruption of the taxi industry, and Airbnb’s disruption of the accommodation industry. In a recent interview, however, Christensen stated that this interpretation is incorrect and that “disruptive innovations ... rather, consist of products and services that are simple, accessible, and affordable. These products and services often appear modest at their outset but over time have the potential to transform an industry” (Dillon, 2020). This suggests that ‘disruptive’ innovation can be ‘incremental’ rather than radical.

Since 2018, a key topic of discussion by the Minister of Basic Education, her department and the Presidency, has been around the so-called Fourth Industrial Revolution (4IR) and the increasingly ‘disruptive’ role of technology in work and education in general. The DBE has expressed the need to prepare South African learners for the 4IR through the integration of “21st Century skills” in the national curriculum (Selepe, 2019). The Minister has also indicated the need for new forms of literacy underpinned by developments in technology (SA News, 2018). The digitisation of textbooks is envisaged and a new robotics and coding curriculum is to be piloted across 1 000 schools in 2020 (Kekana, 2019).

When presenting its annual performance plan (APP) to the Portfolio Committee on Basic Education on 6 May 2020, the DBE noted that the APP had been drawn up prior to the outbreak of COVID-19 and would have to be amended, but that three changes were inevitable. These are the introduction of coding and robotics as subjects in South African schools this year, the issuing of tablets to all learners, particularly those most in need, with schools receiving tablets according to

their quintile, and the introduction of a three-stream curriculum model (BusinessTech, 2020b).

For Jansen (2019), the DBE's emphasis on disruptive technology does not acknowledge Spaul's two-school systems, and the gulf of inequalities between them. Where Grade 4 learners cannot read with comprehension, most teachers are ill-equipped to teach, few pupils have access to a textbook for every subject, and classrooms are crowded, it seems ill-advised to be prioritising coding and robotics over the basic competencies of a sound education, such as literacy and numeracy in the foundation phase.

In these circumstances, instead of equating innovation with the newest digital technologies, or competing with the benchmarks used by advanced economies, we argue that incremental innovation is more realistic. In line with this, the HundrED organisation, a global non-profit research organisation, in its recent report on COVID-19 education interventions, uses the following definition of innovation (Petrie et al., 2020:10): "meaningful improvements in a new or modified practice and/or technology that supports any part of the educational ecosystem (for example: skills,

teachers, assessment, environment and/or systems, and leadership)". This underlines the point made by Satell (2017) that innovation takes multiple forms and need not be entirely novel, disruptive, nor technological to constitute innovation.

As Black (2020) has indicated, an important distinction must be made between learning *with* technology and learning *through* technology. The former sees technology as a means to supplement face-to-face teaching through YouTube videos or mobile applications, for instance. By contrast, teaching through technology can range from total, self-paced, online learning with no face-to-face instruction or interaction time, to classroom 'mirroring', where 'live' online classes use video conferencing technology, or a combination of face-to-face and online learning or blended learning.

As a result of COVID-19, technology in South African schools is serving as a means of 'socially-distanced' education delivery. The assumption is that remote learning is a temporary measure for the delivery of the curriculum that would otherwise be delivered face-to-face, and that 'normal' conditions will resume after



some undefined, but usually short-term period. Effort is being spent in digitising existing content and using technology-mediated modes of delivery to respond to the emergency, rather than a deliberate shift in the system to online or e-learning, where courses are specifically designed for online delivery.

Learning that is fully online is unworkable at present because it cannot be equitably implemented and accessed by the majority of learners in South Africa. For these learners, brick and mortar schools are more than just places of teaching and learning. They also provide opportunities for other basic needs to be met. In this regard, Black (2020) relays her own experience in the township school where she taught. She recalls that she and her colleagues were the ones who would notice behavioural patterns and ensure that learners had their vision or hearing tested and were dewormed. These important relationship aspects cannot be replicated through remote learning and point to the great need to provide the psychosocial and other support to learners, and accommodate the specific learning needs of pupils, including those with disabilities.

That said, innovation and technology in their many forms will play a role in informing what the 'classrooms of the future' will look like, and the COVID-19 pandemic

has provided the impetus for broad experimentation with different technologies that may well lay the foundation for a 'new normal' in South Africa. There are significant advantages to online learning: learners can learn at their own pace, anywhere and anytime – if they can access reliable connectivity to the internet and afford data costs. Moreover, as Tamm (2019) points out, online learning can be “both cost-effective and cost-efficient, as it removes the geographical obstacles often associated with traditional classrooms and education”. The 4IR is upon us and the COVID-19 pandemic will accelerate disruptive innovation in communication, work, education and every aspect of our lives.

Even so, we must ask ourselves the ethical questions: 'Innovation to what end?', and 'At what cost?'. If it is at the expense of the poor and vulnerable, the cost is too high. However, in the meantime, for the 20% of South African learners who do have access to digital learning and the teachers who are able to make the transition, new practices, tools and methods, whether digital or traditional, or a mixture of the two, should be tried, shared and used to inform leaders and policy-makers. From this kind of incremental innovation, inequalities may well be reduced, and the quality of learning improved for all learners.



Learning that is fully online is unworkable at present because it cannot be equitably implemented and accessed by the majority of learners in South Africa

Findings

The key findings from our online survey and desktop research are presented in this section. In both instances, our research centred broadly around remote learning during the COVID-19 pandemic and in other emergency situations. We sought to understand what the effects of the shift to remote learning in South African schools have been for teachers, learners and their parents on the ground, and what related measures and interventions have been implemented in South Africa and internationally during remote learning.

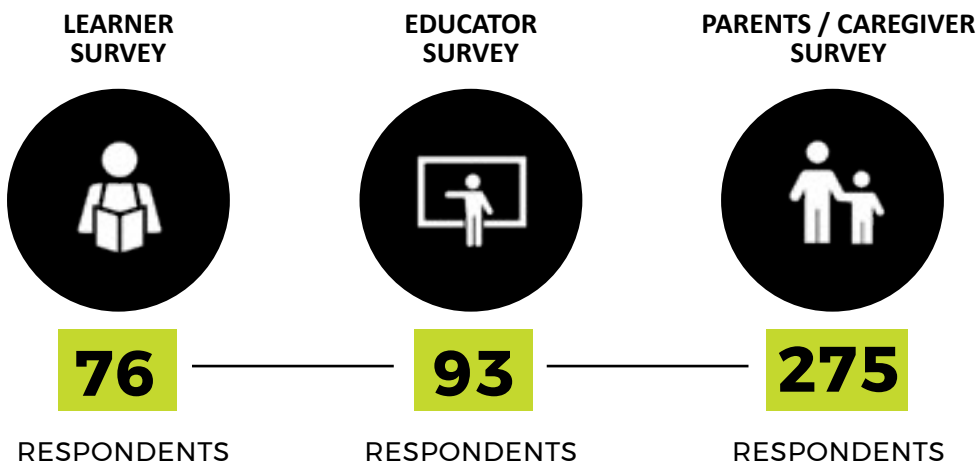
The online surveys were circulated to an opportunity sample of parents/caregivers, teachers and learners to gauge their respective experiences of remote learning during COVID-19 and their concerns. The 444 responses cannot be said to be representative of these groups in the South African population because only those with access to digital media and platforms could complete the survey. Nonetheless, the broad concerns and emergent themes from the survey responses reflect the findings of the desktop research.

Our desktop research focused on South Africa's response to the COVID-19 crisis in terms of remote learning in policy and practice, learner needs and concerns, and interventions. At the same time, we looked internationally for approaches, strategies and methods implemented for remote learning and related services, both during the current COVID-19 pandemic and during previous local and global pandemics and emergencies.

Survey findings

The main findings presented below came from 444 survey responses to questions relating to remote learning in practice, support for the learners and the nature of their learning environments. Responses were collected from 76 learners, 93 educators and 275 parents or caregivers.

444 responses to survey questions relating to (i) remote learning in practice, (ii) support for the learners and (iii) the nature of their learning environments.





“It is difficult to concentrate in a home environment due to distractions such as chores or helping siblings”

Learner responses

There were 76 learner responses to their survey. Their demographic profile comprised: 50 females and 24 males; 55 learners in high school (22 in Grade 12) and 21 in primary school. They came from a variety of South African towns and cities, but especially concentrated in KwaZulu-Natal and Gauteng. Most learners (44) spoke English at home, followed by isiZulu (11), Sepedi (8), isiXhosa (6) and Sotho (4). Most learners were black: 33 respondents were black, 3 were coloured and 15 respondents were Indian. There were 21 white respondents. Four respondents had learning disabilities, and one respondent had a physical disability.

Most learners surveyed felt that they had a quiet space to work at home (61), while one agreed with the statement that they did not have a quiet place to learn. Many felt that there was someone in the home (59) or community (34) who could help them with their schoolwork, and 63 learners, in turn, felt that they could help siblings, cousins or friends with their schoolwork too. Sixty-two learners agreed that they were able to continue with their schoolwork as needed. However, a handful of learners indicated that it was difficult to do schoolwork since they needed to take care of

siblings (7) or other family members (5). Fourteen learners agreed that they had very few resources to help them study, while 28 learners indicated that they were concerned about the health or career of a family member.

Following from that, when learners were asked to complete the sentence “People in my household or community cannot help me with my homework because ...”, the majority of learners (42) indicated that this was not applicable to their circumstances, or that they did not need help. However, 19 learners said that one or more of the subjects were too difficult. Two learners indicated that their parents did not understand the language that they were taught in, while nine indicated that they do not like to ask because it places stress on their parents. Five learners said that their parents annoy them, and one learner indicated that s/he could do their work on their own.

Eighteen learners indicated that their parents had too little time to assist them. The learners indicated that it was owing to parents’ work and home responsibilities. One learner said, “My mom is a teacher and there is no other teacher around my neighbourhood.” Another said, “I used to attend aftercare because both [parents] work in [another city].”

When it came to learners' concerns, 50 indicated their concern for their own health and that of their families, 54 learners were concerned about their final year assessments, 33 their homework, 14 their hobbies, and 22 learners were worried about money and/or food. One learner said that future tests were of concern, another internet/data, another sport, another their mental health, another lack of time with friends, and another graduating Matric. One learner had no concerns, while another, who had a learning disability, included "Learner support/remedial learner support" as a concern.

When asked what makes working from home difficult, learners' responses were varied: some indicated that this was "not applicable" (15), with one learner saying that he/she loved working from home. However, the majority of learners felt that they did not have access to adequate resources (17) or were concerned with data or intermittent/weak internet connections (5).

Two learners indicated that they do not understand how online learning works and another that there was variability in teacher access and support. One learner said: "Teachers give us more work online than at school and it's hard to study new work material without the [teacher's] help." Yet another said: "It's not as easy as it is at school."

Many learners had sibling responsibilities or chores to complete, and one learner added: "I have other [responsibilities] such as chores to do, which keep me occupied until late at night."

Distractions, disruptions, procrastination and noisiness were also listed as difficulties. "It is difficult to concentrate in a home environment due to distractions such as chores or helping siblings." Learners also listed motivation and discipline as problems. One learner felt "overwhelmed". The following responses illustrate challenges some learners face:

Working from home during lockdown is very difficult because of the sudden change in the entire educational system. Using and understanding Microsoft Teams instead of attending lessons like usual has proven to be very onerous, and the teachers are not as easily accessible as we need them to be in this time. Hopefully, we will grow to understand this new system more and more as time goes on.

The stress caused by the uncertainty of this epidemic is negatively affecting my ability to study.

