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Effects of the COVID-19 pandemic on children: Learning and other losses

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Introduction

Children are expected to spend a large proportion of their time in education or school. One of the features of the 'new normal' introduced by the COVID-19 pandemic was a large reduction of time spent in school. According to a recent United Nations (UN) report: 'The COVID-19 pandemic has created the largest disruption of education systems in history' (UN, 2020, 2).

Research focused on time away from school, whether due to lockdowns, vacations, teacher strikes or other disruptions, points to significant loss of learning (see Ardington, Wills & Kotze, 2021, 2; Taylor, 2020b, 149.). Learners lose learning at two levels: what they could have learned had they been at school and some of what they had learnt before due to lack of use of the acquired skill and related materials.

Two kinds of learning losses when children are out of school:

Type 1: The fact that they are not learning anything new as time passes means that they are falling behind where they would have been if they had been at school.

Type 2: Staying out of school actually causes them to regress and to lose some of the learning that they had. This kind of learning loss is a well-known phenomenon which has been demonstrated to occur over the school summer holidays (see Taylor, 2020b).

¹ This paper was initially prepared as the background text for the JET Education Advisory Committee (EAC) meeting held on 21 October 2021.

It is therefore not hugely insightful to conclude that learning losses have occurred for school-going children since March 2020, when South African social and economic life was significantly impacted by strategies to curb the spread of the COVID-19 virus².

Neither is it hugely insightful to conclude that such learning losses will continue to haunt the education sector into the foreseeable future. Gustafsson (2021) predicts that we could see the worst of the learning loss consequences in the 2030 matriculation results (ironically, the year the National Development Plan (NDP) goals are to be reached). We now 'face a **generational catastrophe** that could waste untold human potential, undermine decades of progress, and exacerbate entrenched inequalities' (UN Secretary-General, António Guterres, August 2020, quoted in Gustafsson, 2021).

For successful interventions to mitigate the learning losses, insight into the nature and scope of those losses is required. In what follows, we provide an overview of what is known about learning losses during the COVID-19 pandemic. We also provide an overview of other, non-academic losses related to absences from school. We end by suggesting what additional knowledge is required in this regard.

As an airborne, highly contagious virus, the spread of COVID-19 depends on social interaction. In an effort to curb the spread, attempts were made by governments all over the world to decrease social interaction, and this included closing learning spaces. Globally, 94% of the student population was impacted by the closure of schools and other places of learning (UN, 2020, 2). In South African schools, in the first instance, schools were closed, and in the second, rotational attendance was instituted once they reopened. 'Total and partial school closures, including rotational attendance arrangements, mean on average **54% of the school year [was] lost in 2020**' (Gustafsson, 2021).

There is some uncertainty around levels of enrolment and attendance in 2021, and these have varied across the country. The National Income Dynamics Study – Coronavirus Rapid Mobile Survey (NIDS-CRAM)³ Wave 4 data suggests enrolment is 400 000 to 500 000 lower than it should be in 2021 (Gustafsson, 2021). The Department of Basic Education's (DBE's) own preliminary analysis (about to be released) suggests that there are problems, but not to the same extent as determined by NIDS-CRAM:

- Enrolment of learners aged 4 to 6 on 1 Jan is **25 000 lower (1.27%)** in 2021 than it should be. First-time intake into Grades R and 1 has dropped.
- Enrolment of children aged 7 to 14 is **10 000 lower (0.12%)** than it should be. This points to dropping out of compulsory-aged children.
- Enrolments for those aged 15 and above is **not lower than normal**.

(Gustafsson, 2021)

Although one can intuitively assume that learning losses have occurred, data is limited in this regard (Engzell, Frey & Verhagen, 2021, 1). Notwithstanding limited data, projected analyses have found that the level of schooling and learning will fall globally (Azevedo et al., 2021, 29). Unless they are being home schooled, those learners not in school are not learning. Research also suggests that learners that are in school are learning less: anecdotal evidence from projects working in schools indicates that even after schools were mandated to return to full-time study in July 2021 (Republic of South Africa, 2021), many were continuing to run a platoon system, where children attended only every second day (Spaull, 2021).

