

# Independent Evaluation of the Girls' Education Challenge Phase II (GEC II) – Evaluation Study 1: Effects of Covid-19 on Access and Learning in the GEC II

Final Report



Independent Evaluation of the Girls' Education Challenge Phase II - Evaluation Study 1: Effects of Covid-19 on Access and Learning in GEC II – Final Report

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## Table of Contents

Executive Summary .....	vi
1. Introduction.....	1
2. Summary of Methods.....	2
2.1. Project Selection .....	3
2.2. Methods .....	4
3. What Happened During School Closures?.....	6
3.1. Methodology .....	6
3.2. Summary of secondary evidence review on girls' education during Covid-19 .....	7
3.3. Overview of Planned Interventions During School Closures Across the GEC Portfolio.....	10
3.4. Which Activities Were Delivered by EDT and Mercy Corps During School Closures? .....	13
3.5. What Practical Challenges Were Reported by EDT and Mercy Corps in Supporting Children During School Closures? .....	17
3.6. What Barriers and Enablers Were There to Accessing Education and Learning in Kenya and Nepal More Broadly During Covid-19? .....	18
3.7. What Were Girls' and Caregivers' Experiences of Learning and the Support They Received During School Closures? .....	19
4. How Did Learning Levels Change?.....	22
4.1. Methodology .....	22
4.2. Results – Changes in Average Learning Levels Over Time.....	25
4.3. Understanding Why Average Learning Levels Fell .....	29
4.4. Perceptions of Why Learning Loss Occurred .....	32
4.5. Perceptions of Why Some Average Increases in Learning Were Found .....	37
4.6. Effects of School Closures on Girls Beyond Learning Outcomes .....	38
4.7. Limitations of Analysis .....	40
5. Predicting Girls at Risk of Not Returning to School .....	41
5.1. Methodology .....	42
5.2. How Are Projects Identifying Girls as Being 'At Risk' of Dropout? .....	43
5.3. Which Girls Were Identified by the Prediction Model as Being 'At-Risk' of Dropout? .....	44
5.4. How Accurate Were Our Predictions? .....	46
5.5. Were There Any Risk Factors Overlooked by the Predictive Model?.....	47
6. Supporting Girls to Return to School.....	51
6.1. Methodology .....	51
6.2. What Support Did the Projects Offer to Girls to Re-enter and Resume Learning Once Schools Re-open?..	51
7. Conclusions .....	56
8. Recommendations.....	59
9. Bibliography.....	62

## Annexes

Annex 1 Consent Forms and Qualitative Research Tools .....	A1
Annex 2 GEC II Ethical Research and Safeguarding Framework .....	A2
Annex 3 Ethics and Safeguarding for Access and Learning Study .....	A3
Annex 4 Qualitative Methodology .....	A4
Annex 5 Qualitative Coding Framework .....	A5
Annex 6 Sampling Frame and Sample Sizes (for RQb).....	A6
Annex 7 Mapping of Covid-19 Pivoting.....	A7
Annex 8 Which Girls Were Identified by the Prediction Model as Being 'At Risk' of Dropout .....	A8
Annex 9 Changes in Girls Learning Levels .....	A9
Annex 10 Steps Followed in Machine Learning Methods for Predicting Dropouts .....	A10
Annex 11 ToR Access and Learning Study .....	A11

## List of Tables

Table 1: Study research framework .....	2
Table 2: Dates and stakeholders involved for synthesis workshops .....	5
Table 3: Summary of Covid-19 pivoting.....	11
Table 4: Summary of activities delivered by EDT during school closures .....	13
Table 5: Summary of activities delivered by Mercy Corps during school closures .....	15
Table 6: Rationale for sample design for learning assessments as part of A&L study .....	23
Table 7: Sample completion of In-Depth Interviews and Focus Group Discussions by country .....	24
Table 8: Learning loss, Kenya .....	28
Table 9: Learning loss, cross-cohort girls, Nepal .....	28
Table 10: Learning loss, panel girls, Nepal.....	29
Table 11: Feature importance analysis, Kenya .....	44
Table 12: Feature importance analysis, Nepal .....	45
Table 13: Prediction success rates, Kenya.....	47
Table 14: Prediction success rates, Nepal .....	47

## List of Figures

Figure 1: Figure 1: Data sources, timing and grades assessed .....	23
Figure 2: Total score (percentage correct) before and after Covid-19 .....	25
Figure 3: Average changes in school performance in Kenya.....	26
Figure 4: Average changes in school performance, Nepal.....	26
Figure 5: Radio access, awareness and use in Kenya.....	30
Figure 6: Radio access, awareness and use in Nepal .....	31
Figure 7: Selection of girls for IDIs.....	43

## Abbreviations and Acronyms

<b>AEWG</b>	Accelerated Education Working Group
<b>APHRC</b>	African Population and Health Research Centre
<b>ASAL</b>	Arid and semi-arid lands
<b>CARE</b>	Cooperative of Assistance and Relief Everywhere
<b>CGD</b>	Centre for Global Development
<b>CHV</b>	Community Health Volunteer
<b>CoP</b>	Communities of Practice
<b>DRC</b>	Democratic Republic of Congo
<b>DHS</b>	Demographic Health Survey
<b>EDT</b>	Education Development Trust
<b>FCDO</b>	Foreign, Commonwealth and Development Office
<b>FGD</b>	Focus Group Discussion
<b>FGM</b>	Female genital mutilation
<b>FM</b>	Fund Manager
<b>GBV</b>	Gender-based Violence
<b>GEC</b>	Girls' Education Challenge
<b>GEC-T</b>	Girls' Education Challenge Transition window
<b>GoN</b>	Government of Nepal
<b>GTF</b>	Girls' Transition Fund
<b>HSSE</b>	Health, Safety, Security & Environment
<b>IE</b>	Independent Evaluation
<b>IDI</b>	In-depth Interview
<b>IGA</b>	Income-generating activity
<b>IIDS</b>	Institute of Integrated Development Studies
<b>IP</b>	Implementing Partner
<b>IRP</b>	Initial Response Plan

<b>ISG</b>	In-school Girls
<b>KICD</b>	Kenya Institute of Curriculum Development
<b>KII</b>	Key Informant Interview
<b>LNGB</b>	Leave No Girl Behind
<b>MC</b>	Mercy Corps
<b>MICS</b>	Multiple Indicator Cluster Survey
<b>MTRP</b>	Medium-Term Response Plans
<b>NTC</b>	Nepal Telecom Company
<b>OOSG</b>	Out-of-school Girls
<b>PEA</b>	Political Economy Analysis
<b>PEAS</b>	Promoting Equality in African Schools
<b>PPE</b>	Personal Protective Equipment
<b>REAL</b>	The Research for Equitable Access and Learning Centre
<b>RQ</b>	Research Question
<b>SD</b>	Standard Deviation
<b>SEE</b>	Secondary Education Examination
<b>SeGRA</b>	Secondary Grade Maths Assessment
<b>SeGMA</b>	Secondary Grade Reading Assessment
<b>SRH</b>	Sexual and reproductive health
<b>STEM</b>	Supporting the Education of Marginalised Girls in Kailali
<b>TV</b>	Television
<b>TVET</b>	Technical and Vocational Education
<b>UNHCR</b>	United Nations High Commissioner for Refugees
<b>WASH</b>	Water, Sanitation, and Hygiene
<b>WUSC</b>	World University Service of Canada
<b>WWW</b>	Wasichana Wetu Wafaulu Project

# Executive Summary

As Covid-19 spread rapidly in early 2020, Governments around the world closed schools to keep children safe. By June 2020, more than two thirds of the world's children were affected by school closures (UNHCR, 2020). This study aims to look at the impact of school closures on girls' learning levels and understand what happened to their education while schools were closed. Alongside understanding what happened, the study also tests new ways of predicting which girls are at risk of dropping out of school.

This study was conducted as part of the independent evaluation (IE) of the Girls' Education Challenge Phase II<sup>1</sup> (GEC II) Programme and focuses on GEC II projects in Kenya and Nepal, which were selected for inclusion in the study:

- “Let our Girls Succeed” (*Wasichana Wetu Wafaulu*, WWW), which is implemented by Education Development Trust (EDT) in Kenya (active between May 2017 – March 2023); and
- “Supporting the Education of Marginalised Girls in Kailali” (STEM) which was implemented by Mercy Corps in Nepal (active between April 2017 – March 2021).

Both countries in our project samples experienced long school closures: in Kenya, schools were closed between March 2020 and January 2021, reopening only in mid-October for exam grades; and in Nepal, schools closed in March 2020 and opened only partially from November 2020. We conducted our fieldwork between February and March 2021 in Kenya and Nepal.

The study is structured around four high level questions and adopts a **mixed-methods approach to answer these** using primary and secondary data. These research questions (RQs) are:

1. How have GEC projects sought to provide continued access to learning opportunities during school closures?
2. How did girls' learning levels change during the Covid-19 period?
3. Which girls are most at risk of not returning to school, and are GEC projects successfully identifying them? How useful is a machine learning approach in identifying them?
4. How are GEC projects supporting girls to re-enter formal schooling (or alternative pathways), and with what effects on girls' access to learning opportunities?

To help contextualise the findings we also undertook Political Economy Analysis (PEA) using the qualitative research – in-depth interviews (IDIs), focus group discussions (FGDs) and key informant interviews (KIIs).

## RQ1. How have projects sought to provide continued access to learning opportunities during school-closures?

To answer this question, we reviewed all GEC projects' Initial Response Plans (IRPs) and Medium-Term Response Plans (MTRPs) to identify how projects across the portfolio had planned to support target girls in response to school closures. We also conducted a review of secondary evidence to understand what educational interventions have been used to support girls and students more broadly to continue with their learning during school closures.

Following the review of projects across the portfolio, we conducted a deeper dive into the two projects (i.e., EDT and Mercy Corps) selected for our sample to understand how they supported girls and how well these activities were received by their target beneficiaries (girls, parents/caregivers, and teachers). We reviewed Quarterly Reports to identify what activities EDT and Mercy Corps delivered to support girls and conducted qualitative interviews with teachers, girls, and parents to understand their perceptions of whether the continued learning support from projects was accessible and effective.

Across the portfolio, we found that **GEC projects generally responded appropriately** in supporting girls during the Covid-19 outbreak. The most popular interventions projects planned to introduce were **radio broadcasting** of lessons (84% of projects), followed by **printing and distributing learning materials** to girls' homes (65% of projects). **Psychological support** to girls was also common, with half of all projects planning to roll this out. Interventions most frequently **stopped** by GEC projects related to **teacher training** and support, and **extra-curricular activities**.

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<sup>1</sup> Phase I of the programme (2012 – 2016) supported 1.4 million marginalised girls to complete a full cycle of either primary or secondary education through 37 different projects.

The interventions planned and delivered by EDT and Mercy Corps to support girls' education during the outbreak were **aligned with wider interventions and educational policies** within Kenya and Nepal to support students during school closures. EDT in Kenya conducted **home visits**, strengthened their use of **digital platforms** (such as WhatsApp and social media) to reach girls, used **radio and television broadcasts**, and distributed **solar radios, dignity kits and cash transfers**. Mercy Corps in Nepal supported girls due to sit Grade 10 (SEE) examinations through **distance learning**, while broadcasting **public service announcements**, and distributing **posters and pamphlets** to share information about school reopening to support parents with information on good parenting, wellbeing, and how to report safeguarding and GBV issues.

While girls and caregivers in Kenya and Nepal welcomed the pastoral and wellbeing support from projects, including the provision of sanitary towels and food, and check-ins from teachers, **connectivity issues, limited access to devices, and the cost of internet and electricity** all made it difficult for girls to engage sufficiently in remote forms of learning and for caregivers to support them.

While some of these challenges were common occurrences across the Kenyan and Nepalese contexts, **some challenges might have been more readily anticipated through better planning**. Examples of these challenges include anticipating the **competing priorities of CHVs** in Kenya, which forced EDT to consider alternative ways of reaching girls; and Mercy Corps **not being able to track and support some out-of-school girls** in Nepal due to girls marrying and moving away or migrating for economic reasons.

## RQ2. How have girls' learning levels changed during the Covid-19 period?

To answer this research question, we conducted learning assessments in February / March 2021 in a sample of secondary schools and compared the average levels of maths and reading scores to the averages in the same schools using the same tests used by external evaluators for the GEC projects' midline evaluations in July 2019. Changes in learning levels are therefore expressed in this study as the **difference between an individual girl's achievement in 2021 (post-Covid-19) compared with 2019 (before-Covid-19)**.<sup>2</sup>

Overall, our study found that girls in Kenya and Nepal suffered **large learning losses in maths and reading** during our testing periods: in Kenya, girls on average were scoring 0.37 standard deviations (SDs) in maths and 0.86 (SDs) lower in reading. In Nepal the average scores were even lower – with average scores 0.82 SDs and 1.01 SDs lower in maths and reading respectively. Learning losses have not however been uniform across schools, with some schools suffering greater losses than others (and some also experiencing learning gains – see below).