Parent and caregiver responses

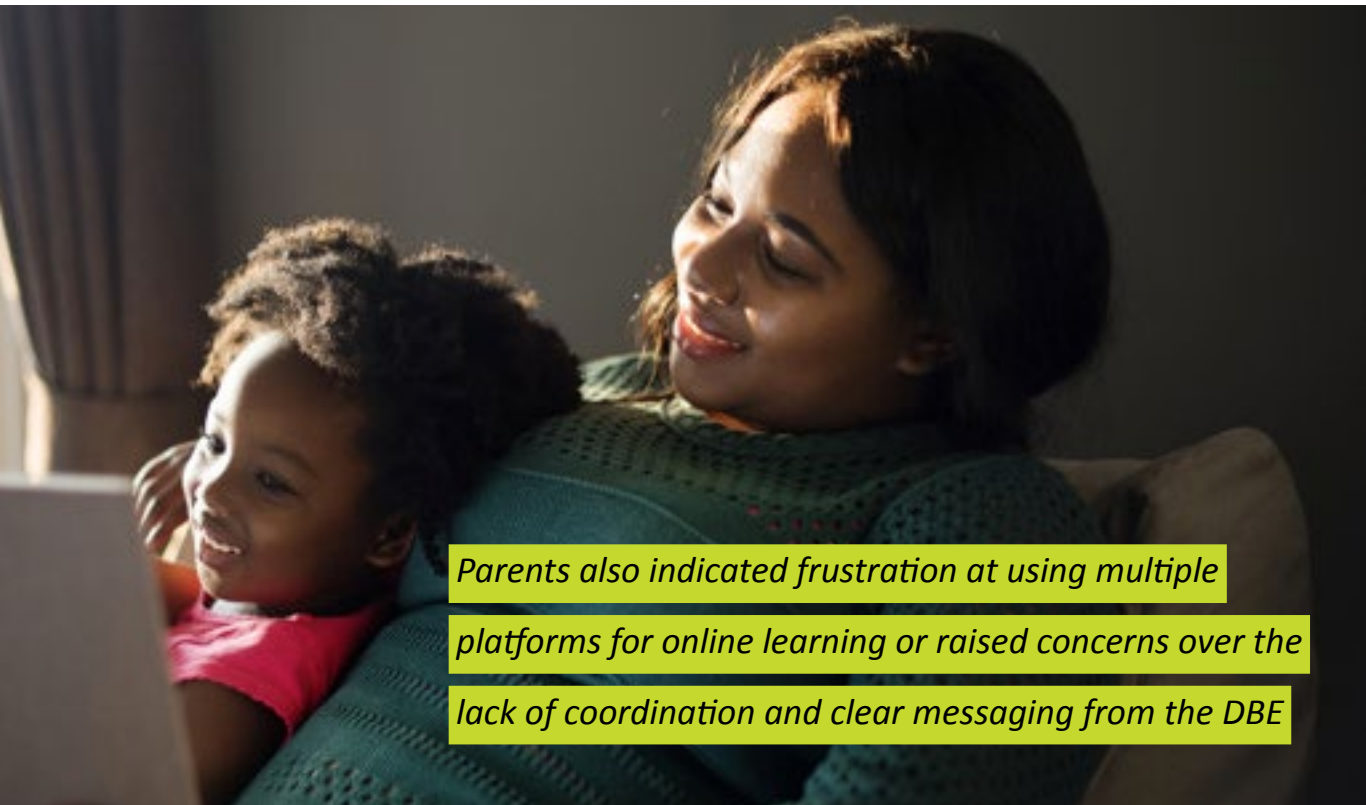
Among the parents/caregivers who completed the survey, 115 were black, 43 Indian, 17 coloured and 92 white. The respondents were predominantly female, English-speaking, from Gauteng, and from households with a median number of two learners (141). Fourteen respondents indicated that at least one learner in the household had a learning or physical disability, several responding specifically, with "dyslexia" or "ADHD".

The majority of parents (206) indicated that educators were keeping in some form of contact with learners. Of those with whom there was contact, 86 indicated that this was done (at least in part) through WhatsApp, and 99 via email (at least in part). Others indicated their use of Microsoft Teams, D6, D12 communicator, Zoom, Google meetings, Stasy, ClassDojo, Seesaw, Telegram and contact through phone calls. Many appear to be using a combination of platforms or communication tools. While some have indicated that this correspondence is primarily to allow parents and learners to remain informed and kept up to date, or that the school is taking this time formally as a holiday, the majority of respondents indicated that work plans, schedules and online learning were already underway. One parent, however, indicated concern over the lack of engagement by the teachers and school.

Many of the respondents indicated that the schools attended by their children are relatively well resourced, with computers (152) and/or internet access (157). A total of 134 parents indicated that learners have access to books (e.g. through a library), while sports fields are also available at school (162). Importantly, 66 respondents indicated that the school provided a nutritious lunch or breakfast, and a "care" or "dignity pack", while 96 respondents indicated that psychological support or mentorship was provided by the school before lockdown. Of these, only 26 respondents indicated that these support services were still available and provided by the school during lockdown.

In terms of home learning, 105 parents indicated that learners had the textbooks and worksheets they needed to complete work from home. In terms of resources available at home, the majority of parents said that there was a television in the household (200), and 187 indicated that there was internet through Wi-Fi. The latter implies that the majority of respondents were from a predominantly economically privileged group, although one respondent indicated that none of the resources suggested were available to the learner.

Many parents indicated that there was a quiet space for learners to do their schoolwork in the household



Parents also indicated frustration at using multiple platforms for online learning or raised concerns over the lack of coordination and clear messaging from the DBE

(191). Many also agreed with the statement that there was someone within the household who could assist the learner with their work (221). Although it should be noted that, of the 54 who indicated that there was no one in the household to help (or only could help sometimes), they frequently also did not feel that there was someone in their broader community who could assist (27). A further 164 indicated that their child/children were able to complete their schoolwork (31 indicating only sometimes), with 32 saying they disagreed with the statement that their child/children were able to complete their homework. Nine agreed that sibling responsibilities prevented their child/children from completing their workload (with another 11 stating only sometimes), while 22 parents said that their child/children could not complete their work because they did not have the necessary workbooks, and another 21 indicated this occurred only sometimes.

Of the parents who felt that no one in the household was able to assist with the school work, 14 said that the subjects were too difficult (several others indicated that this was subject-specific), while 33 said that they were working during the day (several additionally indicated that they were essential workers). Some of these responses included the following:

The children are currently with the grandparents due to the fact that we had to

go to work when the school closed [earlier]. We did not have time to fetch the kids before lockdown since this [happened] during the week. We have the ability to assist now however the child is in another province with the [grandparents] who are unable to assist them or provide the required [resources].

Another respondent indicated:

My Children are currently with my Parents during lockdown because my husband & I are working, but in their rural area MTN is the only available signal & it goes down at least once a week. Without this they have no connectivity, no data, no way to work – this is my biggest concern.

One parent said: “keeping control of my own work, house and having three kids may be limited to assist completely”.

Six parents indicated that they do not enjoy helping with the schoolwork, and seven stated that they do not speak the language the curriculum is taught in. Respondents also mentioned difficulty with learning how to use online systems, or that when they face difficulties, they call or message family and friends.

Of the general worries which parents had, the top four were:

- I am worried that my child/children will become demotivated about schoolwork (119);
- I am worried that the Department of Basic Education will force children to redo this school year (83);
- I am worried that my child/children will not do their schoolwork (75); and
- I am worried that my child/children will fail this year (36).

A few parents indicated that they had no direct concerns, or that they believed that a solution would be found. One parent was worried that shortcuts would be taken to complete the school year, impacting her child's grade or education. Others indicated that they did not have the time or capacity to assist their child as needed. Some indicated concern that the shift to online learning was not matched by the teacher's skill or experience level, or were worried that they, as parents, were not skilled.

Parents also indicated frustration at using multiple platforms for online learning or raised concerns over the lack of coordination and clear messaging from the DBE. One parent noted: "Pre-recorded lessons seem to work a bit better than 'live' video streaming." For those whose children are beginning online learning, they expressed some anxiety. There was additional concern over discipline and keeping children to a schedule, and a couple of parents showed concern over social development. Internet access was also mentioned as a concern. One parent said the following:

I worry that he may not be [able] to finish the academic year, seeing that it's going to be fully online ... [M]y concern is having enough wifi/data to cover the daily hours required. Kids differ, some kids don't do well in a [homeschool] environment vs physically [g]oing to school so he may not produce the results or give me a parent the full attention he would give his teacher.

Educator responses

Ninety-three educators from the school system responded to the Educator Survey. Of these, 36 constituted an additional sample of educators who were teaching Grades R to 3 in public schools in Limpopo. The respondents were from all over South Africa, with the majority, outside of the Limpopo sample, from Gauteng and mainly Pretoria.

Of the 57 educators who were not in the Limpopo sample, seven indicated they were teaching Grades R to 3 in independent (private) schools and seven in

public schools; nine were teaching Grades 4 to 7 in independent schools and 12 in public schools; and 17 indicated that they taught in independent high schools, while five were in public high schools. Thus, the majority of educators (61), including those in the Limpopo sample, taught in public schools and most were female (82), and/or primary school teachers.

Their teaching subjects ranged from Drama to Mathematics. Four additional respondents were in management positions. Some respondents taught in colleges or at higher education institutions, and therefore are not included in this report.

Most of the teachers had not used online learning previously. In response to whether they had used digital learning tools, 61 responded "no", 15 "rarely" and five responded "once or twice". Only 12 educators, at both public and private schools, said they had used it often. In the Limpopo sample, only two teachers indicated that they had used remote learning previously.

All the educators from public schools responded that a meal had been provided to learners during school days, but only one indicated that a meal was available during the lockdown. Seven public school teachers stated that a "care" or "dignity" pack was also provided by the school outside of school closures.

Mentorship or psychological support was available in 55 of the respondents' schools, with 15 educators in independent schools (and one in a public school) responding that this support was still available during the lockdown.

Support services for learning disabilities were provided in 30 of the educators' schools (six said that they were still available). Physical disabilities were catered for in 24 of the respondents' schools (two cited that this was still catered for during lockdown). However, the small sample of local organisations surveyed in our research did not indicate that learners with severe physical disabilities were receiving any form of support during school closures.

The teachers appeared to teach primarily at well-resourced schools. Whiteboards/blackboards were available at 81 schools, and 53 respondents said that the school had computers. The teachers who said their school did not, taught at all levels, indicating that some high schools did not have any computers.

Forty-nine educators kept in contact with learners or parents, but one said that fewer than ten could be contacted. Seventy-four educators said that neither the school nor department funded or assisted with these costs. In total, 34 educators said that they were able to continue teaching through remote learning. Twenty-two kept in contact with learners through WhatsApp, often in combination with emails or other platforms.



Only 12 educators, at both public and private schools, said they had used digital learning tools often.

When asked if the educators were able to send work home with learners, 59 said “no”, explaining that in that final week of school before lockdown, learners were not coming to school owing to COVID-19 fears, that there had been too little time to prepare, or that the assumption had been that schools would resume after the holidays. One teacher said that they had only prepared for a loss of eight school days in total. Another said that the parents had no data, indicating that communication or sending resources via the internet would not have been possible. However, a handful of teachers had managed to send learners homework through books and worksheets.

Educators stated that they were using a range of resources from WhatsApp, Educational TV and radio (“TV 317mindset channel & Thobela fm”), to online platforms like Google Hangouts, and apps such as Seesaw. All four educators who were not aware of the resources available, or who could only point to television or radio sources, taught at public schools. One educator, who taught at a public school, said that they had not yet begun online learning because they were still on holiday. Concerns were also raised about the language in which content was available, and one educator said the following:

We mostly create our own content and videos as there are not a lot of Afrikaans resources that also [includes] the [guidelines] of our curriculum.

The educators had a range of concerns about their learners. Shared concerns are listed in Table 1.

Educators also highlighted personal barriers to education they were experiencing, including a lack of financial support, limited internet access and data costs, emotional barriers, stress or feeling overwhelmed, learners’ internet access, parents’ inability to support teachers properly because they [parents] cannot read, the stress of the unfamiliarity of learning online teaching, and educators having children of their own, and needing to look after them.

One educator mentioned physical fitness as a concern, remarking that: “Keeping fit and exercising has so many educational and personal benefits, so I hope that they keep exercising.” Two educators mentioned discipline or structure, and highlighted concerns over the following: “The necessary support structure and self-discipline required for online learning”; “Their ability to self-sustain the learning and discipline to complete, hand in and adjust to online learning, without having a guiding teacher who keeps them ‘on track’.”

The shared concerns of educators about the reopening of schools are listed in Table 2.

Table 1: Educator concerns about their learners

Concerns	Number of shared responses
The completion of their curriculum/school year	75
Learners' emotional well-being (general)	56
Variability in parental help	56
The variability in their access to educators	54
Learners' nutritional needs	45
The completion of their assessments	44
Learners' learning environment (the space they have for learning/studying)	44
Abuse in learners' homes (known suspected perpetrators)	42
The variability in their access to other educational resources (one specifically mentioned "data and access to resources")	36
Learners vulnerable to COVID-19	35
Learners whose family members are vulnerable to COVID-19	34
Child-headed households (of which you are aware)	20

Table 2: Anticipated concerns of educators when schools reopen

Concerns	Number of shared responses
Completing the curriculum	85
My learners stress levels/emotional well-being	74
My own stress levels/emotional well-being	62
Losing revision time	51
Teaching difficult subjects over a shorter period of time	49

Overview of survey findings

It is worth noting that the survey responses of learners and parents/caregivers were generally positive about remote learning and the resources to which they have access:

- Most learners indicated that they were able to continue with their schoolwork as needed, had a quiet space to work at home and there was someone in the home or community to help them with their schoolwork.
- The majority of parents/caregivers stated that educators were keeping in contact with their child/children through various communication tools and platforms, and that work plans, schedules and online learning were already underway. Most of the households had television and Wi-Fi connectivity, and about half of the learners were reported to have textbooks and worksheets to use at home.
- Most of the children were attending relatively well-resourced schools with computers, access to the internet and books, and sports fields.