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² See Soudien, Reddy and Harvey (2022, 305-306, 308-311, 314) as well as Parker, Morris and Hofmeyr (2020, 1, 6, 8) for a summary of the official response to the COVID-19 pandemic by the South African state generally and the education system and sector specifically.

³ NIDS-CRAM is a panel survey designed to collect and analyse data on the effects of the COVID-19 pandemic in South Africa over five waves. See <https://cramsurvey.org/> for more information and access to the reports.

Loss of learning in core school subjects

School closures impacted learners in many ways, not least of which is what they were able to learn:

Research evidence is unequivocal that children suffer learning losses when they are out of school for extended periods. The longer they are out of school the larger the losses, and the damage is heaviest for the youngest learners.

(Taylor, 2020b, 149)

At the time the pandemic hit South Africa, the DBE had been conducting research in Mpumalanga through the Early Grade Reading Study (EGRS) II. Data emanating from that study has revealed critical losses in language learning in the early grades of schooling, particularly at no-fee schools⁴ (Spaull et al., 2021, 3). The table below illustrates the correct words per minute read in isiZulu by learners at the end of Grades 2, 3 and 4 in the EGRS II programme.

Table 1: IsiZulu home language reading in Mpumalanga (DBE's EGRS programme)

	Words correct per minute (wcpm)
End Grade 2	13
End Grade 3	22
End Grade 4	24

Source: Gustafsson (2021)

Without the pandemic, the last figure for 'Words correct per minute' (wcpm) would have been around **31**. In 2020, instead of a Grade 3 to Grade 4 gain of **9**, we saw a gain of **2** only. This implies that **about 80%** of a year's worth of learning was lost for the learners who participated in this study (Gustafsson, 2021). A similar study focused on Grade 2 in the Eastern Cape found learning losses of between 53% and 68% in early grade reading scores (Spaull et al., 2021, 3).

Gustafsson (2021) asks how it is possible for 80% of a year's worth of learning to be lost when 54% of contact time has been lost? He suggests that disruptions slow down learning (Type 1 learning loss). For example, with rotational learning, a school week is not what it was before, and gaps between school days lead to learners forgetting, which, as Gustafsson contends, plays an important role in learning losses (Type 2 learning loss). In addition to forgetting, we outline below that interactions and activities beyond the academic curriculum are also lost when learners are not at school. However, we do not yet know a lot about exactly how these might affect learning losses in the current context.

Funde Wandé⁵ (a non-governmental organisation focusing on early grade reading) had also been conducting research in the Eastern Cape, Limpopo and Western Cape. Drawing on the EGRS II and Funde Wandé research, Ardington et al. (2021) provide insightful results relating to learning losses in Grades 2 and 4 in no-fee schools in three provinces in South Africa. Overall, between 50%-75% less was learnt in 2020 in Grade 2 in no-fee schools, whereas between 62% and 81% less was learnt in Grade 4 (Ardington et al. 2021, 8). This analysis further suggests that weaker learners lost more than stronger learners and are therefore at an added disadvantage.

The learning losses known from these studies are most concerning. Both studies are, however, focused on early grade reading and language. In South Africa, we have no evidence for other subjects in the early grades or for any subjects in the higher grades during this time. We also do not have evidence for how cumulative losses from 2020 will affect learning as we move forward. While one may anticipate losses, it would be valuable to have an indication of the extent of losses to plan interventions.

Without knowing the exact extent, based on the evidence we have from empirical data as well as previous research that has been conducted related to learning time lost versus learning lost, there is little doubt that there will be losses in all subjects and at all grade levels. Soudien, Reddy and Harvey (2022, 315, emphasis in original) thus conclude that '[t]here *will* be learning losses because of pandemic related school closures'. They further conclude that learning losses will be higher for mathematics than for reading. In light of the learning losses reported for reading by Ardington et al. (2021), this conclusion is particularly disturbing. A final conclusion is that disadvantaged learners will bear the brunt of lost learning.