One factor contributing to learning deterioration was likely to be **girls spending less time studying**, which we found to be the case in both Kenya and Nepal. Our qualitative findings point to additional factors contributing to learning loss, such as a **lack of direct teaching support, loss of motivation, and limited access to educational resources**.

Girls in Kenya were more likely to have **spent time helping with the family business** than they were before school closures, while girls in Nepal were more likely to spend time on chores in and around the home, including **caring activities, agricultural work, and fetching water**.

**Motivation was another key factor that negatively impacted learning in both Kenya and Nepal** – this did not feature as an issue in EDT and Mercy Corps' Response Plans suggesting that these plans could have been improved by reviewing pre-Covid assumptions underpinning girls' learning as the pandemic took hold, and by considering the impact of longer periods of school closures on girls and their learning.

Limited or one-way interaction with teachers was reported widely in both Kenya and Nepal, with girls unable to ask teachers questions directly or check their understanding with difficult concepts. Limited teacher interactions may have further contributed to learning losses as teachers reported difficulties identifying which students were struggling to learn at home.

In spite of these findings, our study also observed **average learning increases** in one in five schools in Kenya (20%) and in one in ten schools (11%) in Nepal. Where average learning was higher, this may have been due to girls in that school having more **dedicated time available for studying** or having **better access to learning resources at home**.

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<sup>2</sup> This panel consists of 113 girls who were successfully re-contacted about two years later.

### **RQ3. Which girls are most at risk of not returning to school? How useful is a machine learning approach in identifying them?**

To answer this question, we developed a **machine learning algorithm** to identify which girls were 'at risk' of dropping out, and then compared the predictions with findings from a roll call exercise, which determined which girls had actually dropped out. We conducted qualitative research to identify the factors affecting drop-out that had not been considered in the machine learning model.

Our study found that predictive analytics, through machine learning algorithms, have significant potential to improve early warning systems in education programming. In this study, our model was able to **successfully predict** which girls were likely to remain in school and which were likely to drop out with **70-80% accuracy (Kenya and Nepal respectively)**. However, our model was limited by the use of outdated information: factors such as **marriage** are strong predictors of drop-out, yet many girls had married since data had last been gathered on them, further contributing to inaccuracies in the predictions.

Our model found that girls that have already repeated a year of schooling, who come from less-educated families, are part of larger households or families, have been involved in farming more than their peers or who are married are predicted to be **more at risk of dropping out of school** as compared with their peers. **Household poverty** was the largest factor reported by girls as the reason why they dropped out of school.

By contrast, **girls' self-esteem, aspirations, and intrinsic motivation to study**, as well as support and encouragement from others were all reported to have helped girls to remain in school, even though they were predicted to drop out.

### **RQ4. How are the projects supporting girls to re-enter formal schooling (or alternative pathways), and with what effects on girls' access to learning opportunities?**

To answer this question, we reviewed Quarterly Reports and Annual Reports submitted by EDT and Mercy Corps between March 2020 and March 2021, as well as KIIs with project implementing partners (IPs) and their downstream partners. Alongside this, we drew on data from our quantitative school surveys to understand what schools were delivering (or planned to deliver) to ensure that students could catch up in class, and how confident teachers were that they could catch up.

**Our study found that projects in Kenya and Nepal responded appropriately in their plans to support girls to return to school and catch up with their learning when schools opened.** EDT delivered a combination of back-to-school campaigns, community mobilisation activities and cash transfers to re-engage girls in school when they reopened, while Mercy Corps supported girls to re-enter schools through enrolment drives, school reopening plans, and public service announcements.

In Kenya, interview participants welcomed the **communication from EDT and community mobilisation activities**: according to the Quarterly Reports submitted by EDT, these return-to-school activities were highly effective, with 94% of project girls resuming learning once schools reopened and regular attendance reported of between 93% and 99%.

**Remedial learning activities delivered by EDT also supported girls to catch up with their learning:** according to project reporting, girls who attended reading camps supported by roving teachers deployed by the project performed better in SeGRA and SeGMA tests than those who did not attend reading camps; suggesting these have been effective in helping girls to offset their learning loss.

While Mercy Corps also supported girls to re-enter schools, **it was not possible to conclude how useful these activities** were in supporting girls to return to school due to limited information available in project reports and the close out of the project in March 2021.

Similarly, while information is not available on how effective remedial learning activities were, findings reported by the project suggest that Mercy Corps' support to **out-of-school girls** in Nepal was beneficial to girls' transition, with 93% of girls having successfully completed vocational training designed to help them secure financial independence.

## Conclusions

### How did projects try to mitigate the impact of school closures and with what effects on learning levels?

**GEC projects responded appropriately to the Covid-19 outbreak to mitigate the impact of school closures on girls, including on their social and emotional well-being.** Projects across the portfolio, including EDT and Mercy Corps, planned to broadcast radio lessons, distribute learning materials, and communicate with girls by phone / social media while schools were closed and support them to continue in their learning. Half of the GEC projects planned to deliver psychosocial and wellbeing support to girls while schools were closed.

**Stronger planning may have helped to offset some delivery challenges in supporting girls during school closures and prevent drop-out.** Both projects planned and delivered activities that were consistent with educational policies within Kenya and Nepal, yet both encountered challenges that limited the extent to which their activities could reach and engage girls in learning while schools were closed. While some of these challenges were not uncommon within the Kenya and Nepal contexts, others might have been more readily anticipated when planning responses.

**Greater support was needed to mitigate the impact of school closures on learning levels.** Our study found that learning has been severely impacted as a result of school closures in Kenya and Nepal, with girls spending **less time on studying** in both countries, and reporting a **lack of direct teaching support, limited access to educational resources, and a loss of motivation** while schools were closed. The latter suggesting that projects did not anticipate the impact that prolonged school closures might have on girls' motivation to learn.

**Limited teacher interaction may have further contributed to a decline in learning and exacerbated inequalities for different learners.** Even prior to the pandemic, evidence suggests that girls were heavily reliant on teachers and mentors. Girls' inability to engage effectively with their teachers while schools were closed meant that they were then dependent on parents, siblings, or neighbours to support their learning; with girls from poorer households more likely to struggle with support from family members who may be illiterate or lack the time to help.

**Covid-19 related school closures also underlined the importance of school as a space where girls can learn, stay well, and interact with their peers.** Findings from our study highlighted the harmful effects that school closures had on girls' abilities to study and learn, particularly for marginalised and 'hard-to-reach' girls – girls living in poverty-stricken households hit hard by the economic effects of the pandemic struggled to access learning materials at home and find the time to study.

### Which girls did we identify as being at risk of drop-out? How useful was a machine learning approach in identifying them?

**Our study finds that girls are at risk of dropping out if: they have already repeated a year of schooling, have come from less-educated families, are part of larger households or families, have been involved in farming more than their peers, or are married.** In Kenya, being older and older for their grade matters most when predicting which girls are at risk of not returning to school; while in Nepal, being older or younger for their grade, as well as age and household size are the most important features. Poverty was the main factor driving drop-out, even when girls were predicted to remain in school.

**Predictive analytics, through machine learning algorithms, have the potential to help improve early warning systems in education programming.** Our machine learning model successfully predicted whether a girl would drop out of school in seven to eight out of every 10 cases. However, our model was limited by the use of outdated information – factors such as marriage are strong predictors of drop-out – and girls marrying since the time that projects collected data was the main cause of inaccuracies. Additionally, factors such as girls' self-esteem, aspirations, and intrinsic motivation to study, as well as support and encouragement from others, were all identified through our qualitative research as factors helping to retain girls in school, even though they were predicted by our machine learning model to drop out.

### How have projects supported girls to return to school and recover learning?

**The projects selected for this study responded appropriately in supporting girls to return to school after school closures ended.** Back-to-school campaigns and community mobilisation activities delivered by EDT had some success in supporting girls to return to school, with 94% of girls reported to have resumed learning once schools reopened. While Mercy Corps also supported girls to return to school through enrolment drives, school reopening plans and public service announcements, it is not possible to conclude how useful these have been due to a lack of information and data available for this study.

**Remedial teachers, intensive classes in key topics and out-of-hours learning camps have supported girls to catch-up with their learning or transition after the re-opening of schools.** EDT delivered remedial learning activities such as reading camps and roving teachers and found that girls attending these camps performed better in SeGRA and SeGMA tests than those who did not. This suggests that these activities could potentially help girls catch up with their learning and offset learning loss encountered as a result of the school closures. In Nepal, Mercy Corps supported out-of-school girls delivering vocational training designed to help them secure financial independence, with 93% of girls successfully completing the training. Our study confirms the promising effects of these interventions, with head teachers interviewed in our survey expressing confidence in girls' abilities to catch up with their learning after schools have reopened.

## Recommendations

### How might education projects and programmes look to minimise learning loss when facing school closure?

**GEC IPs (and schools) could strengthen planning for potential future school closures to mitigate and offset the risks to girls' learning and wellbeing.**

To prepare for future school closures, IPs, and schools could develop contingency plans for delivering education remotely to different subgroups of girls. Plans should consider carefully where girls live, what access they have to radios and mobile phones, and how best to reach, engage and motivate them to study and learn while schools are closed, with clear plans for longer-term remote education if needed.

**FCDO, the FM and GEC IPs should review assumptions underpinning the pedagogy of radio lessons, with a view to identifying pedagogies that allow for continued engagement for marginalised girls.**

Projects largely relied on radio or television broadcasts to reach girls while schools were closed, with more limited use of WhatsApp and paper learning materials distributed to households. These were not without their challenges. In the event of future closures, projects should revisit the suitability of different remote learning techniques for active pedagogy for marginalised girls and consider how to complement these with two-way forms of communication, such as more interactive digital channels or community-based learning where internet access is restricted.

**Projects could adopt a multi-pronged approach when planning for remote education delivery to ensure learning reaches and engages all learners.**

Even before the Covid-19 pandemic, girls faced multiple barriers to attending school regularly and learning effectively: these included barriers at overlapping levels related to girls' individual characteristics, their households, communities and schools. These barriers have been exacerbated during Covid-19 for the most marginalised and hard-to-reach learners.

A multi-pronged and differentiated approach to remote education delivery is necessary to ensure learning modalities benefit *all* learners: projects should identify and triage learners based on their access to remote channels, learning needs and home environments, and plan accordingly; considering interactive, community-based, or paper-based materials to support the most hard-to-reach learners as part of the early response to school closures.

**Teachers need more support to enable them to adapt and continue teaching girls during school closures.**

Across the GEC portfolio, very few projects planned to continue supporting or training teachers while schools were closed. As part of contingency planning, projects and schools should plan for how they will support teachers to deliver education remotely while schools are closed, including how to train and equip teachers with the skills needed to engage with digital forms of learning, and how to check for signs that learners may be struggling to remain motivated or grapple with new concepts or ideas when learning at home.

### **How could education projects and programmes predict which girls are at risk of dropping out and look to retain them?**

**GEC IPs should systematically collect and track data on girls' characteristics and situations to identify and plan to mitigate for the most at-risk girls dropping out of school and /or falling behind in their learning.**

Projects' and schools' capacity to *prevent* girls from dropping out of school and mitigate barriers to girls' education and learning is dependent on knowing *which* girls are most at risk. Projects should regularly track and monitor the most relevant and context-specific indicators or known characteristics (such as ethnicity, native language, girls' age, household income, household size or parents /caregiver occupation) that identify girls as being at risk of dropping out or falling behind in their learning. This would help IP develop and adapt strategies to retain those girls most at risk of dropping out after shocks or crises.

**IPs and education practitioners should consider interventions that support girls' wellbeing in the event of future school closures to avoid them dropping out or falling behind in their education.**

Our study found that factors such as girls' self-esteem, aspirations, and support and encouragement from others, all helped to retain girls, even when they were predicted to drop out. From a review of response plans from GEC projects across the portfolio, it is clear that IPs, including EDT and Mercy Corps, set out to intensify their efforts to maintain close contact with girls during school closures and deliver psychosocial support and awareness-raising to them and their parents /caregivers, to support girls' well-being while schools were closed. Projects should consider delivering this support and identifying other ways of supporting girls with their self-esteem and aspirations, to avoid them dropping out or falling behind in their learning in the event of schools closing in the future.