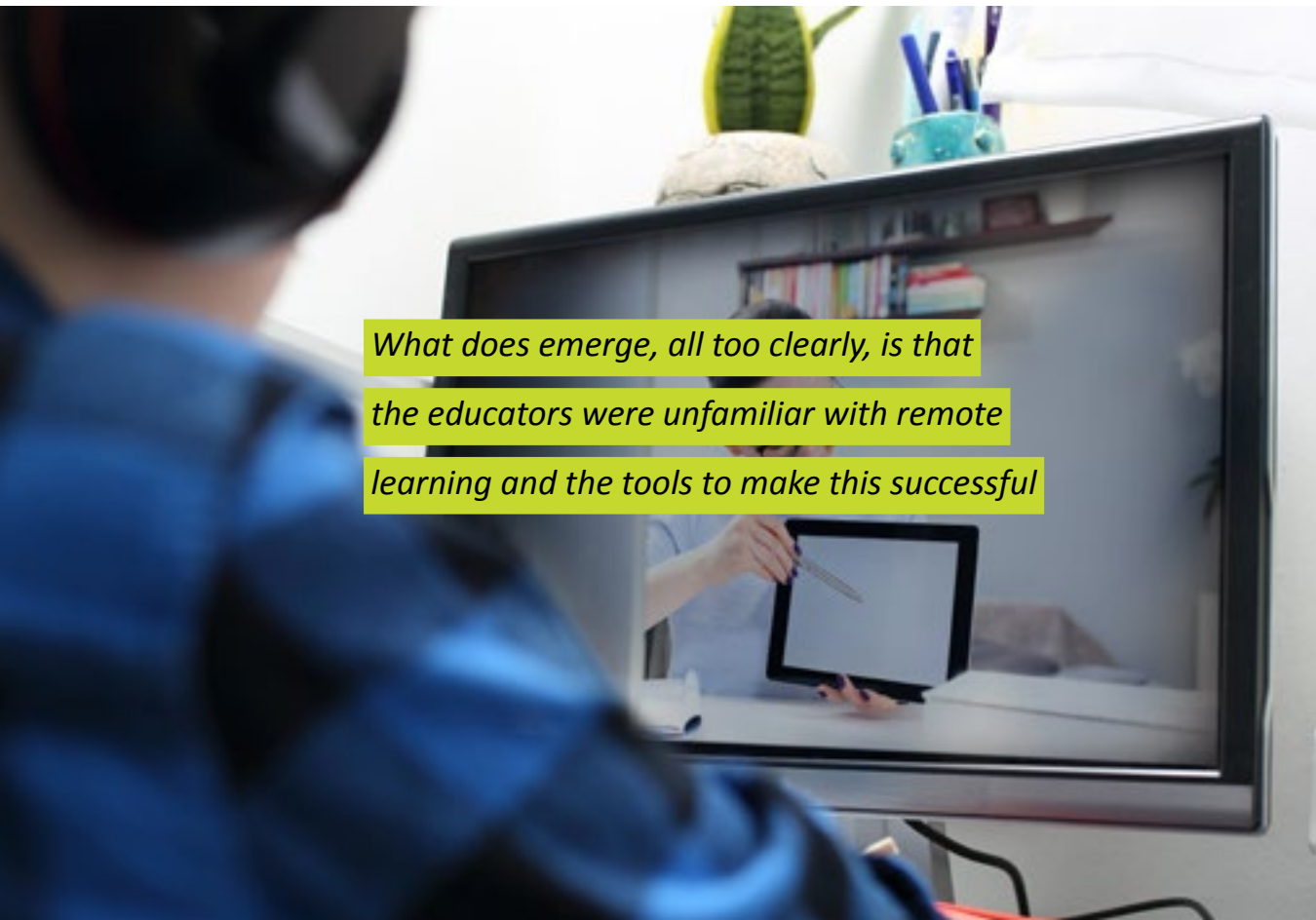
In the case of the educators, the picture is mixed. It appears that the majority of the teachers were teaching at relatively well-resourced schools: whiteboards/blackboards were available at 81 schools, 53 respondents said that the school had computers, and mentorship or psychological support was available in 55 schools.

However, with regard to remote learning, the picture is more negative. Most of the teachers had not used online learning previously or digital learning tools and only 34 said that they were able to continue teaching through remote learning. Forty-nine educators had managed to keep in contact with learners or parents through a variety of communication tools and platforms, but for various reasons only a handful of teachers had managed to send learners homework through books and worksheets.

In general, the nature of survey responses shows that the majority of the respondents were from an economically privileged group with access to sufficient learning resources for children at school and at home. This confirms that our sample of respondents is not a representative one, because it does not reflect the voices and experiences of vulnerable, poverty-stricken communities.

What does emerge, all too clearly, is that the educators were unfamiliar with remote learning and the tools to make this successful, and this must negatively affect learners' ability to learn and keep up with their schoolwork.

The surveys also reveal the range of concerns of learners, teachers and parents/caregivers. Table 3 summarises the main concerns grouped into overarching themes.



What does emerge, all too clearly, is that the educators were unfamiliar with remote learning and the tools to make this successful

Table 3: Main concerns of survey respondents

Concerns	
Difficulty adapting to abrupt pedagogical change	<ul style="list-style-type: none"> Teachers' and learners' lack of prior experience with digital/remote/online learning, compounded by a lack of learning support, caused heightened feelings of anxiety and unease. Learners were often unable to self-regulate and stay motivated to continue learning at home. Respondents did not feel confident about the quality of the resources available to them.
Access to online resources:	<ul style="list-style-type: none"> Some respondents indicated they had no, or only limited access to online learning resources, while on the other end of the spectrum, respondents indicated that they were overwhelmed by the number and variety of online resources.
Reopening of schools	<ul style="list-style-type: none"> Concern was expressed about how educators would implement social distancing and manage COVID-19 on their return to school, in addition to their usual educator responsibilities. It was felt that more guidance from the DBE and Department of Health (DOH) was required. Additional financial and psychosocial support was needed for teachers to fulfil their roles.
Impact on income and nutrition	<ul style="list-style-type: none"> Concerns were raised about meeting the nutritional needs of learners. Respondents were worried about the socio-economic impact of the virus on local communities.
Unproductive learning environments	<ul style="list-style-type: none"> Learners did not always have conducive 'spaces' or opportunities for learning at home. Parents experienced various difficulties supervising their children's learning, including the need to manage their own work responsibilities.
Lack of communication and certainty	<ul style="list-style-type: none"> There had been limited communication from the national government, DBE, governing bodies and schools. There was no policy certainty. There had been mixed messaging, especially around school opening and post-lockdown requirements.

Desktop research findings

Our desktop research was wide-ranging to enable the researchers to keep abreast of the impact of COVID-19 on South Africa and the schooling system during the lockdown, and cover developments and ongoing debates, the initiatives of government and the DBE, as well as issues relating to remote learning and support for teachers, parents and learners. In addition, we investigated different kinds of remote learning and related local and global interventions that have been proposed and/or implemented during COVID-19 and previous emergencies, in order to identify promising and innovative interventions and lessons that could usefully inform South African policy and practice in schools while the pandemic continues, and in the longer term.

As this paper has already covered most of these topics in some detail, we decided that only additional initiatives, strategies and insights from the local and international literature would be included in this section to avoid repetition. A detailed list of the local and international initiatives identified from this research can be found in Annexure A.

Below, we have grouped our findings into two main categories: delivery options that can strengthen the effectiveness of remote learning; and various support measures that can assist in meeting the needs of learners, teachers and parents during school closures and phased reopenings.

Strengthening remote learning

With ongoing school closures and the need for social-distancing measures, a global shift to online learning has been both necessary and inevitable. While this could theoretically result in more equitable access to learning resources for millions of school learners, the COVID-19 crisis has done much to expose South Africa's deep digital divide, as we have discussed above (Jantjies, 2020).

For some South African learners, and for many learners in developed countries, where schools have the necessary infrastructure, support, content and technical know-how available, the transition to online learning has meant less disruption in learning, but for many here, the disruption has been far greater.

Nonetheless, the literature indicates that both developed and developing countries have encountered problems with the sudden shift to online learning. The commonly cited problems include:

- Uneven internet and technology access, even in developed countries;
- Learners and teachers alike are struggling to adapt to fully digital and remote learning, and adjust to the isolation, asynchronicity, and unfamiliar mode of instruction (Burns, 2020); and
- The digitisation of learning materials and a shift to video-conferencing does not make for 'good' learning and instruction (Burns, 2020).

Consequently many countries have supplemented a digital approach with other modes of delivery, including radio, television and printed materials (Burns, 2020).

Jantjies (2019) argues that the use of technology in learning must be context-specific and has outlined the requirements for equitable technology use in South African schools. She has identified five key considerations, namely: (1) infrastructure, (2) ongoing teacher training and support, (3) appropriate localised content, (4) technical support, and (5) safety and security. These are important considerations that should be taken into account when evaluating the use of online delivery in both the short and long term.

It appears that online learning will be the main mode of learning delivery for most South African learners for some time to come, even if schools reopen for Grades 7 and 12 on 8 June. It is also a moot point whether all PEDs and schools will have the necessary PPE, sanitising supplies, other safety measures and sufficient workbooks/textbooks for all learners to ensure social distancing. Already we know that there are vandalised and dilapidated schools, with pit toilets and no water supply, which will not be able to reopen until they have been fixed and are hygienic and safe for children. The reopenings will be phased in for the different grades, so most learners will have to continue with online learning for months to come.

As we have seen, the DBE has recognised the need to strengthen online learning with other modes of delivery and organised for radio and television broadcasts, downloads from websites for some grades, and printed materials to be collected from schools, but in practice there are problems with the implementation and reach of these delivery modes (Hoadley, 2020), and so the most disadvantaged learners cannot learn meaningfully at home.

From the international literature, two delivery modes appear to be the most promising for South Africa: radio broadcasting and printed learning materials. Some examples of how these are used in other countries are outlined below.

Radio broadcasting

In South Africa, radio has the highest penetration of all forms of mass media. Existing infrastructure, low entry costs, and a regular listener-base make the use of radio content delivery a logical choice. The DBE has partnered with local radio stations to provide classes to learners (SABC Education, 2020). These lessons are for Grades 10 to 12 and for ECD programmes.

Globally, and apart from responses to COVID-19, radio as a form of low-cost, high-impact education technology is well-recognised. Sierra Leone used radio for education with good results during the 2014–2016 Ebola crisis. Presently, with the closure of schools owing to the coronavirus pandemic, states in Sierra Leone are utilising radio to teach classes, while NGOs are assisting with the provision of radios and batteries (DevelopAfrica, 2020).

In Rwanda, radio reaches almost 99% of the population and is the most popular and accessible medium, and so radio lessons were identified as the most suitable immediate solution during the pandemic. UNICEF is supporting Rwanda in the use of radio and utilised its network and expertise to leverage 144 radio scripts from other countries on primary-level literacy and numeracy lessons, which were then contextualised and adapted for Rwanda (Houser, 2020). UNICEF then built on its existing partnership with the national NGO, Inspire, Educate, Empower (IEE), and the Rwanda Broadcasting Agency to produce and air these scripts throughout the country. Lessons are available for students to tune in every day at 8:30 and 14:00 for their 20-minute lesson, which focuses on interactive learning. Lessons are designed so students can participate on their own, but parents and caregivers are encouraged to listen in and support learning at home.

The development and use of interactive radio has been supported by the World Bank (2005) with a toolkit to help policy-makers and planners to implement a strategy for interactive radio instruction (IRI). This is described as a “distance education system that combines radio broadcasts with *active* learning to improve educational quality and teaching practices” (emphasis added). IRI differs from conventional broadcasts by utilising an active learning pedagogy requiring both teachers and learners to respond verbally and physically to activities, experiments and questions presented by radio characters.

In South Africa, it is unclear to what extent current radio lessons during school closures are in the form of IRI, but in the past, IRI has been used successfully here. The Open Learning Systems Education Trust (OLSET) developed the English in Action programme that ran for 17 years between 1992 and 2009 (Potter & Naidoo,

2012). The programme included the distribution of audio and printed learning materials for Grades 1 to 3 learners and their teachers. While the programme began as a distance education model focused on enhancing learner involvement and success, it grew into a multimodal model, with school, classroom and teacher support, and in-service teacher training (Potter & Naidoo, 2012). At its peak, “an estimated 40 000 primary teachers and 1.3 million learners across nine provinces ... utilised the programme’s materials annually” (Potter & Naidoo, 2012:538). Although the programme won widespread acceptance with teachers, principals and officials, it closed in 2009 because of a lack of international funding.

Printed learning materials

In South Africa, the use of printed materials is essential, and advocated by many educationists, as we have seen. In a Global Education Monitoring Report (UNESCO, 2016), UNESCO confirmed the importance of access to printed material stating that next to an engaged teacher, “well-designed textbooks in sufficient quantities are the most effective way to improve instruction and learning”.

In other parts of the world, innovative strategies have been developed to distribute printed learning material. In the United States of America (US), for example, certain public schools located in Washington state have handed out printed material at meal distribution sites (Seattle Public School, undated), while other districts are allocating times for learners to collect materials at school (District of Columbia Public School, undated). In South Carolina, schools are utilising school buses to distribute learning materials (Darling-Hammond, 2020).

Providing comprehensive support

With school closures ongoing, it is increasingly recognised that schools are not only institutions of learning, but complex ecosystems, where a number of related forms of support are located. This includes nutritional support, psychosocial support and support for learners with disabilities.

Nutritional support

In the state of California, schools have been deemed essential businesses and facilities, and have been permitted to provide meals on a pick-up and go basis. In some cases, families are allowed to pick up meals for a couple of days at a time to reduce the number of pick-ups (Harrington, 2020). In cities such as New York, Atlanta, Detroit and Washington, a ‘grab-and-go’ model is being implemented in many districts. This involves grab-and-go meals, handed out at select school sites. These bagged or boxed meals often

include lunch as well as breakfast for the following day. The food is packed into school buses and bus drivers drive along specified routes where there is the greatest need (Turner & Kamenetz, 2020).

According to publicly available information, in South Africa, the Food and Nutrition Security Coordination Committee (FNSCC) also considered declaring distribution centres to be 'essential services' during lockdown in order to facilitate delivery and collection of food, although this is not an option which has been taken up.