⁴ As part of poverty-alleviation efforts and the promotion of educational equity, and in accordance with the South African Schools Act, No. 84 of 1996, certain schools catering for children in low-income communities are identified by the DBE as no-fee schools and are not permitted to charge school fees. These schools receive more government funding per learner than other schools (Motala & Sayed, 2009).

⁵ See <https://fundawande.org/>

Widening inequalities

The loss of time in school does not mean the same for learners with access to online learning and those without. For a number of reasons, including differential access and capacity of families to facilitate learning, inequalities are likely to be exacerbated (Association for the Development of Education in Africa, 2020, 3; Azevedo et al., 2021, 25). The UN (2020, 2) reported that:

[this] crisis is exacerbating pre-existing education disparities by reducing the opportunities for many of the most vulnerable children, youth, and adults – those living in poor or rural areas, girls, refugees, persons with disabilities and forcibly displaced persons – to continue their learning.

Given the fragile nature of the South African education system, it is very likely that the pandemic is leading to a widening of inequality (Soudien et al., 2022, 3). This conclusion is supported by the following findings:

- NIDS-CRAM data tells us that rural and township schools have seen larger declines in school attendance.
- The Eastern Cape and Free State appear to have experienced especially large declines to date.
- Poor learners are much less likely to learn while at home, whether through initiatives organised by the school, or parents (Gustafsson, 2021).

Qualitative research conducted by JET with 16 households during the first lock-down period (March- April 2020) revealed that learners from no-fee public and low-fee independent

schools received very little or no academic work from their schools, while learners from fee-paying public and high-fee independent schools were receiving online, full-time tuition (Taylor 2020b, 158). 'The schools providing support were predominantly independent (5 out of 6) and Model C⁶ (3 out of 3) schools, but included one public school (out of 7)' (Taylor 2020a, 19).

There are other examples that show South Africa is not alone in experiencing these difficulties. Learning losses reported in the Netherlands show that those learners from homes where parents had less education had more losses (Engzell et al., 2021). As part of a study in July and August 2020 which elicited the lockdown experiences of teachers in all Commonwealth countries, case studies were done in four schools in each of three countries, Nigeria, Kenya and South Africa (Chukwuma, Familusi, Odunga & Reddi, 2020). Most schools, and, in particular, those serving children from the poorest families, were unable to conduct online learning. This is understandable, given the absence of IT facilities in such schools. Of even greater concern, however, is the fact that education departments, school principals and teachers exhibited a sense of helplessness in the face of the pandemic. Schools, both public and private, which managed to overcome this passivity and get on with the job of schooling were, with only one exception, well-resourced schools, predominantly serving middle-class families. The notable exception to this association between socio-economic status (SES) and the ability to conduct distance education during the lockdown was a school serving poor children in South Africa, showing what is possible when educators take the initiative and make the most of available resources.

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6 'Towards the end of the apartheid era, those schools reserved for white children were given the option of adopting one of four forms of privatisation or partial privatisation. Model C refers to those public schools which opted for partial privatisation (96% of formerly white-only schools), in which government continued to pay teacher salaries and supply a certain level of funding, and the governing body was allocated a higher level of autonomy. These schools continue to be called Model C schools and are generally better resourced than the majority of public schools (Taylor, 2020a, 9)'

Extract from the case study

Making the most of a difficult situation

The principal and deputy principal felt that they received very little direction from a department that was not aligned with the teachers and schools on the ground, and the school exercised its own initiative in getting as much learning going as possible. The school relied on the dedication of its teachers, a good relationship between leadership and teachers, and close cooperation from the community.

The teachers communicated with learners via WhatsApp, forwarding lessons and exercises through this platform, which is widely used, even within poor families. The school also sent parents the schedule of the educational television programmes aired on the public broadcasting channels as well as on the pay-television broadcasting channels on DSTV.