**Further research is needed to explore the usefulness of machine learning as a model capable of providing education practitioners with an 'early warning system' for predicting who is at risk of dropping out of school.**

Evidence from our machine learning model shows early promise as a way of predicting which girls are at risk of dropping out of school. However, limited benchmarking data limited our ability to conclude how effective this has been relative to other systems. Further research is needed to explore the benefits of using machine learning to predict girls at risk of dropping out of school, and the relative trade-offs in determining the *applicability* and *replicability* of the model in different contexts; and the extent to which there is value in scaling this up in education systems more broadly.

### **How might education projects and programmes support girls to return to school after school closures to recover learning?**

**GEC IPs need to re-assess girls' learning levels (as soon as possible after schools have reopened) to develop and deliver targeted remedial support to those most in need.**

Girls' learning losses have not been uniform across GEC schools in the selected projects, and in some schools, we observed learning gains. Once schools reopen, GEC projects should assess current levels of learning and prioritise those girls with the lowest learning scores for targeted remedial support to help them catch up with their learning.

**GEC IPs should re-assess the barriers girls face to learning, to understand the extent to which these have changed as a result of Covid-19 and /or will persist as they return to school.**

Our study highlighted various barriers faced by girls studying at home; challenges that were prevalent before the outbreak of Covid-19. However, Covid-19 and school closures have clearly exacerbated inequalities, increased poverty and contributed to socio-emotional effects on motivation and engagement in education, which suggests that projects should re-assess these barriers as girls return to school.

**GEC IPs should plan for remedial activities at the outset to help girls catch up with their learning and recover lost learning.**

In the event of future school closures, projects should plan for how to support girls to catch up with their learning at the very outset to ensure they have factored in sufficient time to support girls once schools have reopened. This includes planning for remedial activities, such as reading camps and catch-up programmes, to support girls to recover any learning they may have lost while schools were shut and get back on track, and to resume learning at the correct level.

# 1. Introduction

As Covid-19 spread rapidly in early 2020, education systems around the world closed schools to keep children safe. By June 2020, more than two thirds of the world's children were affected by school closures (UNHCR, 2020). This paper seeks to explore the experiences of girls during this time, by looking at those involved in two GEC projects in Kenya (EDT) and Nepal (Mercy Corps). We try to understand what happened during the time schools were closed, to understand and measure the impact of school closures on girls' learning, and to test new ways of identifying girls that may be at risk of dropping out of school.

This study is part of the independent evaluation (IE) of the Girls' Education Challenge Phase II<sup>3</sup> (GEC II), an eight-year (2017-2025) programme supported by the UK Foreign, Commonwealth and Development Office (FCDO). It is working with 41 projects across 17 countries.<sup>4</sup>

Both countries in the study experienced long school closures, with children out of school for many months. In Kenya, nearly 18 million learners were affected by the closures, and 300,000 teachers sent home in March 2020. Schools reopened in mid-October 2020 for those learners attending the end of primary and secondary school examinations; and for the rest of the learning in January 2021 to start the second term.<sup>5</sup> In Nepal, schools closed in March 2020; partially reopened in November 2020; fully opened in January 2021 but closed again in April 2021.

These closures, across an entire school system, are unprecedented in peacetimes, and are likely to have had substantial impacts on children's education. The question of "how much learning could be lost" was the motivation for this study – alongside concerns about the most marginalised failing to return after prolonged periods out of school. Alongside these questions, the study also considers related research questions, to get a sense of what happened during the period and use the opportunity to test some new methodologies for predicting girls who are at risk of drop-out.

Specifically, the study aims to answer the following questions:

1. How have GEC projects sought to provide continued access to learning opportunities during school closures?
2. How did girls' learning levels change during the Covid-19 period?
3. Which girls are most at risk of not returning to school, and are GEC projects successfully identifying them? How useful is a machine learning approach in identifying them?
4. How are GEC projects supporting girls to re-enter formal schooling (or alternative pathways), and with what effects on girls' access to learning opportunities?

The report is structured in response to each of these four questions, which have been answered using the GEC project documents and reports on how they pivoted, as well as through primary data collection including measuring the average learning levels in schools post-school closures. We focused our resources on primary research, detailed analysis, and measurement on two projects, while complementing this with a portfolio-wide analysis in response to the first research question to understand how a broader range of projects initially planned to adapt to the Covid-19 pandemic.

At the time of the original drafting of the report (August 2021), school closures and Covid-19 were still very much present, with schools closing and re-opening again in many countries. Given this, it is important to ensure lessons are learned for future support to children as disruption to education continues.

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<sup>3</sup> Phase I of the programme (2012 – 2016) supported 1.4 million marginalised girls to complete a full cycle of either primary or secondary education through 37 different projects.

<sup>4</sup> The GEC Phase II is delivered through two funding windows: (1) **GEC Transitions (GEC-T) Window**, which supports 27 successful GEC Phase I projects across 14 countries to transition to the next stage of their education; and (2) **Leave No Girl Behind (LNGB) Window**, which supports 14 projects in 10 countries to support up to 500,000 highly marginalised, adolescent girls who have never attended or have already dropped out of school with literacy, numeracy, and life skills. Project activities are undertaken by locally based Implementing Partners (IPs), who are contracted to FCDO and managed by a Fund Manager (FM), a consortium led by PriceWaterhouseCoopers (PwC).

<sup>5</sup> <https://twitter.com/EduMinKenya/status/1313572545409544193>

## 2. Summary of Methods

This study uses a **mixed-methods approach**, drawing on primary and secondary data to answer the research questions. While the research questions are inter-related, the specific research methods vary by question. So, for ease of reading the full research methods are described at the start of each findings section responding to each of the research questions.

Our **primary data** centre around the collection of learning outcomes data in schools where projects had gathered learning outcomes data before (at the 'midline' stage of their project evaluations). We tested girls in reading and mathematics and conducted surveys on their characteristics and how they spent their time during school closures. We accompanied this by a smaller number of in-depth qualitative interviews and focus groups. While the data collection teams were collecting data at the schools, we also conducted a roll-call to identify which girls had dropped out (from a list of project beneficiaries) and to understand why. More details are provided in the corresponding findings sections, including sample sizes.

Our **secondary data** were mainly drawn from project documents. When the wave of school closures happened, projects were asked to reprofile (i.e., 'pivot') their activities and submitted *Initial Response Plans* (IRPs), which were followed by *Medium-Term Response Plans* (MTRPs). We reviewed these for all GEC projects, and, for the two sampled projects, to look at what actually happened by reviewing their quarterly reports.

**Table 1: Study research framework**

Research question (RQ)	Projects covered	Data sources (secondary data)	Methods (for primary data collection)	Rationale for primary data collection method and respondents
<b>RQ1. How have projects sought to provide continued access to learning opportunities during school closures?</b>	All projects with IRPs and MTRPs (review of the response plans).  In-depth: (1) Education Development Trust (EDT), Kenya, (2) Mercy Corps, Nepal.	Project Covid-19 IRPs; MTRPs; Quarterly Reports  Rapid secondary evidence review.	Key informant interviews (KIIs) with project Implementing Partners (IPs) and their local partners.	Allow us to obtain an up-to-date overview of project plans, as well as insights on practical challenges faced in supporting girls' continued access and return to education.
<b>RQ2. How have girls' learning levels changed during the Covid-19 period?</b>	EDT, Kenya; Mercy Corps, Nepal.	Project midline learning assessment data, collected before Covid-19, as a starting reference point.  Rapid secondary evidence review.	Learning assessment data collected post Covid-19 (compared against project midline data).  Girls' surveys.	Allow us to compare both data points to quantify learning losses experienced in the period.
<b>RQ3. Which girls are most at risk of not returning to school? How useful is a machine learning approach in identifying them?</b>	EDT, Kenya; Mercy Corps, Nepal.	Project monitoring and evaluation data; external evaluation data; large-scale public datasets including multiple indicator cluster survey (MICS) and demographic health survey (DHS).	Enrolment status check on beneficiary girls.  Qualitative research i.e., focus group discussions (FGDs), in-depth interviews (IDIs).	Identifies the extent to which a machine learning approach using algorithms is able to identify girls at risk, and how it might be refined when applied to the contexts served by the sampled projects.

Research question (RQ)	Projects covered	Data sources (secondary data)	Methods (for primary data collection)	Rationale for primary data collection method and respondents
<b>RQ4. How are the projects supporting girls to re-enter formal schooling (or alternative pathways), and with what effects on girls' access to learning opportunities?</b>	EDT, Kenya; Mercy Corps, Nepal.	Project Covid-19 IRPs and MTRPs; Quarterly Reports.	KIIs with project IPs and their local partners.	Allow us to obtain an up-to-date overview of project plans, as well as insights on practical challenges faced in supporting girls' continued access and return to education.

## 2.1. Project Selection

We agreed with the FCDO to **focus on two to three GEC projects for our in-depth research** and analysis for this study. This was appropriate given the difficulties of conducting primary research during the pandemic, and to enable us to unpack girls' experiences in depth through qualitative research. To select the projects for the in-depth research, we first compiled a long list of all GEC projects, looking at two key factors: (1) whether a project had been identified by the Fund Manager (FM) as having a system to monitor drop-out; and (2) whether it was expected that we could estimate learning losses.

This provided a **long-list of projects** – 11 projects, 10 of which operate within the Girls' Education Challenge Transition (GEC-T) window,<sup>6</sup> – based on those projects identified by the FM as demonstrating best practice in terms of introducing “retention systems that work to provide visibility and support to marginalised girls in challenging contexts who are at risk of drop out from education.” (Booth, 2020) The retention systems of these projects employed a variety of methods to track girls and their school attendance, from sending SMS alerts, to using community volunteers to follow up with girls when consistent absences were logged, to scanning project-developed absence registers with optical mark recognition software. Other projects included solutions to improve access for marginalised girls, such as providing bus services for girls living with one or more disabilities.

Specifically, these projects were those included in a **guidance note** developed by the FM on ‘Inclusive approaches to drop out and retention in low-resource settings’. The note focuses on the experiences of retention systems acquired from GEC projects prior to Covid-19 (July 2020).

Projects were further screened to identify a **sub-sample** who continually monitored the risk of drop-out, and who have updated their interventions accordingly – of the 11 shortlisted projects, five emerged. These were: (1) Cooperative of Assistance and Relief Everywhere (CARE), Somalia Leave No Girl Behind (LNGB project); (2) Save the Children in the Democratic Republic of Congo (DRC); (3) Promoting Equality in African Schools (PEAS) in Uganda; (4) Mercy Corps in Nepal; and (5) EDT in Kenya.

The third essential selection criterion related to the availability of existing data. The sub-criteria included availability of:

- 1) project data on learning outcomes;
- 2) linked household data;
- 3) project baseline and midline quantitative data;
- 4) project data on schools and possibility of identification of schools; and
- 5) a range of project stakeholders for primary data collection.

All shortlisted projects met the requirements outlined in the first two essential sub-criteria. However, one GEC-T project was further excluded (Save the Children in DRC) on the basis of not having collected any midline data due to the outbreak of Covid-19. In addition, one LNGB project was excluded (CARE Somalia), based on the limited availability of project data on schools and the possibility of not being able to identify the schools for our study.

<sup>6</sup> In Kenya (Avanti, EDT, Leonard Cheshire, and WUSC), in Nepal (Mercy Corps), in Nigeria (Mercy Corps), in Sierra Leone (Plan), in Uganda (PEAS), in DRC (Save the Children), in Zimbabwe (World Vision), in Somalia (CARE).

The final two projects for this research are:

- “Let our Girls Succeed” (*Wasichana Wetu Wafaulu*) implemented by Education Development Trust (EDT) in Kenya; and
- “Supporting the Education of Marginalised Girls in Kailali” (STEM) implemented by Mercy Corps (MC) in Nepal.

A third project, PEAS in Uganda, was also selected for the research, but the repeated school closures<sup>7</sup> meant that it was withdrawn during the research process.

## 2.2. Methods

As the four research questions involved different research methods, the methods used for each question are explained in each section of the report. Alongside the methods for each research question, we also integrated political economy analysis (PEA) in each section – drawing on primary qualitative research with stakeholders from selected projects, KIIs with district officials, and secondary data analysis of project reports for selected projects – to help identify which mechanisms may be at play when different actors within Kenyan and Nepalese education systems are engaging with each other, and how and to what extent the wider environment may have either enhanced or hindered their activities.

**The PEA helps shed light on the context, the key stakeholders, their bargaining mechanisms and dynamics and any incentives or disincentives that may influence actors** in each of the Kenyan and Nepalese education systems and as a result, educational outcomes.