Most current government interventions are funded through the Department of Social Development (DSD), through its Disaster Relief Fund and Social Relief Fund, to provide nutritional support to families in the poverty nodes in which the DSD operates. Plans include allowing one member of the family to collect a food parcel once a week during the lockdown period for the use of the entire family (Motshekga, 2020b).

Responding to the seeming lack of a coordinated plan when it comes to food distribution across the country, NGOs, community-based organisations and private businesses have also stepped up to reach families where the government is unable to do so.

In Cape Town, the 'Hope Voucher' system was introduced. It allows anyone with access to a mobile phone to access a voucher which then allows the user to purchase groceries anywhere (including local spaza shops), to avoid the risk of food queues, and to get products specific to their needs. In the Western Cape, Eastern Cape and Gauteng, the Community Action Network (CAN) uses community-based groups to identify and meet needs at local level, mapping needs and pairing communities and resources to meet their own needs (Vorster, 2020b). SA Harvest is undertaking the collection and distribution of food items through Uber services (Novick & Browde, 2020).

Psychosocial support

As the COVID-19 pandemic has spread and as periods of self-isolation and social distancing have been extended, calls have increased for awareness of the mental and emotional stresses brought about by the pandemic, and the provision of psychosocial support services for those who need it. In the context of schooling during COVID-19, two key points have emerged: first, schools perform more complex functions in terms of psychological well-being and social support, particularly around nutrition, and second,

learners' home environments are not necessarily good substitutes for this school-based support.

Some states in the US have developed detailed guidance, tools and resources that acknowledge that support for learners during school closures extends beyond curriculum and nutritional support to include mental health support. Washington's Office of the Superintendent of Public Instruction (OSPI) indicated that the role of educators during school closures includes facilitating "social emotional learning" through:

- Acknowledging that students may feel worried or stressed;
- Providing opportunities for learners to share and process emotions, as well as introducing structures that allow for reflection time;
- Engaging students in developmentally appropriate conversations and lessons to discuss COVID-19;
- Checking in regularly with students needing additional connection/communication; and
- Sharing more intensive resources, as and when appropriate, including county crisis lines and the Washington Mental Health Referral Service for Children and Teens (Miller et al., 2020).

In Canada, various psychological support mechanisms are available. The School Mental Health Ontario website provides resources for learners, parents and teachers. This includes a mental health resources hub and a dedicated phone line, Kids Help Phone, which provides 24-hour/7-days-a-week counselling services by text or phone. Support for teachers includes resources to support student mental health during and after COVID-19, while parent support includes resources for parents to assess their child or teen's mental health, alongside counselling and other services. In China, online psychological counselling services (WeChat-based) have been set up to provide 24-hour/7-days-a-week counselling services (Liu et al., 2020).

Support for learners with disabilities

As reflected in our survey findings, interventions designed for learners with disabilities are extremely limited. Only 30 educator survey respondents indicated that the schools where they taught accommodated learners with learning disabilities, and of those schools, only six were providing services to these

learners during the lockdown. Learners with physical disabilities were only accommodated in nine of the respondent schools, and of those, only two provided accommodation to these learners during lockdown.

In the state of Washington, in the US, the OSPI issued a guidance document for continued learning during school closures. The guidance is grounded in principles of “compassion, communication, and common sense” rather than “traditional compliance measures” (Miller et al., 2020:5).

With these key principles in mind, the guidance document outlines directions for educators to provide accommodation and services to students with disabilities. They are encouraged to adopt a case-by-case approach when considering special education needs. Recommended interventions (Miller et al., 2020:37) include, but are not limited to:

- Providing and scheduling time for collaboration between general educators and special educators regarding lesson planning and executions;
- Investigating the fit between available learning platforms and the student’s unique needs;
- Establishing clear communication channels between all stakeholders to allow for a

discussion about the student’s unique needs and how they can be best met;

- Providing opportunities for hands-on activities, depending on the learner’s specific needs;
- Modifying or adapting material to accommodate students and/or families with disabilities;
- Collecting data about the progress of interventions so that changes can be made where necessary; and
- Avoiding a blanket approach when making decisions regarding special education and related services.

In Rwanda, UNICEF is working with its partner, Humanity and Inclusion, to ensure that remote learning opportunities are available to children with disabilities, not all of whom are able to listen to the radio (Houser, 2020). This work will include sign language interpretation of video content developed and aired on television. Materials will also be developed and hosted on an e-learning platform by the Rwanda Education Board. Parents and students will be able to download or stream for free, in partnership with MTN Rwanda (Houser, 2020).



Schools are not only institutions of learning, but complex ecosystems, where a number of related forms of support are located, including nutritional support, psychosocial support and support for learners with disabilities

Recommendations

Despite the reopening of schools for Grades 7 and 12 on 8 June, the bulk of learners will have to learn at home for some months to come, as the attendance of the different grades is phased in, and especially where schools are not yet in a fit state for them to re-enter, and/or do not have the necessary equipment, supplies, water and sanitation to keep learners and their teachers safe from COVID-19.

Consequently, from our research findings, we propose a set of recommendations that we believe comprise important and implementable measures to improve remote learning, address the many related issues affecting learners, parents and educators during the pandemic lockdown and reduce the widening education inequalities.

Our research identified recommendations that have been voiced by many other researchers and commentators, which we have gathered and grouped together, supplemented by those from our survey research findings and international literature.

We acknowledge all the efforts that the DBE, PEDs and other government departments and bodies, as well as business, numerous civil society organisations, donors and associations are making to mitigate the severe effects of the pandemic on schooling and provide critical resources for the learning, safety and support of learners and educators. Our recommendations are not intended to diminish these efforts but to add to and highlight critical areas for intervention and strategies that could make a difference.

The recommendations centre on four core issues that require urgent attention and substantial effort. They comprise: (1) supplying comprehensive support to learners, educators and other school staff; (2) improving remote learning; (3) providing policy certainty, implementation and monitoring; and (4) identifying/utilising promising interventions and innovations that could lay the foundation for reaching the long-term goal of equal, quality education for all children.

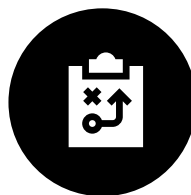
Core issues



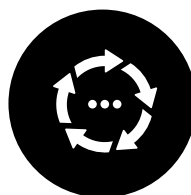
Deliver comprehensive support



Improve remote learning



Undertake strategic planning, implementation and monitoring of policy



Identify innovative policies and practices for short- and long-term change



Deliver comprehensive support

Ensure the health and safety of learners, educators and school staff

- For all schools to reopen safely, they require all the necessary PPE, sanitising supplies, water, sanitation,³ basic resources and infrastructure, including the repair/rebuilding of schools, sufficient classrooms and an adequate supply of printed learning materials to enable social distancing;
- In order to achieve this, the DBE is likely to need the support of the teacher unions, PEDs, governing body associations, independent school associations, parent bodies, communities, NGOs, public interest organisations and business (and other relevant stakeholders).

Enhance communication

- Timeous, consistent and clear communication by the DBE and PEDs on school closures and reopenings is crucial, and all appropriate channels should be used to publicise and explain the thinking behind official policies and plans, and any changes made to them during the pandemic;
- Communication networks for the exchange of information between education departments, schools, parents and learners via instant messaging, such as WhatsApp or social media, need to be established and maintained, and supported by newspaper and radio announcements and departmental websites; and
- A hotline should be established for questions from parents, educators and learners, and answers to them provided in good time. Feedback and up-to-date information about the situation on the ground is invaluable and the hotline can be used for this purpose.

Ensure nutritional support

- Schools should be classified as essential services to serve as distribution centres or collection points for food parcels;
- Scholar transport buses (which are not used for much of the day nor operating during school closures) can be used to distribute food to learners;
- Adequate social distancing measures need to be put in place at collection points by allocating different dates and times for collection; and
- All available options for food distribution should be used, such as full resumption of the NSNP, and/or food voucher options, redeemable at local businesses and spaza shops.

Support learners with disabilities

- Parents/caregivers of learners with disabilities need clear information about where to access help and support for their child/children while they are not attending school;
- They also need guidelines on how to establish routines at home, or under 'new' learning conditions, so learners feel safe and supported;
- Plans will be required for accommodating learners with disabilities when schools reopen, both in ordinary schools and special schools; and
- Decisions about services for learners with disabilities should take a learner's particular needs into account rather than adopting a blanket approach.

Provide psychosocial support

- The DBE's SOPs refer to the various psychosocial counselling services of NGOs that are available for learners, parents and educators, but these should be more broadly advertised with relevant contact details;
- Given the extent of the mental stress and psychosocial problems from which both learners and educators are likely to be suffering

³ It is worth noting that it is possible to make a pit toilet safe at low cost. During the court case about Michael Komape who drowned in an unsafe pit toilet, an expert witness indicated that "it would have cost as little as R500 per seat to ensure structurally sound seats" (Heywood, 2019). See the Supreme Court of Appeal's judgment in the case of *Komape and Others v Minister of Basic Education and Others* 2020 (2) SA 347.

during the course of the pandemic, it is very important that both the SBSTs and DBSTs are fully functional to assist them when schools reopen and when learners at home need help;

- Schools need to be reminded that they can also access psychological and other support services through the DSD, DBE or DOH as required.



Improve remote learning

Provide printed materials for all learners

- Printed materials (workbooks, textbooks and readers) need to be produced in sufficient quantities to supply all learners. Priority should be given to areas where the worst shortages of these materials are, and to those learners with no access to other learning resources;
- DBE Mathematics workbooks and *Vula Bula* reading anthologies which can be printed at low cost, should be made available to every learner from Grades 1 to 4, including for the previous year to allow for revision;
- A guideline and study timetable, listing topics and supporting materials (including TV and radio broadcasts) should be included in the printed material packs for learners and parents. This could also be published in newspapers; and
- A range of strategies can be adopted to distribute the printed materials to those learners not yet admitted to schools: using meal distribution sites/collection points; school buses to reach learners in outlying areas; and the collection of materials by learners from schools at set times, or more regularly, according to a rotational schedule, when schools reopen.

Optimise online learning

- The schedules of TV and radio broadcasts and lists of resources for remote learning on the DBE website are very comprehensive, but they need to be published on more websites, platforms and newspapers to make them more widely known and accessible. The broadcasting schedules should be coordinated across all platforms, and programme content should be

aligned with references to workbook content, where applicable;

- Interactive radio instruction (IRI) should be the standard form of radio lessons in ECD and the Foundation Phase, where young learners need to learn interactively;
- While considerable progress in this regard has been made by the DBE, the necessary content websites should be zero-rated by all service providers and network operators. However, a set of criteria should be established as to which websites should to be zero-rated to ensure that no profiteers benefit;
- These websites should be urgently upgraded to manage high user volumes, and made mobile-friendly so they are able to operate on the most basic devices, and the content should be made 'data-lite';
- The DBE Cloud could be used to establish a digital platform on which the DBE can house quality-assured, free resources from many different contributors and coordinate the delivery of digital content to learners;
- Content should be available for all school subjects and for all grades, and in learners' home languages, in addition to English;
- Translations, subtitles and sign language options for accessibility should be provided as far as possible; and
- Pre-recorded content should be made more widely available on a range of media and accessible by mobile devices.

Provide training in remote learning for educators and learners

- As the pandemic progresses, schools will open and close again with confirmed cases of COVID-19. Consequently, by using both online learning technologies and traditional forms of training, the DBE and PEDs should urgently arrange for educators to be trained in effective remote learning;
- For this purpose, international and local free-to-access training resources on teaching through remote learning should be assessed by the DBE and PEDs and made available to teachers;

- All learners who are in school, or cannot yet attend school, or may have to return home and learn remotely if schools with confirmed COVID-19 cases have closed again, need to be taught how to learn effectively through remote means during this pandemic and in the future; and
- In this regard, a dual approach using a mix of face-to-face and online learning could be considered to allow for learners who are able to continue learning remotely, or who need to continue social distancing for health reasons, to do so.

Create support sites for learners, teachers and parents

- Technical support for online learning is needed for teachers and learners, as well as for parents/caregivers responsible for supervising learners;
- Pure content delivery needs to be combined with options for direct support for learner questions about content and concepts. This can be provided through a toll-free line, for example, so that learners can reach experienced qualified teachers for questions and support; and
- Teachers, learners and parents should also be encouraged to create their own support groups, using social media, chat applications such as WhatsApp, and web-based video conferencing tools like Zoom.

sanitation) and ICT infrastructure at schools. This must also result in long-term policies and plans designed to close this gap;

- The continuing and improved provision of essential resources for schools is critical. This will require ongoing monitoring to ensure they are procured and delivered at acceptable cost, and any corrupt practices are identified and the perpetrators prosecuted;
- A key challenge for the DBE in its monitoring role is to ensure that the policies and plans are implemented on the ground in every province, district and school, and sufficient funding is provided; and
- The development and monitoring of consistent indicators across sites and interventions can be assisted by education NGOs, associations like the South African Monitoring and Evaluation Association (SAMEA) and public interest organisations.