The school had access to textbooks and stationery, and prior to the lockdown in March, the school gave learners workbooks and assigned learners many activities to complete.

Source: Chukwuma et al. (2020, 16)

When schools close physically, learning can proceed in one of two ways: online or self-directed with parental or sibling support (Soudien et al., 2022, 312). In order for distance learning to be effective, particular resources are required by learners, schools and teachers, for example, access to devices, internet connectivity, electricity and space at home (although the above example shows the lack of high-tech equipment need not always be a barrier to learning). As Soudien et al. point out, '[m]ore advantaged schools and households were [thus] better able to sustain learning using online learning strategies' (Soudien et al., 2022, 312). While the *General Household Survey* in 2018 found that 10.4% of South African households had access to the internet, with coverage in rural Limpopo 1.7% (StatsSA, cited in Parker et al., 2020, 9), the 2019 GHS indicates that 'less than one-tenth (9,1%) of South African households had access to the Internet at home' and access 'was highest among households in the Western Cape (21,7%) and Gauteng (14,9%), and lowest in Limpopo (1,6%) and the North West (2,3%)' (StatsSA, 2020, 51).

Learning losses relating to disruptions other than COVID-19 – natural disasters, for instance – also exacerbate preexisting inequalities (see Ardington et al., 2021, 2). This means, based on previous research focused on disruptions to education systems, widening inequality is unsurprising, even though it is a grave concern. These findings could, however, be an indication that the ultimate intervention would – and should be – the reduction of inequality within the education system.

Inequality is considered to emerge from an intersection of race, class and individuals' learning attributes in the South African context (Soudien et al., 304). Similarly, the well-evidenced contention that South Africa has a two-tiered education system (see Soudien et al., 2022, 307) is predicated on the intersection of race and class, and the experience of inequality and unequal learning outcomes has long been observed along these lines in South Africa. Similar trends, that is, where existing social fissures are expediated by school closures, have been observed and reported globally (Azevedo et al., 2021, 26).



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Social interactions

The knock-on effects [of school closures] on child nutrition, child marriage and gender equality, among others, are deeply concerning.

(United Nations Secretary-General, António Guterres, August 2020, cited in Gustafsson, 2021)

Not being in school means not only the loss of pedagogical interactions but also the loss of social interactions that occur at school and elsewhere because children are not in school. As Parker et al. (2020, 31) assert:

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.

Above, we noted that Gustafsson (2021) suggests that forgetting could be playing a role in learning losses. Anxiety, loss of nutrition, loss of life (grief), and loss of social interactions with peers and others might also be considered factors that contribute to the loss of learning; they may affect learners' ability to learn in ways we do not yet fully know.

Routine has always been said to be important, and teacher, learner and home routines were completely disrupted during the lockdown periods. Particularly for young learners, and probably for older learners as well, the consequences for learning are also not yet fully known or understood.

In addition, rhythms outside of school were also affected, and not for the better. Economic downturns leading to family economic uncertainties could also affect learners (Ardington et al., 2021, 2).

These external factors might further exacerbate potential learning losses and their future affects. Azevedo et al. (2021, 6) contend that the likelihood of student learning being affected by 'the socio-economic havoc COVID-19 is wreaking' is high.



Nutrition

In terms of the loss of activities that occur at school, one of the most consequential might be receiving meals at school (Taylor 2020b, 149; Parker et al., 2020, 9). Prior to the pandemic, 65% of South African primary school children were receiving meals from school (Spaull et al., 2021, 3). In real terms, this translates to about 9 million children (Taylor 2020b, 149). Between February and March 2021, only 42% were still receiving meals at school (Spaull et al., 2021, 3). This means that about 3.2 million children who had been receiving school meals prior to the pandemic were no longer receiving meals. Rotational timetabling is the explanation for the lower percentage of children receiving meals at school (Spaull et al., 2021, 3). Given that during the pandemic unemployment also increased, and that these children are likely to be concentrated in the same places as unemployed individuals (parents and caregivers), the pandemic is likely to have had a grave nutritional impact on children. Who knows how this might have affected the reading scores cited earlier? It has been shown that lack of nutrition can negatively impact neurocognitive development (Soudien et al., 2022, 320).