We do not seek to use impact evaluation methods within this study – that is, to take advantage of the historical treatment and control schools within the project samples. This is for a number of reasons: firstly, the rapid onset of Covid-19 meant that GEC stakeholders felt that such an impact evaluation would be unhelpful – with the focus being on simply measuring learning levels post-pandemic, rather than assessing the impact before and after a particular intervention. Secondly, the activities undertaken – predominately radio interventions by EDT and MC – meant that the historical control groups may also receive the interventions, leading to substantial contamination. Clearly identifying the treatment / control groups would have been technically difficult at the outset of this study, and even more difficult retrospectively.

### Primary data collection

Primary qualitative and quantitative data were collected. The **quantitative data** comprised a roll call, school survey, girl survey and girl learning assessment data; and the qualitative data comprised in-depth interviews and focus group discussions with girls, their caregivers, teachers, and community health workers (see [Section 2.2](#) for more details on these tools and [Annex 1 Consent Forms and Qualitative Research Tools](#)). It also included key informant interviews (KIIs) with district government officials for the political economy analysis (PEA).

All primary data collection activities were conducted in line with the GEC II IE Ethical Research and Safeguarding Framework (see [Annex 2 GEC II Ethical Research and Safeguarding Framework](#)). Further information on how the framework was applied in the context of this study, together with a description of ethical challenges that arose during the fieldwork and the mitigation steps taken, is available in [Annex 3 Ethics and Safeguarding for Access and Learning Study](#).

As we used the learning data previously collected by projects as our baseline for this study (to estimate learning levels before Covid-19), we inherited their sample. So, this means that we collected data in the same schools they visited at midline i.e., 50 schools in Kenya and 45 schools in Nepal. In Nepal, we assessed girls in the same Grades (8 to 10) as our baseline (midline project data); however, for learning comparisons we only used two of these grades due to the low sample size inherited in Grade 8. Despite the projects' midline samples including both treatment and control schools, the findings presented in this study do not distinguish between the two since it was not intended as an impact evaluation nor a study of an evaluative nature.

For the **qualitative research**, we purposively selected different schools in each country to reflect the diversity of school locations targeted by the respective GEC projects and to gain an in-depth understanding of how the project

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<sup>7</sup> While remote data collection was originally a known risk, the study was fortunate in that schools were open for the data collection period, so resources were focused on ensuring high quality in-person collection rather than on a virtual back-up. As the Uganda data collection was delayed due to delays in obtaining Government research permissions, when the Uganda schools closed again in April 2021 the benefit of recreating suitable learning tests for remote collection was not deemed to outweigh the costs of additional delays.

responded to Covid-19. In Kenya, EDT is implementing the project in a combination of urban areas and Arid and Semi-Arid Lands (ASAL) Turkana, Samburu, Marsabit, Tana River, Kwale and Kilifi, and in urban slums in Nairobi and Mombasa. We selected six schools in Turkana, Samburu, Marsabit, Kwale and Tana River (ASAL) and Nairobi and Mombasa (urban) to ensure we achieved a sample split across urban and ASAL areas. In Nepal, the project is being implemented in the Kailali District, which includes rural, urban, and semi-urban areas, with both in-school (IS) and out-of-school (OOS) girls. We selected four schools Sn Tikapur (semi urban), Kailari (rural), Dhangadi (urban) and Ghodoghodi (rural) to capture this geographic diversity.

### Synthesis and triangulation

As the report was being developed, we held a series of internal workshops between the relevant research leads to synthesise the quantitative and qualitative findings. This built on what we knew about the differences in the schools in which the qualitative data was collected from the wider quantitative sample, to ensure that the findings were presented in context. Alongside this, we engaged with the African Population and Health Research Centre (APHRC) for Kenya and Institute of Integrated Development Studies (IIDS) for Nepal, to discuss findings, which helped contextualise and shape the narrative, and triangulate the findings with discussions in each country.

Further details on the workshops, when these were held and with whom are presented below in [Table 2](#).

**Table 2: Dates and stakeholders involved for synthesis workshops**

Objective of synthesis	Stakeholders involved	Date
Discuss emerging data from Kenya to contextualise findings	APHRC	2 June 2021
Discuss emerging data from Nepal to contextualise findings	IIDS	23 June 2021
Synthesise workshop on predictions of girls at risk	Internal A&L team	6 July 2021
Synthesis workshop of changes in girls' learning levels	Internal A&L team	8 July 2021
Synthesis workshop to identify emerging conclusions study	Internal IE team	20 July 2021
Workshop to validate and discuss findings and emerging conclusions from A&L study with wider IE team	Internal IE team	28 July 2021
Review draft study report and provide feedback	APHRC and IIDS	20 - 24 August 2021

The final set of synthesised findings and conclusions were discussed within the study team and wider IE team to reassess, validate, and discuss the strength of the evidence supporting the emerging narrative.

## 3. What Happened During School Closures?

### Key Findings

#### How have projects sought to provide continued access to learning opportunities during school closures?

- As the pandemic hit, projects across the GEC portfolio were asked to indicate which of their activities could **continue**, which would need to be **adapted** with an amended delivery approach, which they would need to **stop** during the outbreak and which they could **introduce** to support GEC girls and beneficiaries.
- Interventions most frequently **stopped** by GEC projects related to **teacher training** and **support and extra-curricular activities**.
- No projects halted any of their **marginalisation-related interventions**, such as those targeting learners with one or more disabilities or learners living in remote or nomadic locations: these were the **most common types of interventions that projects planned to continue as normal** following the outbreak.
- The most popular interventions **projects planned to introduce** were **radio broadcasting of lessons** (84% of projects planned to do this), followed by **printing and distributing learning materials to girls' homes** (65%).
- **Psychological support to girls** was also common, with half of all projects planning to roll this out.
- EDT in Kenya conducted home visits, strengthened their use of **digital platforms** (such as WhatsApp and social media) to reach girls, used **radio and television broadcasts**, and distributed **solar radios, dignity kits and cash transfers**.
- Mercy Corps in Nepal supported girls due to sit Grade 10 (SEE) examinations through **distance learning**, while broadcasting **public service announcements**, and distributing **posters and pamphlets** to share information about school reopening to support parents with information on good parenting, wellbeing, and how to report safeguarding and Gender-based Violence (GBV) issues.
- While girls and caregivers in Kenya and Nepal welcomed the pastoral and wellbeing support from projects, including the provision of sanitary towels and food, and check-ins from teachers; **connectivity issues, limited access to devices, and the cost of internet and electricity** all made it difficult for girls to engage more specifically in remote forms of learning and for caregivers to support them.
- Competing **priorities of health workers** (e.g., in the case of CHVs in Kenya), increased **household priorities and time commitments** of girls, and the need in certain cases for households to migrate for economic reasons, all presented additional barriers for schools in Kenya and Nepal to remain in touch with girls and for girls to continue learning while schools were closed.

### 3.1. Methodology

- **Methods used:** rapid secondary evidence review; secondary data analysis of Project Covid-19 IRPs and MTRPs for all projects; review of Quarterly Reports (for selected projects, EDT and Mercy Corps); KIIs with project IPs and local partners (for selected projects); analysis of school and girls' survey.

To answer this question, we first conducted a rapid review of the global evidence on access to education in the context of Covid-19, and the impact of the pandemic on education for different groups and contexts<sup>8</sup>. We then reviewed all the GEC projects' Initial Response Plans (IRPs) and Medium-Term Response Plans (MTRPs) to identify the planned activities during school closures. This gave us a holistic view of projects' responses to Covid-19 across the GEC portfolio.

Alongside this, we conducted a deeper dive into the two selected focus projects (EDT / Mercy Corps). For these, we conducted more detailed KIIs to fill in information gaps. This allowed us to move from mapping what IPs planned to deliver, to what they actually did deliver – the response plans provided an overview of how IPs planned to adapt their interventions, while the Quarterly Reports and interviews provided deeper insights into what actually happened, and the challenges faced by IPs.

<sup>8</sup> See *Annex 4 Qualitative Methodology* and *Annex 6 Bibliography*

For the sampled projects, we also drew on our primary data collection in schools – qualitative interviews with teachers, girls, parents, and Community Health Volunteers (in Kenya) to gain a better understanding of how the planned interventions were implemented in practice, and perceptions of whether the continued learning opportunities were accessible. The coding process used to analyse these qualitative data is described further in [Annex 4 Qualitative Methodology](#) while the coding framework used is presented in [Annex 7 Qualitative Coding Framework](#).

Alongside this we used some of the survey data (i.e., school surveys and girl surveys) to triangulate our findings to understand what support teachers, students and families received during school closures, to what extent girls studied during the school closures, and what they studied.

## 3.2. Summary of secondary evidence review on girls' education during Covid-19

The study team conducted a review of secondary evidence to understand what educational interventions have been used to support girls and students more broadly to continue with their learning during school closures and the impact on their learning. Further detail on the methodology and approach for the review is available in [Annex 4 – Qualitative Methodology](#). A list of the sources that were reviewed is presented in [Annex 6 – List of sources](#).

### 3.2.1. Evidence on supporting access to girls' education during Covid-19

#### 3.2.1.1. Interventions to support access to education during Covid-19

By the time Covid-19 took effect in early 2020, education systems responded around the world by shutting schools to keep children safe. Globally, by June 2020, more than two thirds (67.7%) of the world's children were affected by school closures in June 2020.

The closure of schools around the world resulted in many governments devising or implementing policies to support or facilitate access among children remote learning. According to a survey of national education responses to Covid-19 school closures in over 110 countries, more than 90% of ministries of education enacted some form of policy to provide digital and broadcast remote learning. These interventions have varied depending on the infrastructure, capacity and national income but have typically included any or all of the following : open access or digitalisation of existing educational resources; creation of online portals to share new content with teachers and students; setting up of virtual helpdesks to troubleshoot and support caregivers with at-home learning; distribution of learning material both electronically and paper-based, where connectivity is a challenge; broadcast remote learning through radio, television or SMS messaging; use of educational radio or television to share pre-recorded or live lessons in literacy and numeracy; provision of hardware such as radios or smart phones to increase access to remote learning; and skills and capacity building of teachers and caregivers to engage with digital resources.

Some examples of more innovative remote-based teaching methods to target hard-to-reach learners, such as refugees and displaced students, have included the use of loudspeakers in mosques and religious places of worship in Bangladesh to distribute information about learning materials, and the use of WhatsApp in Kenya to communicate and share lessons, learning materials, homework assignments and advice between learners and teachers.

There is also evidence of national education systems complementing remote based learning with measures to support face-to-face teaching support, restrictions permitting. This face-to-face support to students during school closures has included: the development of temporary learning centres or sites to permit socially distanced group learning; the deployment of teachers to community sites or homes to support with tuition; the use of community outreach facilitators to conduct door-to-door household visits with educational or basic hygiene information ; support given to tutors by way of PPE and transport to enable them to conduct regular home visits; and the use of community volunteers to deliver paper-based resources to and from households and share these with teachers for marking .

In Kenya, the Government responded to the outbreak and school closures through a number of policy directives and initiatives intended to offset the impact on education, including by broadcasting lessons using radio and television, expanding social protection to vulnerable groups (notably through the *Kazi Mtaani* programme ), and upskilling young people with digital skills to support with remote learning and providing them with mobile classrooms equipped with internet and smart devices (through, for example, the *DigiTruck* initiative ). These directives were intended to complement existing policies prior to the outbreak of Covid-19 that include the provision of free education, a 100% transition policy to ensure all primary school children transition to secondary school, promotion of a return to school policy for pregnant girls and support in menstrual hygiene, and expansion of access among schools to computers.

In Nepal, the government launched an emergency action plan that triaged types of learners and the support they would need depending on their access to internet and digital resources. They also published guidelines to support

and facilitate students self-learning during the school closures. These policy directives set out to include the following: distribution of textbooks to all students by October 2020; establishment of temporary learning centres with free Wi-Fi and deployment of teachers to support with learning; dissemination of materials to support mental wellbeing of teachers and learners; expansion of internet access so children could access resources remotely; and creation of a learning portal to upload lessons for self-learning, promote communication between students and schools, and publish notices related to radio and telecasting programmes . A distance-radio program called Radio Schools was also launched to deliver classes in science, maths, English, Nepal and social studies, which targeted around 100,000 children in grades 1-10 since its launch.

### 3.2.1.2. Challenges in supporting students during Covid-19 school closures

Yet, despite these directives and initiatives intended to support students during school closures, a review of evidence suggests that globally, these have not been without their limitations, with students facing ongoing challenges in being able to continue with their learning. A UNICEF study (2020) on the ability of children to learn during school closures in the pandemic found that 31% of students had no access to digital and broadcast remote learning during school closures. This is attributed to students' limited ability to access to radio or television at home (either through lack of ownership or having to share these with siblings and family members), or lack of access to mobile telephones, computers, or other means of accessing internet affordably or reliably.