Expand and strengthen partnerships

- A united effort from government, business and civil society is needed to control the spread of COVID-19, establish the critical infrastructure, and provide the supplies and resources, training for teachers and comprehensive support services for learners in, and out of school;
- The forums and partnerships that have already been created between the DBE, other government departments, teacher unions, governing body associations, business, donors, NGOs, education associations and communities have been crucial in decision-making around school closures and reopening, and should be continued, strengthened and expanded so that information can be shared, resources and supplies provided and implementation monitored;
- Communication and support networks established during the lockdown period should be encouraged to continue as a means of sharing information, ideas, know-how and problem-solving; and
- The goal of universal access to information and the provision of technology infrastructure should be a priority, and it can be achieved by government with public-private partnerships and collaboration with numerous civil society organisations.



Undertake strategic planning, implementation and monitoring of policy

- In addition to the DBE's guideline documents and protocols, a clearly communicated strategy and macro plan for schooling and the related support services during the pandemic would give structure and confidence to the education sector and the public;
- Immediate plans should be designed to close the inequality gap across and within all provinces, in terms of the provision of school textbooks, nutrition programmes, basic infrastructure (classrooms, electricity, water,




Identify innovative policies and practices for short- and long-term change

- Cross-sectoral forums in the schooling system should be established in which best practice and innovations in remote learning and the provision of support services can be shared between well-functioning public schools, independent schools and disadvantaged schools;
- New processes, content and practices that develop during the pandemic and offer

potential solutions to bridging the education inequality gap and improving the quality in the longer term need to be identified, shared and published widely;

- Policies, practices and resources used in other countries that have worked during the pandemic should also be explored for their adaptability to the South Africa context; and
- Zero-rating of educational websites/content and remote learning delivery options through online platforms, instant messaging, social media, and TV and radio broadcasting should be maintained to improve the access to quality of learning post-COVID-19, especially for those in remote areas.



Cross-sectoral forums in the schooling system should be established in which best practice and innovations in remote learning and the provision of support services can be shared

Concluding comments

Our research suggests that, as Dr Riyaz Patel of University College London has aptly put it, “this pandemic has not been the great leveler”, but rather, “the great magnifier” (Mueller, 2020). COVID-19 has both starkly exposed the extreme socio-economic inequalities in South Africa, and shown up and widened the pre-COVID-19 gaps in our unequal education system. As in other countries, the pandemic has brought a range of new and as yet un navigated problems to South Africa’s table, but these have been exacerbated by the widespread poverty, unemployment, food insecurity, lack of affordable access to digital technology and persisting inequalities in schooling. The reality is that the further the virus spreads, and the longer the need for lockdown, phased reopenings and repeated school closures, the more likely it is that these pre-existing inequalities worsen.

For these reasons, there have been many calls, both in South Africa and globally, to treat COVID-19 as an opportunity to ‘reimagine’ and ‘remake’ education systems to make them better, more accessible, innovative and embracing of the 4IR, and to prepare them for potential future disruptions of the same magnitude. What our research shows, however, is that instead of using COVID-19 to find ‘silver bullet’ or radically disruptive solutions for solving deep-rooted, complex problems, what is needed is considered, incremental change and innovation.

Accordingly, and by way of conclusion, we outline a set of guiding principles to keep in mind when considering interventions and levers for change during COVID-19. These principles were developed from the lessons learnt during our research process.

‘Do no harm’

It is crucial that efforts to address the effects of COVID-19 on schooling do not further exacerbate inequalities. Often invoked when referring to the oath taken by medical professionals, the principle of ‘first do no harm’ has also been used in the humanitarian sector in recognition of the potential negative consequences of humanitarian aid (Winthrop, 2020).

In this regard, the priority must be to keep learners, educators and school staff as safe as possible from contracting the virus when they return to schools, and help them learn effectively and catch up what they have missed.

However, for those who still must learn at home, now and in the future, every effort must be made to ensure that vulnerable learners are assisted with their remote learning, adequate nutrition and psychosocial support.

When schools closed before the initial phase of lockdown and the shift to online learning occurred, it appeared from its early announcements that the DBE initially planned for a short term, and therefore a more manageable and quantifiable break in teaching and learning. However, as the school closures have had to be extended for months, remote learning has had to continue. The DBE’s reliance on online learning, although supplemented by other means of remote learning, has resulted in only a minority of learners with digital access in wealthier households being able to ‘meaningfully’ continue their education, while the learning of the vast majority of pupils has suffered from poor access to digital technology and a lack of educational assistance and supervision in the home. Moreover, they have been rendered even more vulnerable from hunger, a lack of psychosocial support and potentially compromised personal safety.

Many of our youngest learners – who are in particular need of supervised, interactive and teacher-mediated learning during the earliest years of their schooling – are most affected. The increasing body of evidence suggesting that young children are less susceptible to COVID-19 has strengthened the case for phasing in the return of Grades R to 3 learners, as well as children attending ECD facilities, at the earliest opportunity.

‘Do no harm’ during the pandemic means careful consideration of any policies, plans and interventions for schooling in terms of their feasibility and effectiveness and their short- and long-term consequences, both intended and unintended, for all learners.

‘Get the basics right’

When considering remote learning options and identifying potentially scalable solutions for long-term application, it is important to remember to first ‘get the basics right’.

Improvements in remote learning must first take into account and address the fundamental challenges facing the majority of schools in this country, including a lack of basic infrastructure and learning resources, very poor literacy and numeracy outcomes, teacher under-qualification and lack of digital skills. All teachers and learners need first to be taught to teach/learn *with* technology, as a tool to support learning, rather than a means *through* which to learn. Pursuing the transition to the 4IR without having the basics in place will leave the disadvantaged further behind.

Where schools have been neglected, with no provision of electricity, water and sanitation, and inadequate infrastructure and learning environments, let alone digital access, it is imperative to supply these before the transition to the 4IR can be implemented. Without the provision of technology infrastructure for universal access to information throughout the country, especially in rural areas, disadvantaged learners will not be able to benefit from digital learning. Moreover, ‘getting the basics right’ also means ensuring that every learner, in every province, receives the necessary textbooks and printed learning materials, desks and chairs, and other basic learning needs and infrastructure.

With the school closures and reopenings, it has become clear that the support services around schools are a ‘need-to-have’, rather than a ‘nice-to-have’. Nutritional support is inextricably linked to a child’s ability to learn and to their psychological well-being. The anxiety and stress brought about by the pandemic has made learning during the lockdown difficult and will make re-entering the school environment equally so. Parents will be concerned about the safety of their children, while teachers and learners will be worried about their health, their future and ‘catching up’. Measures to make psychosocial support readily available are needed. Learners with disabilities who have been largely neglected during the closures will need significant support.

‘Build back better’

The current crisis does present an opportunity for us to do things better. The pandemic has highlighted the need to bridge the yawning gaps in our schooling system and innovation can help address them.

However, as Ntaka (2020) emphasises: “The South African education system is a microcosm of the

country’s historical socio-economic inequality”. She points out that attempts to accelerate educational development and successfully reduce educational disparities will also need to address broad-based development in the country and the root causes of the deep structural divides. Efforts to fix the struggling basic education system during the pandemic and temporary patch-ups are not a viable long-term solution: “Adequate planning and structural redress are required to address the disparity in the country’s basic education system” (Ntaka, 2020).

Where countries already had existing remote learning or disaster/emergency measures in place when the pandemic struck, it appears that the transition to remote learning and the ongoing provision of related nutritional and psychosocial support services was faster, and the effect of COVID-19 lockdown measures less disruptive for learners, teachers and parents. Based on the lessons learnt from this pandemic, the DBE and government as a whole needs to draw up a disaster/emergency plan so that it can respond more effectively to such a challenge in the future.

That South Africans can act in concert to address an emergency is clear. The lockdown has shown that where the state has been unable to act or has needed support, for whatever reason, business, civil society, NGOs, community groups and others have come together with government in the most remarkable way, to provide food parcels, PPE and sanitising supplies, and to address many other needs. It has also shown what the state and its various departments can achieve when leadership, commitment, coordination and hard work align.

There is no question that while the unfolding crisis will have far-reaching effects on South Africa, it also presents us with an unexpected opportunity to innovate and experiment. Already with new modes of education delivery, new content and new (and old, improved) solutions to learning-related challenges have been tried out during the pandemic. Those that have been shown to work and make a difference should be built on.

When we reflect on the question of whether it is possible to remake an education system suffering from deep-rooted, systemic problems during a time of crisis, our answer is “No”. We cannot, in the space of a few months, or even a year, resolve long-standing inequalities. However, this pandemic has provided us with an opportunity to learn from mistakes and successes. The hope is that these lessons and innovations form part of the scaffolding required to build a bridge between South Africa’s “two education systems” because “We owe it to the next generation to not only be better, but to do better, in this regard” (Ntaka, 2020).

References

- Abel M. (2020, 12 May) Turning the tide: We need to work in order not to starve. *Daily Maverick*. Retrieved from: <https://www.dailymaverick.co.za/opinionista/2020-05-12-turning-the-tide-we-need-to-work-in-order-not-to-starve/>
- Association for Educational Communications and Technology. (1977) The definitions of educational technology: Summary. *The definition of educational technology* (1–6). Washington DC: Association for Educational Communications and Technology
- Bailey M. (2020, 6 April) Schooling during Covid-19: It's time to strip the curriculum. *Daily Maverick*. Retrieved from: <https://www.dailymaverick.co.za/opinionista/2020-04-06-schooling-during-covid-19-its-time-to-strip-the-curriculum/>
- Banton V. (2020, 11 May) No back to school: SADTU and WC, KZN education depts tell staff to stay home. *News24*. Retrieved from: <https://www.news24.com/news24/southafrica/news/no-back-to-school-sadt-and-wc-kzn-education-depts-tell-staff-to-stay-home-20200511>
- Bassier I, Budelender J, Leibbrandt M, Ranchhod V, & Zizzamia R. (2020, 31 March) South Africa can – and should – top up child support grants to avoid a humanitarian crisis. *The Conversation*. Retrieved from: <https://theconversation.com/south-africa-can-and-should-top-up-child-support-grants-to-avoid-a-humanitarian-crisis-135222>
- Bekker M, Roberts B, Alexander K, & Bohler-Muller N. (2020, 8 May) 'Hungry — we are starving at home'. *Daily Maverick*. Retrieved from: <https://www.dailymaverick.co.za/article/2020-05-08-hungry-we-are-starving-at-home/>
- Black S. (2020, 11 May) The problem with Stephen Grootes' views about online learning. *Daily Maverick*. Retrieved from: <https://www.dailymaverick.co.za/opinionista/2020-05-11-the-problem-with-stephen-grootes-views-about-online-learning/>
- Brodie M, McFarlane R, & Ally N. (2020, 21 April) Learning in the time of Covid-19: Equitable support during school closures desperately needed. *Daily Maverick*. Retrieved from: <https://www.dailymaverick.co.za/article/2020-04-21-learning-in-the-time-of-covid-19-equitable-support-during-school-closures-desperately-needed/>
- Burns M. (2020) We are all distance learners: Online education across the Globe—Part 2. *e-Learning Industry*. Retrieved from: <https://elearningindustry.com/distance-learners-online-education-across-the-globe-part-2>
- BusinessTech. (2020a, 10 May) April data shows how deep Covid-19 has cut into South Africa's economy. Retrieved from: <https://businesstech.co.za/news/business/395617/april-data-shows-how-deep-covid-19-has-cut-into-south-africas-economy/>
- BusinessTech. (2020b, 11 May) South Africa's school plan is up in the air – but government is committed to these 3 changes. Retrieved from: <https://businesstech.co.za/news/government/396819/south-africas-school-plan-is-up-in-the-air-but-government-is-committed-to-these-3-changes/>
- CDE (Centre for Development and Enterprise). (2015) *Teachers in South Africa: Supply and demand 2013–2025*. CDE InDepth. Johannesburg: Centre for Development and Enterprise. Retrieved from: <https://www.cde.org.za/wp-content/uploads/2018/07/Teacher-Supply-and-Demand-2013-2025-Full-Report-March2015-CDE.pdf>
- Christensen C. (1997) The innovator's dilemma: When new technologies cause great firms to fail. University of Illinois at Urbana-Champaign's Academy for Entrepreneurial Leadership Historical Research Reference in Entrepreneurship. *SSRN*. Retrieved from: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1496206
- Cowan K. (2020, 22 May) South Africa's Covid-19 projections a wake-up call we don't fully understand. *News24*. Retrieved from: <https://m.news24.com/Analysis/analysis-south-africas-covid-19-projections-a-wake-up-call-we-dont-fully-understand-20200521>
- Darling-Hammond L. (2020, 19 March) Learning in the time of COVID-19. *Forbes*. Retrieved from: <https://www.forbes.com/sites/lindadarlinghammond/2020/03/19/learning-in-the-time-of-covid-19/#41acdd5e7203>
- de Kadt J. (2020, 11 May) COVID-19 highlights South Africa's need for local level social data. *The Conversation*. Retrieved from: <https://theconversation.com/covid-19-highlights-south-africas-need-for-local-level-social-data-137804>
- DBE (Department of Basic Education). (2019) National Education Infrastructure Management System (NEIMS) Standard Report August 2019. Retrieved from: <https://www.education.gov.za/Portals/0/Documents/Reports/NEIMS%20standard%20reports%202019.pdf?ver=2019-09-27-150623-250>
- DBE (Department of Basic Education). (2020a) Release of the revised annual teaching plans (ATPs) for Grade 7 and 12 Respectively. Circular No S2 of 2020. Retrieved from: <https://kfmulaudzi.files.wordpress.com/2020/05/circular-s2-2020-curriculum-recovery.pdf>
- DBE (Department of Basic Education). (2020b) Standard Operating Procedures for the prevention, containment and management of COVID-19 in schools and school communities. Retrieved from: <https://kfmulaudzi.files.wordpress.com/2020/05/dbe-standard-operating-procedure-for-covid-19.pdf>
- DePaul Teaching Commons. (Undated) Mobile learning. *DePaul Teaching Commons*. Retrieved from: <https://resources.depaul.edu/teaching-commons/teaching-guides/technology/Pages/mobile-learning.aspx>
- DevelopAfrica. (2020) Coronavirus COVID-19 education, PPP supplies, and hunger alleviation appeal. Retrieved from: <https://www.developafrica.org/corona-virus>
- Dillon K. (2020, 4 February) Disruption 2020: An interview with Clayton M. Christensen. *MIT Sloan Management Review*. Retrieved from: https://sloanreview.mit.edu/article/an-interview-with-clayton-m-christensen/?gclid=CjwKC_AjwiMj2BRBFEiwAYfTbCidb6dZMNN05u7qAg-bB32wla_deQIAOUX08uKv5ucA9G60V1o2ohoCB_gQAvD_BwE
- District of Columbia Public Schools. (Undated) Coronavirus (COVID-19) updates. Retrieved from: <https://dcps.dc.gov/coronavirus>