Where to from here?

Learning losses are expected to have consequences on future earning potential (Hanushek & Woessmann, 2020, 3). The impetus to ensure that the potential learning losses are mitigated against as far as possible is therefore substantial.

But, even with the best catch-up programmes, it is now considered near impossible to fully recover from the COVID-19 pandemic-related learning losses; this is especially so for younger learners whose learning must align to brain development (Gustafsson, 2021). Does one then just continue without attempting any intervention? The intuitive response is 'certainly not!' Ardington et al. (2021, 2) state that 'South Africa simply has no option but to engage in significant remediation efforts in the coming years and to avoid future school disruptions as much as possible.'

One therefore has to consider the best course of action within the given context. Questions have to be asked about which interventions might be the most effective? Is it possible to address legacy projects at the same time? In other words, where interventions were planned already, could these be extended without too many additional resources? One has to consider, also, what we have learnt from the crisis of school closures, and how schools might be better prepared for future disruptions. Although the edge has been taken off the pandemic by the presence of the vaccine, it would be imprudent to think we are completely out of the woods. Steps ought to be taken now to minimise potential future losses.

'Where to from here?' might therefore be approached in a multi-pronged manner, where, at the least, the primary focus is on mitigating the most immediate and dire losses in learning outcomes, while the other hones in on a deeper level to eradicate inequalities related to learning and beyond.

Strategies to teach to the right level have been proposed as an immediate intervention for mitigating the learning losses experienced during COVID-19 school closures (Azevedo, 2021, 28). Psycho-social support to school communities generally, and learners and teachers specifically, has to feature strongly in the mitigation strategy (Parker et al., 2020, 15).

Notably, while the reasons for and scale of the learning losses are new, many of the findings about the nature of the losses are not. A number of recommendations, therefore, already exist, and thus, rather than reinvent the wheel, the COVID-19 crisis might be an opportune time to stress-test interventions and recommendations that have already been made before commencing a 'new' course of action. While time may be of the essence, some introspection and fastidious planning prior to intervening would not be remiss.

The prevalence of findings, analyses and models illustrating aggravated learning losses for the most vulnerable and marginalised are sobering. In our view, this points to a deep, systemic failure that has to be accounted for and addressed.

COVID-19 has not caused inequality – it has widened inequality. In other words, COVID-19 has not changed the trajectory of achieving learning outcomes. Thus, Parker et al (2020, 37) invite us to consider reimagining and remaking the education system in the wake of COVID-19 so that it might be better and more accessible. Reimagining should, moreover, be premised on doing no harm, getting the basics right and building back better (Parker et al., 2020, 37-39).

Conclusion

We have provided a brief overview of learning losses and other detrimental effects resulting from school closures and rotational attendance in South Africa during the COVID-19 pandemic. It is evident from studies that were in process that, for early grade reading, there have been losses of up to 80% in one year. There is thus no doubt that, as the UN (2020, 2) anticipated, learning losses will have consequences, and far-reaching ones at that.

While Gustafsson (2021) contends that it is near impossible to recover from the learning losses, one has to take solace in

the fact that South Africa is not alone. It is likely that children in all countries around the world have been impacted in similar, if not exactly the same, ways.

It is, however, also likely that the most vulnerable in all countries have been affected in the worst ways. While COVID-19 has exacerbated challenges in the education system, it has not fundamentally altered the nature and scope thereof. The need to intercept how education systems reproduce inequality remains paramount. Evidence from the case study quoted above indicates that one route to this goal is to empower schools to take the initiative in facilitating learning under the most difficult conditions.

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