Those without access to digital resources have often had to rely on paper-based resources, although this has also not been without its challenges; namely, difficulties in acquiring schoolbooks or a printer at home to print educational materials or resources. Limited access to electricity has also presented challenges reading or studying after sunset.

Even with access to digital or paper-based resources, there is widespread evidence that less time has been spent on studies as a result of school closures, for various reasons including increased housework and chores during daytime hours, work and employment opportunities as a result of the need to financially supplement household income due to the economic impact of Covid-19, and the lack of a conducive home environment to study, which has impacted motivation and concentration.

During school closures, even with the provision of learning materials, evidence suggests that students have nevertheless struggled to learn without teacher support, especially when grasping new concepts or ideas. Evidence from the UNICEF (2020) study and others note that teachers themselves faced challenges to continue teaching following school closures, owing to a range of reasons including not being financially compensated for their time (particularly among private school teachers), needing to migrate from communities where schools are based, being unclear on school reopening guidelines and how to contact school officials and students, and challenges in motivating children remotely. Low literacy levels and digital literacy among parents and caregivers have further hindered the ability of parents and caregivers to step in and support their children during school closures. A report by Education Development Trust (2020) found that only 32% of households in Ghana had been contacted by schools since they closed, while one in five parents in Kenya didn't know how to support their children or what their children were supposed to be studying.

These challenges are widely reported in the evidence to have further exacerbated existing inequalities. Namely, inequalities between rural and urban households (the latter having greater digital access), low and high-income countries (the former making use of more radio-based rather than digital instruction, private and public-school divisions, and gendered differences between girls and boys as a result of time use, household responsibilities and access to digital resources during Covid-19).

Many of these barriers and challenges are common to the Kenya and Nepal contexts. According to a study by the Presidential Policy and Strategy Unit on the experiences of adolescents in Kenya between June 2020 and 2021, students reported difficulties in accessing digital content or the internet, having limited access to computers, radios or television, having a poor working environment to study at home, and facing competing demands on their time at home. While the study notes that 85% of adolescents undertook remote learning, it acknowledges that 97% reported challenges accessing learning materials, with 'reading other books' noted as the most common form of remote learning (with over two thirds of students reporting this). Students in the study on average spent a third as much time studying at home as they might have at school, with girls reported to have spent less time than boys. While some students could access mobile phones, fewer than one in three made use of these due to the cost associated with data bundles, having to share devices with other household members, or receiving disapproval from parents and caregivers concerned that the phones would be used to interact with the opposite sex.

In Nepal, according to a World Bank study on learning in Nepal during school closures in Covid-19 (2020), similar challenges were noted, with more than three quarters of households relying on school textbooks as the primary source of learning. The study also acknowledged less time spent by students on their studies and limited support from parents, with poor households facing the brunt of the impact of school closures, with significantly fewer poor household engaged in active remote learning as compared with non-poor households.

### 3.2.2. Evidence on how learning changed during Covid-19

#### 3.2.2.1. Global estimates on learning loss

Evidence from the review points to widespread learning losses in both the Global North and Global South as a result of the school closures from Covid-19. The literature attributes these learning losses to any one or a combination of the following: (1) learning deterioration, or the loss of learning as a result of forgetting fundamental and basic principles; (2) opportunity loss or learning loss arising from missing out on a period of schooling; and (3) accumulated losses that occur even after schools re-open. In a World Bank report on the effects of Covid-19 on education (2020), the authors note, for example, that learning losses occurred four years after the 2005 earthquake that caused schools to close for three months, with children closest to the fault-line between one and a half and two years behind in their schooling. This suggests that learning loss may occur or accumulate months after schools have re-opened and may do so in a way that is not necessarily equivalent to the number of months that schools remain closed.

Predictions of the level of learning that may be lost as a result of the pandemic has varied by country and region. Existing literature on the impact (and predicted impact) of school closures on learning outcomes express learning loss both as number of years lost and as a percentage decrease or standard deviation change. Back in June 2020, in a report examining data from 157 countries, the World Bank predicted that levels of learning would drop by 0.3-0.9 years of learning as a result of Covid-19. However, the World Bank has since predicted these losses may be as high between 4.5 – 4.9 years in Africa, while a South African study has predicted that, while learners lost between 50-75% of a year of schooling, it in fact may take as many as 10 years to return to pre-Covid levels of education due to cumulative learning losses.

Other studies looking at measured changes in learning levels in the past 12 months report similarly negative findings. In a study in India conducted with 16,067 children in 1,137 public schools it was found that 92% of children lost at least one specific language ability from the previous year (such as reading with comprehension, reading familiar words, describing a picture orally), while 82% lost at least one specific mathematical ability (such as performing basic arithmetic to solve problems, describing 2D/3D shapes, and reading numeric data).

These losses may not be uniform, with individual as well as geographical factors potentially impacting this. In a study conducted by Whizz Education on the *iMlango* project in rural Kenya, the authors estimate an average 1.1 years (or 13-month) learning, with those in rural areas estimated to be even more affected than those in more affluent areas.

However, the same study in Kenya also reports learning gains for almost half of their sample, which contributes to wider emerging evidence of learning gains. Almost half (47%) of the study's sample of 965 students demonstrated improvements in their Maths age, with an average gain of 0.62 years of school, which the authors note as close to annual rates of learning (0.58 years of a standard maths curriculum) as established by the project's baseline study.

Similarly, in the Sierra Leone Secondary Education Improvement Programme (SSEIP) *Back to School* study published in 2021, the authors find an overall increase in learning in both English and Mathematics, when comparing levels before and after Covid-19 school closures. The authors note, however, that learning levels still remain below what might be expected for students within their grade levels according to the national curriculum. The authors further find that these increases are being driven by a sub-sample of pupils (boys, richer pupils, and those in certain regions), with the proportion of boys achieving Junior Secondary School level competency demonstrating greater improvements than girls, with those who already disadvantaged are falling further behind.

#### 3.2.2.2. Learning loss for at-risk learners

The evidence also highlighted key factors that mean some children are more vulnerable to learning losses than others. The main factors driving this are the level of household income, as well as the educational level of parents in households. Those in lower income households or whose parents have lower educational levels are more likely to experience learning losses. In a study conducted in Pakistan in 2021, it was noted that the learning gap between rich and poor households has increased due to Covid-19, particularly in mathematics, and that in households with more educated parents, children are 37% more likely than their peers with less educated parents to watch educational TV.

In Nepal it was noted that children from disadvantaged backgrounds (wealth and caste) had: less access to remote learning, were less likely to have parents engaged with the learning, and less likely to receive teacher support. In Kenya, WhizzEducation reported children from families suffering from economic hardship were more likely to experience learning loss than children from more affluent families. Other factors which have been attributed to increased risk of learning loss is the age of the learner. Younger children are more vulnerable as they start from a lower foundational base and are more vulnerable to education erosion. The World Bank reported that younger children would be more at risk as families prioritise the continued education of older children, and younger children miss the opportunity to build the foundational skills. A final factor which is reported to be contributing to changes in learning levels is the rural/ urban divide, as reported by the RISE project in Ethiopia, with the rural/ urban gap in children attending pre-primary almost doubling after Covid-19.

### 3.3. Overview of Planned Interventions During School Closures Across the GEC Portfolio

When the Covid-19 outbreak took hold and schools closed, the GEC projects pivoted their activities. This section provides a high-level summary of these changes. The changes were documented in an Initial Response Plan (IRP) in March/April 2020 which was followed by a Medium-term Response Plan (MTRP) in August/September 2020.<sup>9</sup>

The IRPs and MTRPs followed a structured template prepared by the FM. The template asked projects to include a country-specific analysis to outline the implications of the adaptations, and consider which of their activities, in the next three to four months, could:

- **Continue** in the same way as originally planned;
- **Be adapted**, with the aim of achieving the original objective but with an amended delivery approach;
- **Be stopped** for the period;
- **Or if they would introduce new activities** to support GEC girls and beneficiaries.

We used these to map the activities that were planned across the GEC portfolio, using the same categorisation of *continued*, *adapted*, *stopped*, or *introduced/new* (see [Table 3](#)). Interventions have been categorised thematically in the same way as for the independent evaluation of Phase I of the GEC<sup>10</sup> – the headline thematic categories used are:

economic interventions; infrastructure and resources for schooling; teacher training and support; community-based awareness, attitudes, and behaviour interventions; extra-curricular activities;<sup>11</sup> empowerment & self-esteem interventions; marginalisation-related interventions;<sup>12</sup> and violence against children interventions.

All categories are mutually exclusive, in that interventions have been coded under one 'activity type', rather than multiple. Where there may be multiple categories that could apply to any given intervention, a judgment has been made by the IE team to determine the most appropriate or relevant category for the individual intervention. Interventions have moreover been coded systematically and consistently for projects across the GEC portfolio.

A full mapping, together with details on how interventions were categorised, can be found in [Annex 9 – Mapping of Covid-19 pivoting – project interventions continued, introduced \(new\), adapted, or stopped](#).

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<sup>9</sup> Of the 41 projects, we received 37 IRPs, and 33 MTRPs. Those who did not submit an MTRP tended to be the ones whose project activities had come to an end, and they were in the evaluation stage.

<sup>10</sup> See further GEC Phase I Endline Evaluation Report Step Change Window (2017) Annex J1. Available at: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/700964/Endline-report-annexes-Girls-Education-Challenge-Step-Change-Window.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/700964/Endline-report-annexes-Girls-Education-Challenge-Step-Change-Window.pdf)

<sup>11</sup> These can include homework clubs, life skills training, Girls' Clubs, or remedial classes, for example.

<sup>12</sup> These can include interventions in remote or nomadic locations, interventions addressing cultural/linguistic exclusion, interventions addressing disability or interventions addressing other marginalised groups.

Independent Evaluation of the Girls' Education Challenge Phase II - Evaluation Study 1: Effects of Covid-19 on Access and Learning in GEC II – Final Report

Table 3: Summary of Covid-19 pivoting

Activity Category	Activity Type	Count of projects with activities stopped	Count of projects with activities continued	Count of projects with introduced (new) activities	Count of projects with adapted activities
Economic interventions	Cash transfers	0	1	6	4
	Bursaries	0	5	1	4
	In-kind resources	0	2	11	5
	Income-generating activity	1	1	2	5
	Provide food and/ or accommodation	0	0	3	0
	Procurement of phones and electronic devices	0	1	3	1
	Securing phone credit for teachers & staff	0	0	3	0
	Loans and savings	1	2	1	1
Infrastructure and resources for learning	Classroom & school grounds improvements	0	0	1	0
	Toilets & wash facilities (inc. menstrual management)	0	0	0	0
	Ed Tech for classroom learning	0	1	2	3
	Radio broadcasting of lessons	0	0	30	2
	Text books and learning materials	0	6	1	10
	Learning materials to be made available online	0	0	14	3
	Teachers using telephone to support home learning	0	0	15	1
	TV learning	0	0	11	2
	SMS messaging to support at home learning	0	0	15	3
	Community or mobile libraries	0	0	2	0
Teacher training and support	Learning materials printed & distributed to girls' homes	0	0	23	3
	Skills training for active T&L	7	4	0	14
	Gender-Responsive Pedagogy	0	2	0	7
	Accelerated Learning	1	1	2	7
	Targeted focus on Literacy	2	1	1	9
	Targeted Focus on Numeracy	2	1	1	9
	Use of formative assessment	1	0	0	1
	Teacher peer support, training and mentoring	5	2	0	6
	Formal pre-service teacher training	3	1	0	2
Community Based Awareness, Attitudes and Behaviour	Inclusive classroom strategies	0	0	0	1
	Media (radio, TV, advertising)	0	1	0	27
	Community meetings (use of drama etc)	1	1	0	25
	Working with men and boys	2	0	1	4
	Working with faith-based groups and traditional leaders	0	0	0	3
	Community engagement through adult literacy	0	0	0	3
	Household-level visits & support	3	0	1	16
	Community to identify at-risk learners	0	0	7	6
Extra Curricular Activity	Activities involving womens' groups, parents' groups	0	0	0	3
	Tutoring / homework & literacy clubs / reading corners	8	0	0	19
	Community-based learning (small groups)	6	0	4	12
	Mentoring ('big sis/little sis'; peer support/learner guides)	2	3	0	17
	Life skills training (including SRHR)	0	0	2	14
	Vocational training, econ. empowerment & IGA for girls	1	0	2	10
	Learning apps for literacy	0	1	1	0
	Mixed sex/ additional boys' clubs	2	0	0	1
Empowerment & Self Esteem	Safe spaces	0	0	0	8
	Mentoring	2	1	0	19
	Activities that promote girls' voices & participation	0	0	0	5
	Role models (older girls, community, female teachers)	0	1	0	14
Marginalisation-related interventions	Remote/difficult/nomadic locations	0	21	0	0
	Cultural marginalisation including linguistic	0	6	0	0
	Disability	0	19	0	0
	Other special groups - pregnant or young mothers	0	19	0	0
	OOSG	0	15	0	0
Violence against Children	Community awareness	0	3	2	24
	Toll free line for reporting	0	2	1	1
	Transportation schemes for safety on the way to school	0	0	0	1
	Teacher training	1	0	2	18
	Reporting mechanism in schools (incl complaints boxes)	0	0	0	15
	Harmful traditional practices inc. child marriage & FGM/C	0	1	0	14
	Psychological support to girls	0	0	19	10
	Response and referrals	0	0	2	26

### How did GEC projects across the portfolio plan to support girls' education during school closures?

Overall, most projects planned to adapt activities rather than stopping or starting completely new streams. The exception is a very large shift to supporting radio lessons and providing materials for study at home, and psychosocial support.