- Equal Education, Equal Education Law Centre & SECTION27. (2020a, 29 April) Statement: Basic education authorities have not convincingly demonstrated that all schools will be provided with the necessary resources and support to reopen next Wednesday. Retrieved from: <https://equaleducation.org.za/2020/04/29/statement-basic-education-authorities-have-not-convincingly-demonstrated-that-all-schools-will-be-provided-with-the-necessary-resources-and-support-to-reopen-next-wednesday/>
- Equal Education, Equal Education Law Centre & SECTION27. (2020b, 12 May) Joint media statement: The Department of Basic Education must present clear and comprehensive plans to the public. Retrieved from: https://equaleducation.org.za/wp-content/uploads/2020/05/Joint-media-statement_-The-Department-of-Basic-Education-must-present-clear-and-comprehensive-plans-to-the-public-.pdf
- Equal Education, Equal Education Law Centre, Children's Institute, SECTION27 & Centre for Child Law. (2020c) Open letter to the Minister of Basic Education Planning in a time of crisis – school feeding schemes can and must continue. Retrieved from: https://eelawcentre.org.za/wp-content/uploads/letter-to-the-minister-of-basic-education_10042020.pdf
- Friedman M. (1982) *Capitalism and freedom* [Reprint]. London: University of Chicago Press.
- Govender P. (2020a, 1 May) Some kids may only get back to class in September – but its masks for all. *TimesLive*. Retrieved from: <https://select.timeslive.co.za/news/2020-05-01-some-kids-may-only-get-back-to-class-in-september-but-its-masks-for-all/>
- Govender P. (2020b, 25 May) Covid cases don't mean schools have to close. *Herald Live*. Retrieved from: <https://www.heraldlive.co.za/news/2020-05-25-covid-cases-dont-mean-schools-have-to-close/>
- Govender P. (2020c, 31 May) Motshekga's plan for partial reopening of schools on hold after talks with unions, parent bodies. *TimesLive: Sunday Times*. Retrieved from: <https://www.timeslive.co.za/sunday-times/news/2020-05-31-motshekgas-plan-for-partial-reopening-of-schools-on-hold-after-talks-with-unions-parent-bodies/>
- Graham L. (2020, 5 April) Pandemic underscores gross inequalities in South Africa, and the need to fix them. *The Conversation*. Retrieved from: <https://theconversation.com/pandemic-underscores-gross-inequalities-in-south-africa-and-the-need-to-fix-them-135070>
- Gustaffson M. (2020, 11 March) New evidence supports the belief that South Africa's education is not all bad. *The Conversation*. Retrieved from: <https://theconversation.com/new-evidence-supports-the-belief-that-south-africas-education-is-not-all-bad-132280>
- Hall R, du Toit A, Ramantsima K, Gumede N, Hara M, Isaacs M, Monjane B, Mtero F, & Yeni S. (2020, 1 April) Food in the time of the coronavirus: Why we should be very, very afraid. *PLAAS Institute for Poverty, Land and Agrarian Studies*. Retrieved from: <https://www.plaas.org.za/food-in-the-time-of-the-coronavirus-why-we-should-be-very-very-afraid/>
- Harrington T. (2020, 13 May) What California parents and students should know about coronavirus: a quick guide. *EdSource*. Retrieved from: <https://edsources.org/2020/coronavirus-qa-what-california-parents-and-students-should-know-about-covid-19/624413>
- Heywood M. (2019, 19 December) Justice (at last) for Michael Komape's horrific pit toilet death. *Daily Maverick*. Retrieved from: <https://www.dailymaverick.co.za/article/2019-12-19-justice-at-last-for-michael-komapes-horrific-pit-toilet-death/#gsc.tab=0>
- Hill F. (2020, 18 April) The pandemic is a crisis for students with special needs. *The Atlantic*. Retrieved from: <https://www.theatlantic.com/education/archive/2020/04/special-education-goes-remote-covid-19-pandemic/610231/>
- Hoadley U. (2020, 20 May) Time to drastically curtail the school curriculum and focus on our early grade learners. *Daily Maverick*. Retrieved from: <https://www.dailymaverick.co.za/article/2020-05-20-time-to-dramatically-curtail-the-school-curriculum-and-focus-on-our-early-grade-learners/>
- Hodges C, Moore S, Locke B, Trust T, & Bond A. (2020) The difference between emergency remote teaching and online learning. Retrieved from: <https://medicine.hofstra.edu/pdf/faculty/facdev/facdev-article.pdf>
- Houser V. (2020, 13 April) Radio learning in the time of Coronavirus: UNICEF and partners support Rwanda Education Board to develop radio lessons for students affected by COVID-19 school closures. *UNICEF*. Retrieved from: <https://www.unicef.org/rwanda/stories/radio-learning-time-coronavirus>
- Howie S, Combrinck C, Roux K, Tshele M, Mokoena G, & McLeod Palane N. (2017) *PIRLS Literacy 2016 Progress in International Reading Literacy Study 2016: South African children's reading literacy achievement*. Pretoria: Centre for Evaluation and Assessment. Retrieved from: https://www.up.ac.za/media/shared/164/ZP_Files/pirls-literacy-2016_grade-4_15-dec-2017_low-quality.zp137684.pdf
- Human Rights Watch. (2015) *"Complicit in exclusion": South Africa's failure to guarantee an inclusive education for children with disabilities*. Retrieved from: https://www.hrw.org/sites/default/files/report_pdf/southafricaaccessible.pdf
- Human Rights Watch. (2019, 24 May) South Africa: Children with disabilities shortchanged. Retrieved from: <https://www.hrw.org/news/2019/05/24/south-africa-children-disabilities-shortchanged>
- Inclusive Education South Africa. (2018, 15 March) Geneva – Ability activists tell UN committee about crisis in education for children with disabilities in South Africa. Retrieved from: <http://www.included.org.za/news/geneva-ability-activists-tell-un-committee-crisis-education-children-disabilities-south-africa/>
- Jansen J. (2019, 24 January) Our gadget-verskrik minister needs to fix schools before buying iPads. *TimesLive*. Retrieved from: <https://select.timeslive.co.za/ideas/2019-01-24-our-gadget-verskrik-minister-needs-to-fix-schools-before-buying-ipads/>
- Jansen J. (2020a) Let's face facts, the 2020 school year is lost. So what to do? Retrieved from: <http://archive.is/UMaJq#selection-353.0-353.62>
- Jansen J. (2020b, 21 May) Back to school isn't about saving lives, it's a gamble on kids' health. *TimesLive*. Retrieved from: <https://select.timeslive.co.za/ideas/2020-05-21-back-to-school-isnt-about-saving-lives-its-a-gamble-on-kids-health/>
- Jansen J. (2020c, 4 June) Virus has exposed staggering political ineptitude – kids pay the price. *TimesLive*. <https://select.timeslive.co.za/ideas/2020-06-04-virus-has-exposed-staggering-political-ineptitude-and-sas-kids-pay-the-price/>
- Jantjies M. (2019, 18 June) Five things South Africa must get right for tech in schools to work. *The Conversation*. Retrieved from: <https://theconversation.com/five-things-south-africa-must-get-right-for-tech-in-schools-to-work-118612>

- Jantjies M. (2020, 29 April) How South Africa can address digital inequalities in e-learning. *The Conversation*. Retrieved from: <https://theconversation.com/how-south-africa-can-address-digital-inequalities-in-e-learning-137086>
- Kekana A. (2019, 9 July) 4IR a challenge in education sector. *SABC News*. Retrieved from: <https://www.sabcnews.com/sabcnews/4ir-a-challenge-in-education-sector/>
- Lapping A. (2020, 14 May) A fatally flawed lockdown plan. *BusinessLive: Financial Mail*. Retrieved from: <https://www.businesslive.co.za/fm/opinion/on-my-mind/2020-05-14-andrew-lapping-a-fatally-flawed-lockdown-plan/>
- Layton S. (2017, 3 August) What is elearning and why do teachers like it? [Blog post]. *Applied Educational Systems*. Retrieved from: <https://www.aeseducation.com/blog/what-is-elearning>
- Liu S, Yang L, Zhang C, Xiang Y, Liu Z, Hu S, & Zhang B. (2020) Online mental health services in China during the COVID-19 outbreak. *The Lancet* 7 (April 2020): 17–18. Retrieved from: [https://www.thelancet.com/pdfs/journals/lanpsy/PIIS2215-0366\(20\)30077-8.pdf](https://www.thelancet.com/pdfs/journals/lanpsy/PIIS2215-0366(20)30077-8.pdf)
- López González L. (2020, 20 May) Read South Africa's national, provincial COVID-19 projections in full. *Bhekisisa Centre for Health Journalism*. Retrieved from: <https://bhekisisa.org/resources/2020-05-20-read-south-africas-official-national-provincial-covid-19-projections-in-full>
- Maromo J. (2020, 1 April) Coronavirus in SA: WHO boss praises South Africa's response to Covid-19 pandemic. *IOL*. Retrieved from: <https://www.iol.co.za/news/politics/coronavirus-in-sa-who-boss-praises-south-africas-response-to-covid-19-pandemic-45923836>
- Mhlanga E. (2020, 16 April) Jansen got it wrong – 2020 school year isn't lost. *TimesLive*. Retrieved from: <https://select.timeslive.co.za/ideas/2020-04-16-prof-jansen-got-it-wrong-the-2020-school-year-is-not-lost-yet/>
- Miller M, Wallace B, Rockholt C, Came D, Pauley G, Gallo G, Taylor K, Mueller M, & Jeffries-Simmons T. (2020) *Continuous learning 2020*. Olympia WA: Washington Office of Superintendent of Public Instruction. Retrieved from: <https://www.k12.wa.us/sites/default/files/public/communications/OSPI%20Publication%20-%20Continuous%20Learning%202020.pdf>
- Mokati N. (2020) Covid-19: Motshekga explains how schools will make up lost time. *IOL*. Retrieved from: <https://www.iol.co.za/news/politics/covid-19-motshekga-explains-how-schools-will-make-up-lost-time-44959682>
- Moore JL, Dickson-Deane C, & Galyen K. (2011) e-Learning, online learning, and distance learning environments: Are they the same? *The Internet and Higher Education* 14(2): 129–135. doi:10.1010/j.iheduc.2010.10.001
- Motshekga A. (2020a, 26 March) Basic Education Sector Plans to support learners during Coronavirus COVID-19 lockdown. Department of Basic Education. Retrieved from: <https://www.gov.za/speeches/minister-angie-motshekga-basic-education-sector-plans-support-learners-during-covid-19>
- Motshekga A. (2020b, 19 May) 4th Covid Statement by Minister of Basic Education 19 May 2020. Department of Basic Education. Retrieved from: <https://kfmulaudzi.files.wordpress.com/2020/05/4th-covid-statement-by-minister-of-basic-education-19-may-2020-v1-2-fi-.pdf>
- Motshekga A. (2020c) State of readiness for the return of the second cohort of grades back to school. Department of Basic Education. Retrieved from: <https://www.gov.za/speeches/minister-angie-motshekga-state-readiness-return-second-cohort-grades-back-school-5-jul-2020>
- Mthethwa A. (2020a, 7 May) Grade 12 learners contemplate rest of school year and what else lies ahead. *Daily Maverick*. Retrieved from: <https://www.dailymaverick.co.za/article/2020-05-07-grade-12-learners-contemplate-rest-of-school-year-and-what-else-lies-ahead/>
- Mthethwa A. (2020b, 28 May) School reopening: The great debate. *Daily Maverick*. Retrieved from: <https://www.dailymaverick.co.za/article/2020-05-28-school-reopening-the-great-debate/>
- Mueller B. (2020, 7 May) Coronavirus killing black Britons at twice the rate of whites. *The New York Times*. Retrieved from: <https://www.nytimes.com/2020/05/07/world/europe/coronavirus-uk-black-britons.html>
- NICD (National Institute for Communicable Diseases). (2020) COVID-19 update. Retrieved from: <https://www.nicd.ac.za/covid-19-update-72/>
- Novick G, & Browde A. (2020) Lockdown updates. *S.A. Harvest*. Retrieved from: <https://mailchi.mp/0ab7eb68d049/covid-19-has-created-a-hunger-crisis-515158?fbclid=IwAR2kbbIQ6wW3zfdmOvpULXMoUH-IXWMh-DJtdW91EL0MQEGUlgUYhiff8rU>
- Ntaka N. (2020, 5 June) Basic education in a pandemic: The pitfalls of online learning in an already unequal society. *Daily Maverick*. Retrieved from: <https://www.dailymaverick.co.za/opinionista/2020-06-05-basic-education-in-a-pandemic-the-pitfalls-of-online-learning-in-an-already-unequal-society/>
- Omarjee L. (2020a, 9 April) 'Damage was already done' to SA economy, even before lockdown extension – analyst. *Fin24*. Retrieved from: <https://www.fin24.com/Economy/South-Africa/damage-was-already-done-to-sa-economy-even-before-lockdown-extension-analyst-20200409>
- Omarjee L. (2020b, 30 April) SA risks losing 7 million jobs, reaching over 50% unemployment: Treasury's grim worst-case scenario. *Fin24*. Retrieved from: <https://www.fin24.com/Economy/South-Africa/sa-risks-losing-7-million-jobs-reaching-over-50-unemployment-treasurys-grim-worst-case-scenario-20200430>
- Orkin M, Roberts B, Bohler-Muller N, & Alexander K. (2020, 13 May) The hidden struggle: The mental health effects of the Covid-19 lockdown in South Africa. *Daily Maverick*. Retrieved from: <https://www.dailymaverick.co.za/article/2020-05-13-the-hidden-struggle-the-mental-health-effects-of-the-covid-19-lockdown-in-south-africa/>
- Petrie C, Aladin K, Ranjan P, Javangwe R, Gilliland D, Tuominen S, & Lasse L. (2020) HundrED Research Report Spotlight: Quality education for all during COVID-19 crisis. HundrED. Retrieved from: https://hundred-cdn.s3.amazonaws.com/uploads/report/file/15/hundred_spotlight_covid-19_digital.pdf