**Projects sought to adapt a lot of their existing interventions** – most commonly through media such as radio, TV, (28 out of 37 projects; 76%) followed by keeping girls safe at home – through strengthening response and referral mechanisms to report violence (27 out of 37 projects; 73%); and raising community awareness on violence against children (26 out of 37 projects; 70%).

**Most projects did not plan to stop many activities.** Those that were stopped related to teacher training and support and extra-curricular activities. Specifically, projects most frequently stopped skills training for active teachers (8 out of 37 projects; 22%) and tutoring / homework and literacy clubs / reading corners (8 out of 37 projects; 22%). A further 16% (6 out of 37) of projects stopped teacher peer support, training and mentoring and community-based learning (6 out of 37).

**No projects halted any of their marginalisation-related interventions**, such as those targeting learners with one or more disabilities or learners living in remote or nomadic locations, and these were the most common types of interventions that projects planned to continue as normal following the outbreak.

### What does the wider evidence say on how education systems planned to support continued education during school closures?

The GEC projects pivot was very much in line with wider discussions and efforts at this time – a survey of national education responses to Covid-19 school closures in over 110 countries found more than 90% of ministries of education enacted some form of **policy to provide digital and broadcast remote learning** (UNICEF, 2020) - while specific interventions varied depending on the infrastructure and capacity of contexts, this has typically included: **open access or digitalisation** of existing educational resources; creation of online portals to share new content with teachers and students; setting up of **virtual helpdesks** to troubleshoot and support caregivers with at-home learning; distribution of learning material both electronically and paper-based, where connectivity is a challenge; **broadcast remote learning through radio, television or SMS messaging**; use of **educational radio or television** to share pre-recorded or live lessons in literacy and numeracy; provision of **hardware such as radios or smart phones** to increase access to remote learning; and **skills and capacity building of teachers and caregivers** to engage with digital resources.

Broadcasting lessons through radio (planned by 84% of GEC projects) and distributing printed materials to learners' homes (planned by 65% of projects) were commonly cited in the literature. The use of phones and social media platforms such as WhatsApp, planned by a number of GEC projects (16 out of 37 projects; 43% of projects) was also widely referenced as a way of communicating and sharing lessons, learning materials and homework assignments between teachers and learners.

As planned by a number of GEC projects, the evidence suggests that education systems also complemented remote learning measures with face-to-face measures, such as the **deployment of teachers to community sites**, (Shrestha, 2020) and the use of **community volunteers** to deliver learning resources with households (Fitzpatrick, 2020). Fewer references were made to supporting the psychosocial wellbeing of girls or learners as part of their education, suggesting the GEC was a leader in this aspect.

### 3.4. Which Activities Were Delivered by EDT and Mercy Corps During School Closures?

Table 4 summarises which activities EDT delivered during school closures as set out in their IRP and MTRP.

Table 4: Summary of activities delivered by EDT during school closures

Activity Category	Activity Type	EDT (Kenya)				
		Details of intervention	Target groups	Numbers reached	Target areas	Dates delivered
Economic Interventions	Cash transfers	Vulnerable households affected by the pandemic given cash transfer and required to invest part of the funds to ensure income beyond project support	Priority households adversely affected by Covid-19	468	Kilifi, Kwale, Marsabit, Mombasa, Nairobi, Samburu, Tana River, Turkana	Jul – Dec 2020
	In-kind resources	Dignity kits containing sanitary towels and feminine hygiene products distributed to girls	Girls	800 kits Apr – Jun 3,999 kits Oct – Dec	Mombasa, Nairobi	Apr – Dec 2020
	Procurement of telephones and electronic devices	Distribution of solar radios	Cohort girls	1,160	Tana River, Kwale, Kilifi, Turkana, Samburu, Marsabit	Apr – Jun 2020
Infrastructure and Resources for Learning	Radio broadcasting of lessons	Sensitising households to government (KIPD) radio lessons / radio programmes	Girls and boys	22,659 girls and 3,318 boys were reached with radio lessons Apr – Jun  38,983 girls accessed radio programs between Oct – Dec 2020:	Kwale, Tana River, Kilifi, Samburu, Marsabit, Mombasa, Nairobi (started in July) Turkana (started in July)	Apr – Dec 2020
	SMS messaging to support at home learning	Preparing and sharing targeted tutorials, homework, and tests for learners via coaches and teachers to parents and caregivers through bulk SMS and social media platforms (WhatsApp)	Girls and boys via parents and caregivers	22,200 (16,168 girls and 6,032 boys) between Apr – Jun  29,266 learners (23,387 girls and 5879 boys) between Jul – Sep 2020	Samburu, Nairobi, Kwale, Kilifi, Tana River, Marsabit, Mombasa, Turkana	Apr – Sep 2020
	Learning materials printed and distributed to girls' homes	Printed tutorials to cohort girls to support home learning	Cohort girls	40,956	Samburu, Nairobi, Kwale, Kilifi, Tana River, Marsabit, Mombasa, Turkana	Oct – Dec 2020
Community Based Awareness, Attitudes and Behaviour	Community engagement to identify at-risk learners	Community Household Volunteers (CHVs) conduct at home visits to drive health messaging on Covid-19 and messaging on how to support at-home learning	CHVs	502 CHVs Apr – Jul 2020  498 CHVs Jul – Sep 2020	Samburu, Nairobi, Kwale, Kilifi, Tana River, Marsabit, Mombasa, Turkana	Apr – Sep 2020

Independent Evaluation of the Girls' Education Challenge Phase II - Evaluation Study 1: Effects of Covid-19 on Access and Learning in GEC II – Final Report

Activity Category	Activity Type	EDT (Kenya)				
		Details of intervention	Target groups	Numbers reached	Target areas	Dates delivered
		Community champions tracking girls who did not report to school	Champions	61 champions	Unspecified in project report	Oct – Dec 2020
	<b>Media (radio, TV, advertising)</b>	Local radio talk shows aired to guide parents and caregivers on how to support girls' learning at home	Parents and caregivers	20,937 parents and community members Apr- Jun 2020  18,045 parents and community members reached Jul – Sep 2020	Kwale, Tana River,  Kilifi, Samburu, Marsabit,  Mombasa,  Nairobi (started in July)  Turkana (started in July)	Apr – Sep 2020
<b>Extra-Curricular Activity</b>	<b>Community based learning (small groups)</b>	Community-based learning (CBL) forums for school communities in Arid and Semi-Arid Lands (ASAL) Counties  CBL classes delivered to provide catch up in literacy, numeracy, science, and life skills	Cohort girls in ASAL Counties (in classes 6,7 and forms 1,2 and 3)	10,965 cohort girls reached through community-based learning Jul – Sep 2020  26,723 cohort girls Oct – Dec 2020	Kilifi, Kwale, Tana River, Marsabit and Samburu	Jul – Sep 2020  Oct – Dec 2020 (CBL classes)
	<b>Mentoring ('big sis / little sis'; peer support / learner guides)</b>	Peer to peer mentorship and community mentorship forums on SRH, child protection and life skills	Girls	17,868 girls reached Apr – Sep 2020  13,190 girls reached Oct – Dec 2020	Kwale, Samburu, Tana River, Mombasa, Turkana, Nairobi, Marsabit	Apr – Dec 2020
	<b>Vocational training / economic empowerment and IGA for girls</b>	Income-generating activity (IGA) start-up kit distributed to girls containing education materials and services including radios, sanitary towels, revision materials, facilitation for volunteer teachers and hand washing points worth Ksh. 87,000.	Cohort girls who had completed courses or in final year of studies	370 girls Jul – Sep  302 girls Oct – Dec	Unspecified in project report	July – Sep 2020
<b>Violence Against Children</b>	<b>Response and referrals (including working with service providers, village child protection committees etc.)</b>	Households sensitised on referral pathways and child counselling via CHVs	Households	19,672 households sensitised Apr – Jun 2020  12, 843 households sensitised Jul – Sep 2020	Kwale, Tana River, Kilifi, Samburu, Marsabit, Nairobi, Mombasa, Turkana	April – Dec 2020
		CHVs refer girls for health and other support	Girls	1,872 referrals Jul – Sep 2020  2,886 referrals Oct – Dec 2020	Kwale, Tana River, Kilifi, Samburu, Marsabit, Nairobi, Mombasa, Turkana	Jul – Dec 2020

## Summary of activities delivered by EDT in Kenya during school closures

In Kenya, EDT largely kept in touch with GEC girls during school closures through **Community Health Volunteers (CHVs)** who conducted home visits, **digital platforms** such as WhatsApp and social media, **radio and television broadcasts**, and through direct interactions with **parents /guardians** and **community champions**. No direct learning interventions were delivered to secondary school girls in the initial response, although the project began delivering structured learning support through **community-based learning** from July to September 2020.

### *Community-based awareness, attitudes, and behaviour*

At the **household level**, **CHVs** in Kenya were equipped with Personal Protective Equipment (PPE) and tasked with arranging follow-up visits to households, where they raised awareness and distributed information to caregivers about government-supported televised and radio educational programmes. CHVs also received virtual training on how to engage with communities during school closures and were trained in topics such as Covid-19 transmission prevention, FGM and case identification to be able to support households and communities and identify vulnerable girls and refer them on for further support.

### *Infrastructure and resources for learning*

EDT also held **local radio talk shows** to guide parents and caregivers on how to support girls' learning at home and equip them with skills for managing home learning. This was complemented with **tutorials, homework and tests** that were shared with parents through short message service (SMS) and social media to support their children to continue with their learning. In cases where learners had relocated to stay with relatives during the pandemic and could not be reached at home, the project shared learning materials with them through WhatsApp and supported learners to establish **study groups** with other community members.

### *Economic interventions*

The project provided **cash transfers** to around 500 households adversely affected by the pandemic,<sup>9</sup> and sensitised households on **referral pathways and child counselling** so that parents and caregivers knew how and where to report child protection issues and where to seek help. EDT also provided girls with **dignity kits** containing sanitary towels and feminine hygiene products to minimise the risk of them engaging in transactional sex or work for pay to afford such products.

Some households (1,160) were also provided with **solar radios** to support girls' access to radio lessons. The radios provided a light enabling study after dark.

*Table 5* summarises which activities Mercy Corps delivered during school closures as set out in their IRP.

**Table 5: Summary of activities delivered by Mercy Corps during school closures**

Activity Category	Activity Type	Mercy Corps (Nepal)				
		Details of intervention	Target groups	Numbers reached	Target areas	Dates delivered
Economic Interventions	In-kind resources	Hygiene kits and safety materials with globes, masks, hand wash and sanitary towels	In-school and OOSG	1,487 IS girls and 406 OOSG	Unspecified	Jul – Sep 2020
Infrastructure and Resources for Learning	Radio broadcasting of lessons	Distance learning / SEE intensive classes <sup>13</sup> through local FM Radio stations on English, Mathematics, Science and Nepali	Grade 10 students in STEM schools	1,487 girls	Kailali district	Apr – Jun 2020
Teacher training and support	Skills training for active T&L	Virtual workshop on teaching techniques for Mathematics and good teaching practices handbook	STEM teachers	162 teachers	Unspecified	Jul – Sep 2020

<sup>13</sup> The GoN cancelled the SEE exams in the second week of June 2020. Students who had been studying for Grade 10 examinations progressed to Grade 11 based on the internal examination results, attendance and coursework.

Activity Category	Activity Type	Mercy Corps (Nepal)				
		Details of intervention	Target groups	Numbers reached	Target areas	Dates delivered
Community Based Awareness, Attitudes and Behaviour	Media (radio, TV, advertising)	Public service announcements on home-based learning, school reopening and safeguarding and referral services	Vulnerable / marginalized communities	171,529 listeners Apr – Jun 2020 253,542 listeners Jul – Sep 2020	9 stations – areas unspecified	Apr – Sep 2020
		Pamphlets distributed to raise awareness of Government of Nepal (GoN) scholarships	Students, parents, and teachers	22,500 pamphlets distributed	STEM schools – areas unspecified	Jul – Sep 2020
Extra-Curricular Activity	Mentoring ('big sis / little sis'; peer support / learner guides)	Girls' Transition Fund (GTF) workshops to enhance peer-to-peer support mechanisms and discuss business status and challenges	GTF girls	119 OOSG	Unspecified	Oct – Dec 2020
	Vocational training / economic empowerment and IGA for girls	Reduce interest rate on Girls' Transition Fund (GTF) loan from 8% to 5%	GTF recipients (OOSG)	285	Unspecified	Mar – July 2020
		Vocational training to OOSG to enhance technical and business management skills and financial independence	OOSG	141	Unspecified	Apr – Sep 2020
Violence Against Children	Response and referrals (including working with service providers, village child protection committees etc.)	Development of IEC materials around good parenting, safeguarding, GBV and psychosocial support and contact numbers provided	Communities and households	30,000 posters distributed Apr – Jun 47,200 posters distributed Jul – Sep	Dhangadi	Apr – Jun 2020
	Psychological support to girls	Wellbeing surveys and regular check-in calls	GTF girls (OOSG) who owned small businesses	47 OOSG	Unspecified	Mar – Jun 2020

### Summary of activities delivered by Mercy Corps in Nepal during school closures

The Mercy Corps project in Nepal closed in March 2021, so the project delivered a focused response – implementing activities to support distance learning among students due to sit Grade 10 examinations / SEE, alongside using radio to broadcast **public service announcements** on home-based learning (covering English, maths, science, and Nepali), school re-opening and referral services.

#### Extra-curricular activity

The project also supported **out-of-school girls** during this period with reduced interest loans from its Girls' Transition Fund (GTF) and carried out regular surveys and telephone calls to check on their wellbeing and how their businesses were doing during the national lockdown. The project conducted a number of **situational assessments** to identify the needs of the most vulnerable and marginalised girls and adapt and modify their interventions accordingly. Further detail on interventions used to support girls with learning when schools re-opened is provided in [Section 6](#).

#### Community-based, awareness, attitudes, and behaviour

At the **household level**, the project broadcast **public service announcements** through local radio stations to support the wellbeing of women and children coping with stress and to share information on how to report cases of

Gender-based Violence (GBV) and harassment / abuse. Households also received **posters and pamphlets** on good parenting, wellbeing, and how to report safeguarding and GBV issues.

### 3.5. What Practical Challenges Were Reported by EDT and Mercy Corps in Supporting Children During School Closures?

Both EDT and Mercy Corps noted a number of challenges that hindered their ability to effectively reach and support girls.

One of the challenges reported by EDT in project reports was households having **no radios, or weak, poor or no radio signal** (see later analysis on radio coverage). Even among households with access to a radio, the project cited challenges influencing parents to engage with the radio broadcasts and prioritise girls' learning against other **competing household priorities and time commitments**.

Some learners had also **relocated** to different communities during the school closures, outside of the supported areas, which meant the project could no longer reach them. A critical limitation was the increased **workload that CHVs faced** due to the Covid-19 medical emergency, which forced the project to consider alternatives like training local elders, community champions and mothers to be able to support girls to continue with their learning at home.

Another challenge, as reported by EDT, has been that teachers have moved to stay with families in their home villages during the lockdown. During this period, some teachers chose to teach in community settings in their home community, while others attempted to connect remotely with their students. This was a challenge for some teachers, as it meant they were less connected to the students. This was highlighted by a teacher in Mombasa who said, "*Some of us had shifted to the village and we were facing power and bundle challenges at the village just like the students. We are doing assignments, videos, we are doing meetings, it was a big challenge, because you were always on toes*" (IDI, Teacher, Mombasa).

In Nepal, Mercy Corps reported issues in engaging students with **distance learning** since the **radio classes did not enable 'two-way interaction' with students**. The limited frequency of the classes and when they were aired was also cited as an issue that negatively impacted on take-up and engagement among students. The project noted difficulties in contacting some of the girls as they had **changed their phone numbers** during school closures, although they had some success reaching them through relatives, schools, local governments, and protection committees. Mercy Corps had planned to track out-of-school girls through teachers to check on their wellbeing, although in their Quarterly Reports the project noted that around 10% of girls **could not be tracked due to marriage, migrating, or seeking better job opportunities**.

### 3.6. What Barriers and Enablers Were There to Accessing Education and Learning in Kenya and Nepal More Broadly During Covid-19?

Following the outbreak of Covid-19, the Ministries of Education in both countries developed Covid-19 response plans<sup>14</sup> to ensure access and learning continuity for all children through both high and low-tech approaches. The agenda included recognition of the need to address different learners' requirements as well as the need to support teachers, schools, and national and local government capacities. The **political will** of the Kenyan government was reiterated by interviewed stakeholders who noted that the government was not only aware of the challenges that marginalised populations faced but that they had also taken the initiative to use a multiagency approach including engaging communities to support girls' education.<sup>15</sup>

The Government of Nepal also launched an education programme to help children continue to learn safely through the pandemic (The Learning Continuity Campaign) through a multi-stakeholder initiative that engaged parents, caregivers, teachers, school authorities, local governments as well as children themselves. Led by UNICEF, the Campaign initiated the use of alternative education modalities and had a specific focus on marginalised children from remote and disadvantaged groups who required targeted support to continue learning and prevent dropout.<sup>16</sup> This programme focused on using low-tech mechanisms such as SMS and radio.<sup>17</sup>

**At the school level, teachers are a critical stakeholder** in every education system and have been significantly impacted by the pandemic in every single context across the globe. **Village chiefs and leaders, community members, religious organisations and parent teacher associations** were also identified as important stakeholders who play an important role in ensuring learning continuity for girls in the Kenyan context (and in some cases the provision of food and basic needs).

Teachers in Kenya reported that the projects and schools were less involved in supporting education during school closures than they had expected. For example, one teacher in Mombasa, when asked which project interventions were best for reaching girls, replied "*We did not have any support; it was our self-drive*" (IDI, Teacher, Mombasa). The motivation and support of the teachers in providing educational interventions was highlighted as a key factor in determining the level of girls' engagement with learning materials during school closures.

According to our qualitative interviews, **the availability of community members, teachers, or other key project staff in education delivery in Kenya** was a key factor in determining how well the interventions were able to continue to support girls during school closures. In Kenya, for example, although EDT intended to engage CHVs in **distributing learning materials** to girls' homes, interviews with the project team and with the CHVs themselves indicated that they struggled to do this while supporting community-level health activities as part of the emergency response to the Covid-19 outbreak. EDT's response plans did not account for the need of CHVs to be involved in other activities. This ultimately impacted how girls were contacted or supported during school closures, with none of the in-school girls in Mombasa, for example, reporting having been contacted by a CHV.

Teachers in Nepal also reported having a **lack of resources and electricity** during school closures, which hindered both their activities and their students' access to learning. The role of local governments in assisting teachers to reach out to girls and other learners was furthermore noted by teachers as particularly important during the pandemic. The Nepal Social Education Academy, for example, conducted training on online classes, hosted by the Nepalese government to help support teachers in delivering remote learning. Nevertheless, some teachers stated that lags in technology (e.g., technical problems with Zoom) meant that they were unable to attend training.

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<sup>14</sup> <https://www.doe.gov.np/assets/uploads/files/54ba4942574885a514869a72a6b456cd.pdf> and [https://www.education.go.ke/images/Kenya\\_basic\\_Education\\_COVID-19\\_Emergency\\_Response\\_Plan-compressed.pdf](https://www.education.go.ke/images/Kenya_basic_Education_COVID-19_Emergency_Response_Plan-compressed.pdf)

<sup>15</sup> One example is support offered by UNICEF to the Government of Kenya to provide radio, TV and internet lessons. See further [UNICEF \(2021\)](#).

<sup>16</sup> UNICEF led the Learning Continuity campaign in conjunction with other international NGOs. Data published by UNICEF indicated, however, that the impact of learning continuity measures initiated by the Campaign had a relatively low impact, while learning continuity measures were increasingly side-lined in favour of wider government measures to manage the pandemic. See further: [https://www.unicef.org/nepal/media/14216/file/Child\\_and\\_Family\\_Tracker\\_-\\_Education.pdf?fbclid=IwAR2jkD5NbDxc-y04wevOeDy-D9ziNvFxp2VRDpWr0Hnshku-CEUwxq3khjM](https://www.unicef.org/nepal/media/14216/file/Child_and_Family_Tracker_-_Education.pdf?fbclid=IwAR2jkD5NbDxc-y04wevOeDy-D9ziNvFxp2VRDpWr0Hnshku-CEUwxq3khjM)

<sup>17</sup> <https://www.unicef.org/nepal/press-releases/government-nepal-and-partners-launch-campaign-mitigate-learning-loss-wrought-covid>

### 3.7. What Were Girls' and Caregivers' Experiences of Learning and the Support They Received During School Closures?

When asked about their experiences of learning and the support they received during school closures, girls, and caregivers whom we interviewed in schools in both Kenya and Nepal cited forms of **remote learning**, **in-person learning** and other support that indirectly supported their education.

#### *Remote learning*

In Kenya, the most common method of support cited by participants during school closures was remote learning. This tended to be through **WhatsApp groups with parents and teachers**, where teachers would send past exam papers through this channel – our survey indicates that three of the four schools where we conducted qualitative interviews supported learning through SMS or WhatsApp.

As highlighted elsewhere in this report, this was not without its challenges, as the cost of data bundles and weak phone signal proved to be a barrier for some families in being able to continue remotely, both in urban and rural areas. While 87% of the girls in the quantitative sample reported having a mobile phone in their home, only 37% of girls reported having a phone with internet. As one parent noted:

*"I think it was really hard for them because even for us it was challenging because of bundles (data). Getting bundles on your phone so that you can get everything was a challenge to everyone. But there was no other option? No, because they send a message on WhatsApp, in the group, we used to discuss and do everything, so you as a parent you have to push yourself so that your child does not remain behind. It was a challenge to other parents as you said, that weren't able ...though we helped each other on one thing; if I have a phone with WhatsApp, we contribute about fifty shillings and buy bundles for it, then the children come and sit together for studies, we all tried that."* (IDI, Parent, Mombasa).

In Nepal, there were very few references made by participants to **interventions from schools or projects during school closures**. In contrast to what girls and headteachers reported in our quantitative surveys<sup>18</sup> girls and caregivers widely reported not having been contacted by the school and having to reach out themselves to ask about exams or study content. Parents and caregivers expressed concerns over the limited support from schools during closures, with one noting that *"school teachers said only to tell your children to study at homes"* (FGD, Parents, Dhangadi) and another in Darak claiming that *"There was no information from the school, no notebooks [...] We were just hoping for the school to reopen"* (FGD, Parent, Darak).

Where remote learning was mentioned in Nepal, the most frequently reported activities were through **radio**, **television (TV) or online**. However, **many girls claimed not to have engaged or been able to engage with these regularly**. Instead, **very little learning** was reported to take place according to girls in our sampled schools. These differences between the findings from the quantitative survey and the qualitative interviews may confirm the challenges of remote learning, where students may not have been able to access a phone or engage with remote forms of learning due to their remote locations.<sup>19</sup> Indeed, our quantitative findings confirm this, with one in three schools reporting this as one of the main challenges encountered during school closures.

Where communication with schools were mentioned, these were largely **follow-up conversations between teachers and students**, either on the phone or in person. As identified elsewhere in this report, face-to-face or direct support with teachers is a crucial factor in helping to explain and ensure understanding of difficult concepts. As girls in Dhangadi commented about their teacher: *"He always asks us to study for the exam. Although we did not have any resources, he used to provide us with some photos from his books and helped us to study"* (IDI, ISG, Dhangadi).

For their part, teachers in the qualitative interviews reported attempting to get in touch with students or their parents directly where girls or their siblings didn't own their own phone. However, these interactions tended to focus less on learning instruction, and more on **pastoral support**. A teacher in Karnali highlighted that when teachers were able to talk on the phone, the girls *"continually kept asking about school, when will it open? Will we be able to study or not? Will this year's study continue or not? Will we get books or not?"* (FGD, Teacher, Karnali). This is largely in line with

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<sup>18</sup> In Nepal, headteachers from 75% of the schools where qualitative interviews were conducted mentioned that household visits had taken place during school closures. Two in five girls (40%) mentioned receiving a house visit, although it is unknown who carried out these visits. Moreover, six in 10 girls from qualitative schools (61%) reported receiving some form of study instruction, with one in 20 mentioning that they had received a phone call from schools.