- Potter C, & Naidoo G. (2012) Enhancing classroom teaching through Interactive Radio in South African primary schools: An evaluation of the OLSET programme. *Africa Education Review* 9(3): 518–547. <http://dx.doi.org/10.1080/18146627.2012.742659>
- Ramaphosa C. (2020, 23 March) Full statement: President Cyril Ramaphosa declares nationwide lockdown. *BusinessLive: Business Day*. Retrieved from: <https://www.businesslive.co.za/bd/national/2020-03-23-full-statement-president-cyril-ramaphosa-declares-nationwide-lockdown/>
- Ray K. (2020, 31 March) What is remote learning? *Tech & Learning*. Retrieved from: <https://www.techlearning.com/how-to/what-is-remote-learning>
- Roodt M. (2018). *The South African education crisis: Giving power back to parents*. Johannesburg: South African Institute of Race Relations. Retrieved from: <https://irr.org.za/reports/occasional-reports/files/the-south-african-education-crisis-31-05-2018.pdf>
- Rule P. (2017, 8 December) South Africa has a reading crisis: Why, and what can be done about it. *The Conversation*. Retrieved from: <https://theconversation.com/south-africa-has-a-reading-crisis-why-and-what-can-be-done-about-it-88711>
- Rule S, Davids YD, & Orkin M. (2020) Reopening of schools: Bold leadership and planning required. *Daily Maverick*. Retrieved from: <https://www.dailymaverick.co.za/article/2020-05-05-reopening-of-schools-bold-leadership-and-planning-required/>
- SA News (2018, 5 September) Basic education gears up for 4th Industrial Revolution. Retrieved from: <https://www.sanews.gov.za/south-africa/basic-education-gears-4th-industrial-revolution>
- SABC Education (2020, 8 April) SABC and Basic Education launch COVID-19 TV and radio curriculum programme for learners. Retrieved from: <http://www.sabceducation.co.za/media-office/4769-sabc-and-the-department-of-basic-education-launch-covid-19-tv-and-radio-curriculum-support-programme-for-learners>
- Satell G. (2017, 21 June) The 4 types of innovation and the problems they solve. *Harvard Business Review*. Retrieved from: <https://hbr.org/2017/06/the-4-types-of-innovation-and-the-problems-they-solve>
- Seattle Public Schools. (Undated) Seattle Public Schools coronavirus response FAQ. Retrieved from: https://www.seattleschools.org/district/calendars/news/what_s_new/coronavirus_update/faq
- Selepe L. (2019, 17 July) Curriculum for Coding and Robotics is 100% ready – Minister Angie Motshekga. Retrieved from: <https://www.iol.co.za/the-star/news/curriculum-for-coding-and-robotics-is-100-ready-minister-angie-motshekga-29349990>
- Shung-King M, Lake L, Sanders D, & Hendricks M. (eds) (2019) *Child and adolescent health: Leave no one behind*. South African Child Gauge 2019. Cape Town: Children's Institute, University of Cape Town. Retrieved from: http://www.ci.uct.ac.za/sites/default/files/image_tool/images/367/Child_Gauge/South_African_Child_Gauge_2019/ChildGauge_2019_final_print%20%28sm%29.pdf
- Sithole J. (2019, 28 July) Another year without textbooks in Mpumalanga. *Politics Web*. Retrieved from: <https://www.politicsweb.co.za/politics/another-year-without-textbooks--da>
- Spaull N. (2012, 31 August) Education in SA: A tale of two systems. *Politics Web*. Retrieved from: <https://www.politicsweb.co.za/news-and-analysis/education-in-sa-a-tale-of-two-systems>
- Spaull N. (2020a, 8 May) *Policy Brief: Who should go back to school first?* Stellenbosch: Research on Socio-Economic Policy (RESEP), Stellenbosch University. Retrieved from: <http://resep.sun.ac.za/wp-content/uploads/2020/05/spaull-2020-schooling-policy-brief-10-may-2020.pdf>
- Spaull N. (2020b, 9 May) COVID-19 tunnel vision [Blog post]. Retrieved from: <https://nicspaull.com/2020/05/09/covid-19-tunnel-vision/>
- Spaull N. (2020c, 14 May) Back to school: The evidence is clear – start with the young. *Daily Maverick*. Retrieved from: <https://www.dailymaverick.co.za/article/2020-05-14-back-to-school-the-evidence-is-clear-start-with-the-young/>
- StatsSA. (2019) *General Household Survey 2018. Selected development indicators*. Statistical Release P0318. Pretoria: StatsSA. Retrieved from <http://www.statssa.gov.za/publications/P0318/P03182018.pdf>
- StatsSA. (2020) *Business impact survey of the COVID-19 pandemic in South Africa*. Pretoria: StatsSA. Retrieved from: <http://www.statssa.gov.za/publications/Report-00-80-01/Report-00-80-01April2020.pdf>
- Stauffer B. (2020, 2 April) What's the difference between online learning and distance learning? [Blog post]. *Applied Educational Systems*. Retrieved from: <https://www.aeseducation.com/blog/online-learning-vs-distance-learning>
- Stuart C, & Chotia A. (2012) Radio. *South African entertainment and media outlook: 2012–2016* (Chapter 5: 109–127). Johannesburg: PwC Southern Africa. Retrieved from: <https://www.pwc.co.za/en/assets/pdf/enm-20120-chapter5.pdf>
- Tamm S. (2019, 21 December) What is e-learning? Defining what is e-learning is not as easy as it might first appear. *e-Student.org*. Retrieved from: <https://e-student.org/what-is-e-learning/>
- Taylor N. (2020a) *Education Researchers Respond to the COVID-19 Pandemic Research Report. Theme 1: Education at home*. Johannesburg: JET Education Services. Retrieved from: <https://www.jet.org.za/resources/theme-1-overview-report-final.pdf/@download/file/Theme%201%20-%20Overview%20Report%20-FINAL.pdf>
- Taylor N. (2020b, 22 May) Getting kids back into school is a priority – but interim learning methods are just as urgent. *Daily Maverick*. Retrieved from: <https://www.dailymaverick.co.za/opinionista/2020-05-22-getting-kids-back-into-school-is-a-priority-but-interim-learning-methods-are-just-as-urgent/>
- Turner C, & Kamenetz A. (2020) Schools race to feed students amid coronavirus closures. *NPR*. Retrieved from: <https://www.npr.org/2020/03/20/818300504/schools-race-to-feed-students-amid-coronavirus-closure>
- UNESCO (United Nations Educational, Scientific and Cultural Organization). (2016) Policy Paper 23: Every child should have a textbook. *Global Education Monitoring Report*. Retrieved from: <https://unesdoc.unesco.org/ark:/48223/pf0000243321>
- UNESCO (United Nations Educational, Scientific and Cultural Organization). (2020) From disruption to recovery. <https://en.unesco.org/covid19/educationresponse>

- UNICEF (United Nations Children's Fund). (2020) *South Africa COVID-19. Situation Report No. 1*. New York: UNICEF. Retrieved from: <https://reliefweb.int/sites/reliefweb.int/files/resources/UNICEF%20South%20Africa%20CoVid-19%20SitRep%2030%20April%202020.pdf>
- Vally, Z (2019, 19 March) Education inequality: The dark side of SA's education system. *The Daily Vox*. Retrieved from: <https://www.thedailyvox.co.za/educational-inequality-the-dark-side-of-sas-education-system-2/>
- Valodia I, & Francis D. (2020, 5 April) South Africa needs to mitigate the worst of its inequalities in tackling coronavirus. *The Conversation*. Retrieved from: <https://theconversation.com/south-africa-needs-to-mitigate-the-worst-of-its-inequalities-in-tackling-coronavirus-135564>
- van der Berg S, Spaull N, Wills G, Gustafsson M, & Kotze J. (2016) *Identifying binding constraints in education*. Synthesis report for the Programme to support Pro-poor Policy development (PsPPd). Stellenbosch: Research on Socio-Economic Policy (RESEP), Stellenbosch University. Retrieved from: https://resep.sun.ac.za/wp-content/uploads/2017/10/PSPPD_BICiE-email-01062016.pdf
- Venkat H, & Spaull N. (2015) What do we know about primary teachers' mathematical content knowledge in South Africa? An analysis of SACMEQ 2007. *International Journal of Educational Development* 41: 121–130. <http://wiredspace.wits.ac.za/handle/10539/17772>
- Veriava F, Anso T, & Hodgson T. (2017) The right to education for learners with disabilities. *Basic education rights handbook: Education rights in South Africa* (Chapter 5: 104–127). Johannesburg: Section27. Retrieved from: <http://section27.org.za/wp-content/uploads/2017/02/Chapter-5.pdf>
- Vorster R. (2020a, 5 May) The challenges of hunger and education for South Africa's children (Part One). *Daily Maverick*. Retrieved from: <https://www.dailymaverick.co.za/opinionista/2020-05-05-part-one-the-challenges-of-hunger-and-education>
- Vorster R. (2020b, 5 May) The challenges of safety and some potential solutions (Part Two). *Daily Maverick*. Retrieved from: <https://www.dailymaverick.co.za/opinionista/2020-05-05-part-two-the-challenge-of-safety-and-some-potential-solutions/>
- Western Cape Forum for Intellectual Disability. (2020a) How to speak to people with intellectual disability (ID) about COVID-19. WCFID's Facebook page. Retrieved from: <https://www.facebook.com/wcfid>
- Western Cape Forum for Intellectual Disability. (2020b) Tips to help someone with intellectual disability (ID) manage during COVID-19. WCFID's Facebook page. Retrieved from: <https://www.facebook.com/wcfid>
- Wheeler S. (2012) e-Learning and digital learning. In NM Seel (ed.) *Encyclopedia of the Sciences of Learning*. Boston MA: Springer. doi:10.1007/978-1-4419-1428-6_431
- WHO (World Health Organization). (2020) *Disability considerations during the COVID-19 outbreak*. Geneva: WHO. Retrieved from: <https://apps.who.int/iris/rest/bitstreams/1277373/retrieve>
- Winthrop R. (2020, 31 March) COVID-19 and school closures: What can countries learn from past emergencies? *Brookings*. Retrieved from: <https://www.brookings.edu/research/covid-19-and-school-closures-what-can-countries-learn-from-past-emergencies/>
- World Bank. (2005) *Improving educational quality through interactive radio instruction: A toolkit for policy makers and planners*. Washington DC: World Bank. Retrieved from: <http://documents.worldbank.org/curated/en/288791468035958279/pdf/357420AFRHD0521lkit1nov10501PUBLIC1.pdf>
- World Bank. (2019) Government expenditure on education, total (% of GDP) – South Africa. Washington DC: World Bank. Retrieved from: https://data.worldbank.org/indicator/SE.XPD.TOTL.GD.ZS?end=2018&locations=ZA&name_desc=true&start=2018&view=map

Annexure A

Current education interventions in response to COVID-19

Curriculum and Pedagogy

Online

Government interventions

National

DBE has made multimedia, reading material and study material available on their website (www.education.gov.za).

DBE Cloud (<https://dbecoloud.org.za/login/guest.php>) contains learning material per grade, per subject. There appear to be comprehensive resources for Gr R-6 across all subjects. There are not comprehensive language resources for Gr 7-9. Resources for Gr 10-12 consist of mainly past examination papers and memoranda.

Zero-rated websites (in partnership with various other organisations) include:

- Vodacom e-school (<https://myeducation.secure.vodacom.co.za/vodaschool/default.aspx>)
- DBE website (www.education.gov.za)
- Mindset (learn.mindset.co.za)
- Siyavula Everything Maths and Science textbooks (<http://www.everythingmaths.co.za/> also available for download at (<http://www.digitalclassroom.co.za/digitalclassroom/vodacom-digital-classroom/casme-science-and-mathematics-training-manuals?id=440Itemid=504>))

Provincial

Gauteng:

- The GDE website (<https://education.gauteng.gov.za/pages/school-curriculum.aspx>) contains lesson plans and links to resources on the DBE website.

Western Cape:

The WCED has created a portal called “Quality Education @ Home Initiative”. This includes access to the WCED e-portal with 8000 free resources categorised per grade, per subject; a Learner Dashboard (<https://wcedportal.co.za/register>) for Gr 10-12 that learners can register for and obtain access to e-resources; a School Closure Pack (<https://wcedportal.co.za/partners>); and a peer-based e-resources sharing section. Resources include lessons, lesson plans, video and audio clips and past examination papers. The WCED Sidekick Tool, accessible from the WCED webpage contains resources for teachers, including access to resources on Siyavula (online Maths and Science activities) as well as educational presentation tools.

Eastern Cape:

- Resources available on the ECDoE website (<http://ecdoe.co.za/learners>) are only for Gr 12 learners.

Non-governmental interventions

DBE, in partnership with various organisations, has provided zero-rated access to online learning materials. For a list of these organisations, refer above.

In addition, various other Ed-tech interventions have been implemented by non-governmental role-players. These include:

- Snapplify (<https://www.snapplify.com/>) which provides access to e-learning tools and digital content
- Mosepedi Alumni Development (<https://www.facebook.com/Mosepedi-Alumni-Development-100780471315151/>) provides online classes via Facebook and WhatsApp
- Africa Teen Geeks (<https://www.africateengeeks.co.za/about>) offers free science, technology, engineering and mathematics materials. 34 teachers from both public and private schools offer classes that are live streamed on Africa Teen Geeks social media pages such as Facebook, Twitter, Ms Zora, and via the Africa Teen Geeks website.
- iWhiz (<https://mobile.iwhiz.co.za/>) uses animation to deliver content in an interactive way. The curriculum covered is CAPS compliant.
- Paper Video (<https://papervideo.co.za/>) includes a team of South African teachers who use technology to increase the reach of their lessons. Videos covering Mathematics, Physical Sciences, Life Sciences, Natural Sciences and Accounting for Gr 8-12 can be accessed online. 1250 exam questions and solutions have been made available online at no cost.

Global interventions	
<p>Mali: Teachers on the <i>Pharaketi</i> programme (http://sites.google.com/site/pharekati) were given smartphones with access to multiple subject-specific lesson plans on a single website and used SMS services to receive synchronised academic and instructional support. The phones were used to access, implement and report on lessons. Teachers used the text messaging features of their smartphones to receive synchronous and asynchronous academic and instructional support.</p>	
Innovative elements or potential best practice	<ul style="list-style-type: none"> Existing resources have been updated Development of the skill of digital literacy Collaboration with service providers and corporations has enabled affordable access to additional online learning support
Potential to reduce inequalities	<ul style="list-style-type: none"> Access may be free/low cost depending on ISP/mobile provider Potentially wide reaching
Gaps/challenges	<ul style="list-style-type: none"> No universal access to the internet and associated device with which to access online learning materials Limited/no interaction between learners and educators Efficacy is dependent on literacy of parents/guardians Zero-rated access is not for all users across all learning platforms Curriculum coverage is limited (i.e. not all subjects across all grades are covered)
Implementation beyond COVID-19	<ul style="list-style-type: none"> Digital literacy remains an important skill and online learning materials must continue to be developed comprehensively Zero-rated access must be ensured across all learning platforms, with the ability for learners to download resources to be used offline Particular attention must be paid to online content that is compatible with feature phones (and not exclusively smartphones) Key websites must be upgraded to be able to function effectively despite high user volume.
Broadcast- radio and television	
Government interventions	
<p>DBE and SABC are partnering with several community radio stations to broadcast curriculum programmes to learners in Grades 10, 11 and 12, as well as offer ECD programmes. Subjects covered include Mathematics, Physical Science, English, First Additional Languages, Life Sciences and Accounting. Various African Languages are covered in ECD programmes.</p> <p>Radio stations broadcasting lessons include:</p> <ul style="list-style-type: none"> Umhlobo Wenene FM, Thobela FM, Phalaphala FM, Munghana Lonene FM, Ukhozi FM, Lesedi FM, Ligwalagwala FM, Motswedding FM, Ikwekwezi FM, Radio Sonder Grense, Tru FM, X-K FM, Radio 2000, Kouga FM, Ngqushwa FM, Unitra Community Radio, Kumkani FM, Mdantsane FM, Keith Ngesi Radio. <p>Television channels broadcasting lessons include:</p> <ul style="list-style-type: none"> E.tv has a dedicated channel on OpenView for 3 months DBE TV on channel 122 on DStv has been made available at no charge until 30 September 2020 SABC 1 and 2 	

Non-governmental interventions

*(Radio broadcasting has mostly been done in partnership between government and non-governmental role-players)

Private broadcasters such as DStv have dedicated channels such as Mindset Pop which features educational television shows. Television channels broadcasting lessons include:

- Channel 318 on DStv (excludes lessons for Gr 4-9)
- Channel 317 on DStv
- Channel 180 on DStv
- Channel 251 on DStv
- Channel 261 on DStv

Global interventions

Sierra Leone: (Radio broadcasting) Implemented child-led radio broadcasting delivering literacy and numeracy content for the 2014/2015 school year. Storytelling and local music was used to promote messages of behavioural change.

Pakistan/Post-conflict Sudan and South Africa: (Interactive radio instruction [IRI]) Uses one-way radio to reach two audiences (learners and teachers). A teacher on radio delivers content and directs an in-class teacher to apply instructional approaches. IRI uses a series of structured learning episodes and in-class teachers and learners respond to prompts. Can be recorded to tape, MP3 or CD for non-broadcast options.

Innovative elements or potential best practice

- Use of radio and television broadcasting has become **more widespread** in light of current restrictions
 - **Collaboration** between government and community radio stations has increased the reach of these lessons
 - **Easy to implement** using existing infrastructure

Potential to reduce inequalities

- Radio **access** remains relatively **widespread**. Access to televisions is increasing.
- **Radio broadcasts** can be accessed **free** of charge
- Televised lessons can be prioritised on **free channels**
- **Greater proportion** of learners can access **quality instruction**
- **Radio broadcasting** is accessible to the **visually impaired**
- **Televised lessons** can be made accessible to **hearing impaired** learners

Gaps/challenges

- **Radios and televisions** are **required**
- Lessons are subject to a broadcasting **schedule**
- **Unstructured**
- May not cover **all subjects**
- **Limited/no interaction** (potentially excludes IRI)
- If materials are required, **distribution** must be ensured before remote learning can take place
- Efficacy depends **on degree of learning support from parent/guardian**
- Broadcasting often **supported by online learning**
- **Not universally accessible** (i.e. to learners who experience any and all forms of barriers to learning)

<p>Implementation beyond COVID-19</p>	<ul style="list-style-type: none"> • A dedicated broadcast channel can run regular interactive programming • Lessons can be conducted with reference to workbooks which DBE must ensure learners have access to at home • Can be pre-recorded to facilitate easy access and must include sign language interpreters • Lessons must cover all subjects in all official languages • A task team of education experts can be coordinated by DBE to develop pre-recorded content in accordance with SA curriculum • Broadcasting ought to take place on all free channels, such as on SABC 1, 2 and 3 with government subsidising the cost of television licences • Content can be accessed and distributed in multiple formats including online, on mobile, Mp3, CD, DVD etc • IRI can be explored as a more interactive option for when learners return to school but can also be used by parents/guardians at home
<p>Print</p>	
<p>Government interventions</p>	
<p>Certain PEDs provided learners, parents and caregivers with guidelines (including implementation direction) detailing work that must be covered during school closures.</p> <p>Learners were also provided with printed workbooks that include learning activities.</p>	
<p>Global interventions</p>	
<p>In the United States, some districts in Washington handed out printed material at meal distribution sites, while other districts are allocating times for learners to collect materials at school. In South Carolina, schools are utilising school buses to distribute learning materials.</p>	
<p>Innovative elements or potential best practice</p>	<ul style="list-style-type: none"> • Utilising an existing resource that does not have associated costs for the learner
<p>Potential to reduce inequalities</p>	<ul style="list-style-type: none"> • Widely accessible (not reliant on internet/devices) if distribution is effectively carried out by DBE • No cost to learner if distributed by DBE
<p>Gaps/challenges</p>	<ul style="list-style-type: none"> • No interaction • Efficacy depends on degree of learning support from parent/guardian • Materials must be distributed beforehand
<p>Implementation beyond COVID-19</p>	<ul style="list-style-type: none"> • Scale-up distribution of workbooks to be used at home to facilitate independent learning and save teaching time at school • Parents and caregivers must be provided with guidelines on work to be covered at home, core skills that must be prioritised and guidance on time spent on schoolwork when home

Nutritional support

Government interventions

National

DBE is liaising with the Department of Health and the Department of Social Development through a coordinated effort led by the Food & Nutrition Security Coordination Committee (FNSCC) with the Department of Planning, Monitoring and Evaluation, to provide learners with food during school closures.

Nutritional support in the form of food parcels for families would be provided in the poverty nodes operated by the Department of Social Development. Distribution of food parcels will be coordinated through distribution centres which will be deemed as “essential services”. Agents have been appointed in each province to assist with distribution. Corporate partners are supporting efforts to provide meals to learners.

Provincial

Gauteng: GED announced the provision of nutrition and dignity packs.

North West: National School Nutrition Programme (NSNP) officials are expected to liaise with school principals and the Department of Social Development to consolidate a list of learners from less privileged households that will deliver daily nutritious meals.

Western Cape: Learners will be permitted to take a takeaway meal home from school. The scheme will provide one takeaway meal per day at about 1000 schools.

Non-governmental interventions

Existing non-profit organisations (e.g. Peninsula School Feeding Association, Lunchbox Fund, ACFS Community Education and Feeding Scheme) have adjusted their strategies in order to either deliver meals and food packs straight to the homes of learners and their families, or to create “pick up points” for families once a week. The Peninsula School Feeding Association sent out a call for donations to provide nutritious cooked lunches to 4 200 learners for 16 days during the extended school holidays at designated school communities/kitchens around Cape Town and Stellenbosch. ACFS are providing weekly food hampers to homes, for collection from their Nutrition Centres, and have made a call for donations for further distribution to minimise the need for the movement of individuals.

New organisations (e.g. Cans with Purpose, in association with Afrika Tikkun) have also been formed in response to the COVID-19 pandemic. Cans with Purpose is providing the public with an opportunity to donate canned foods and essential items at “donation stations” established at retailers and banks that remain open for business during the lockdown. Every morning, school principals from schools in the area collect donated goods and distribute these. In addition, Afrika Tikkun organised for the distribution of food and essentials in townships they operate in.

Global interventions

USA

The Summer Food Service Program (SFSP) and the Seamless Summer Option (SSO) are both utilised by submitting an application to the United States Department of Agriculture (USDA). Both programmes have an on-site feeding requirement, however this can be waived by the USDA which then allows for the delivery of meals to learners' homes using mail, a delivery service or even hand delivery. Typically, the state reimburses providers who serve free meals to children. The programme is administered by various state agencies. Sponsors enter into agreements with these agencies to run the programmes. Schools, local government agencies, camps and faith-based organisations may be appointed as sponsors.

In the state of California, schools have been deemed essential businesses and facilities. As a result, schools have been permitted to provide meals on a pick-up and go basis. In some parts of the state, families are permitted to pick-up meals for more than one day.

In other parts of the US, such as Virginia and Indiana, food is being packed onto school buses and bus drivers drive along specified routes to deliver meals.

India

The Ministry of Human Resource Development has asked states to make arrangements for the delivery of food grains or cooked meals.

Innovative elements or potential best practice	<ul style="list-style-type: none"> • Collaboration with existing government partners increase resources and capacity to deliver meals • Existing organisations have adapted processes to include delivery of meals or “pick up and go” • The use of school buses during school closures is an innovative response to school closures
Potential to reduce inequalities	<ul style="list-style-type: none"> • Partnering with companies to provide meals to learners could lead to the provision of food for learners year-round
Gaps/challenges	<ul style="list-style-type: none"> • The reach of interventions are limited by financial and other resource constraints • Requires direction from DBE to ensure a co-ordinated effort • Delivery of meals compromises social distancing • Access to collection points cannot be guaranteed for all • Delivery of meals using school buses may be limited to predetermined routes
Implementation beyond COVID-19	<ul style="list-style-type: none"> • Provision of food for learners outside of the school term must be considered by DBE. Through collaboration with existing partners and co-ordination among government departments, this may be feasible.