<sup>19</sup> Differences between our quantitative survey findings and qualitative interviews may have arisen for a number of reasons, including for example due to biases arising from sampling (and the different ways sampling was done for the quantitative and qualitative interviews) and the way(s) in which the relevant questions were asked (and therefore not being directly comparable). It is not possible to determine or conclude which of these factors may have contributed to the differences but these are noted here in the report for transparency.

the Mercy Corps Nepal IRP, which foresaw challenges in being able to teach girls remotely and indicated plans for teachers to try to contact the girls directly to check on their wellbeing.

### *In-person learning*

Girls and teachers in Kenya also reported instances of **community-based learning taking place**. This aligns with EDT's MTRP, in which the project set out to support and strengthen community-based learning in more rural areas due to poor phone and radio connectivity. Findings from our quantitative surveys indicate that over half of all schools in our sample in Kenya said they were involved in a community learning initiative (see above). This was reported in interviews to largely take place in open fields or churches. As one parent in Kenya noted:

*"They would gather at church because they had asked for permission. They would follow the Covid guidelines, observe social distance and they all revise. There was a teacher based within who used to go there so whatever they didn't know they would ask him for help."* (IDI, Parent, Tana River).

While girls reported that EDT helped to facilitate these small gatherings of girls, it was noted that teachers and mentors were not always able to join, leaving girls to **engage in peer-to-peer learning**. As one girl noted, *"We would meet with the ones we were in a group discussion with and would ask each other questions then go back home."* (IDI, ISG, Turkana). Girls reported a preference for meeting up in small groups as a form of learning as it allowed them to engage more in the material. However, there is no evidence to suggest whether this was more or less effective than remote learning options.

### *Non-education related interventions*

Girls in both Kenya and Nepal also cited other interventions that **indirectly supported them in their education**. For example, in Kenya, parents and girls referred to **solar lamps** that were provided (often to younger girls), which were particularly welcomed by rural households with limited access to electricity as it helped girls to continue studying after dark: *"Because it is rural, it's not easy to get TVs and there is no electricity. They used light [solar lamp]"* (IDI, Parent, Tana River).

For older girls, in-kind resources such as sanitary towels and food were also given to families who had been affected economically due to Covid-19. For example, one teacher in Nairobi said, *"They were also given sanitary towels, they were given food, a good amount of food, and the parents really appreciated it"* (IDI, Teacher, Nairobi). It is unclear from the qualitative interviews, but these in-kind resources may have supported girls to offset the economic hardship experienced by households and potentially the need to undertake work outside of the home to earn extra money, allowing more time to study.

In Nepal, parents referred to other forms of support unrelated to Mercy Corps or schools. A parent in Darak highlighted the **government food relief packages** as being helpful for families who were not able to work on their land or feed themselves. While this was welcomed by families as a way of ensuring girls could eat and concentrate on their studies, it was also acknowledged that not everyone had access to these. In Nepal, participants also cited subsidised or **free internet provided by the Nepal Telecom Company (NTC)** to support the preparation for school exams, although again it was mentioned that this might not have been accessible to all, as highlighted by a teacher in Karnali:

*"During that time there was a provision provided by NTC that if you input SEE date of birth and symbol number you will get to use the internet for free for a limited time. **Girls were not able to use that service.** But boys not only use free internet by using their own details but also used the details of the girls to get free internet"* (FGD, Teacher, Karnali).

It is not possible to ascertain from our data why girls were not able to make use of this service compared with boys; nor should this quote be taken as representative of broader student experiences using the service.<sup>20</sup> It may have been due to issues accessing devices, which may not have been an issue for boys within the household. Similarly, while it is not possible to ascertain from our data how these interventions directly supported girls' education, teachers and caregivers alike widely highlighted them as supporting families during national lockdowns.

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<sup>20</sup> While the NEE website does not distinguish between girls and boys in terms of eligibility requirements (see further <https://www.ntc.net.np/post/see-package>), it may be that parents or caregivers were more likely to restrict girls' usage of mobile phones and internet devices.

## Key Implications

### What measures were planned and delivered by GEC projects to support girls during school closures?

- Across the portfolio, **GEC projects generally responded appropriately** to the Covid-19 outbreak, offering continued support to girls while schools were closed including diverse interventions and support for hard-to-reach girls.
- Wider literature suggests that broadcasting radio lessons, distributing printed materials to homes and using phones and social media platforms such as WhatsApp to communicate with students – all widely planned by GEC projects – were common interventions across different education systems in response to school closures.
- **GEC projects appear to have taken a broader or more holistic approach to supporting girls' education** compared with other education support available – psychosocial and wellbeing support was less widely referenced in the literature compared with our findings across the GEC portfolio, which half of the GEC projects planned to deliver.
- The interventions planned and delivered by EDT and Mercy Corps to support girls' education during the outbreak were **aligned with wider interventions and educational policies** within Kenya and Nepal to support students during school closures.
- While some of the challenges encountered by EDT and Mercy Corps during school closures were common occurrences across the Kenyan and Nepalese contexts, **some challenges might have been more readily anticipated through the planning process**. Examples of these challenges include anticipating the **competing priorities of CHVs** in Kenya, which forced EDT to consider alternative ways of reaching girls; and Mercy Corps not being able to track and support some out-of-school girls in Nepal due to girls marrying and moving away or migrating for economic reasons.

**Neither project had planned to deliver teacher training or included substantive interventions to support teachers with the school closures** – this may have had a knock-on impact on girls, for whom the lack of direct engagement with teachers had a marked effect on their engagement with learning.

## 4. How Did Learning Levels Change?

### Key Findings

#### How have girls' learning levels changed during the Covid-19 period?

- Girls in Kenya and Nepal suffered **large learning losses** in maths and reading during our testing periods: in Kenya, girls on average were scoring 0.37 standard deviations (SDs) in maths and 0.86 (SDs) lower in reading. In Nepal the average scores were even lower – with average scores 0.82 SDs and 1.01 SDs lower in maths and reading respectively.
- However, we observed **average learning increases** in some schools: in one in five schools in Kenya (20%) and in one in ten schools (11%) in Nepal. Learning losses have not been uniform across schools.
- The lower average learning levels among post-closure cohorts may be the result of **less time spent on studying** – just one in three girls studied every day during school closures in Kenya, with around one in four reporting not to have studied at all. In Nepal, fewer than three in five girls studied every day.
- Where average learning was higher, this may be due to girls in that school having more **dedicated time available for studying** or having **better access to learning resources at home**. Girls in Kenya were more likely to have spent time **helping with the family business** than they were before school closures, while girls in Nepal were more likely to spend time on chores in and around the home, including **caring activities, agricultural work, and fetching water**.
- According to girls, their caregivers and teachers, the longer that schools were closed the less motivated they were to study; while many struggled to learn or grasp difficult concepts **without the support of a teacher** and struggled with **poor studying environments at home** and not being sufficiently equipped with **learning materials**.

### 4.1. Methodology

To answer this research question, we conducted learning assessments in February / March 2021 in a sample of secondary schools and compared the average levels of maths and reading scores to the averages in the same schools on the same tests (undertaken by external evaluators for the GEC projects' midline evaluations) in July 2019. This gave us an estimate of the average change in learning levels in each school over this period.

We tested girls in maths and reading in schools which were included in the projects' midline evaluations.<sup>21</sup> While ideally, we would have tested the same girls, in most cases we could not find them, so we randomly sampled different girls *but in the same grades* – form one and two in Kenya, and grades 9 and 10 in Nepal. This gave us a repeated cross-section at the school level, from which we estimated changes in scores by looking at the differences in the mean in each school over each time period.

We also conducted a secondary evidence review on how learning was impacted during Covid-19 to situate our findings and learning loss estimates against the global literature (see [Annex 5 Secondary Evidence Review](#)).

We were successful in finding a small number (113) of girls from the midline assessments in Nepal, but not Kenya. We used these to estimate how much the girls' learning levels changed, using the same test as before – so we calculated the change in learning levels as the difference between an individual girl's achievement in 2021 (post-Covid-19) compared with 2019 (before-Covid-19).<sup>22</sup>

<sup>21</sup> We administered the same tests projects used during the midline evaluation. These consisted of Maths (SeGMA) and Reading (SeGRA) tests. These tests were administered in the same format as the midline evaluation – on paper and in classrooms.

<sup>22</sup> This panel consists of 113 girls who were successfully re-contacted about two years later.

**Table 6: Rationale for sample design for learning assessments as part of A&L study**

Sample	What this can tell us about how learning has changed between July 2019 and February / March 2021
Cross-cohort comparisons of average learning in schools in July 2019 and March 2021.	How the average level of learning, in term two, for form one and form two girls has changed over the time period.
A panel of the same girls from July 2019, who were tested again in March 2021.	If girls have forgotten any maths / reading skills over the period.

To **maximise the comparability** between the two time periods we used the same tests that were administered by the projects' external evaluators in 2019. We would ideally have used different test items that capture the same competencies to avoid the memorisation of answers. However, the length of time between survey rounds (nearly two years) and the change in children sitting the tests means that memorisation is very unlikely for the cross-cohort sample – they would have been in different schools when the midline evaluation was carried out. Memorisation was equally unlikely for the panel girls who sat exactly the same test but two years prior.

Our primary data collection was timed to coincide with the second term of the school year, which was the point at which the girls were tested previously. So, while the month of data collection differed, the school terms were the same, due to changes in the school calendar caused by school closures. As a result, we do not envisage any significant difference in volumes of syllabus / curriculum covered between the two cohorts, besides that stemming from the amount of instructional time received.

**Learning assessments**

**For the learning assessments** we used Secondary Grade Reading Assessment (SeGRA) and Secondary Grade Mathematic Assessment (SeGMA) tools. Both tools were designed, calibrated, and piloted by the external evaluators and administered on paper. Tests were administered in the language of instruction i.e., English in Kenya and Nepali in Nepal.

The SeGRA (reading) test consisted of three different tasks – two of which required the student to read a passage and answer the corresponding questions to check their comprehension skills. The third section required the student to write a short story which was then assessed based on their linguistic ability (e.g., flow of ideas, use of vocabulary, construction of sentences).

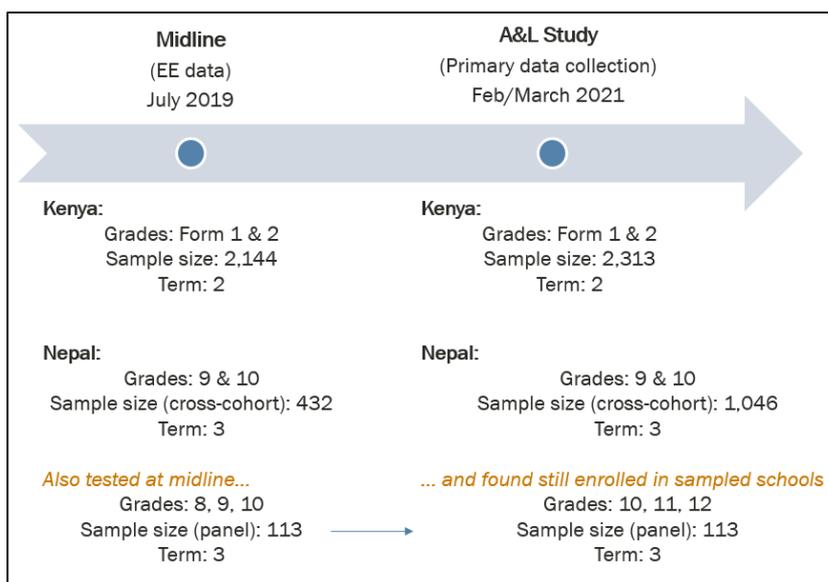
The SeGMA (maths) test contained three different tasks, starting with arithmetic questions (Task 1), progressing to questions on algebra (Task 2) and more sophisticated maths problems (Task 3).<sup>23</sup>

To understand more about the girls, and what they had done during school closures, we collected background information on the girls and the schools they attended, and what support was offered during school closures. We included questions from the previous research instruments used by the IPs' external evaluators allowing us to look at how girls' situations have changed over time and to check if our samples were sufficiently balanced.

**Girls' survey**

A **girls' survey** was administered to girls participating in the learning assessments, and included questions about the girls' home environment, socioeconomic status, and how they spent their time (in terms of schooling vs chores vs

**Figure 1: Figure 2: Data sources, timing and grades assessed**



<sup>23</sup> Similarly, the SeGMA test contained three different groups - Task 1 and Task 2 and Task 3. Task 1 contained questions mostly on arithmetic, while Task 2 contained questions on algebra and Task 3 contained questions on word problems and geometry.

work). In addition, the girls' survey included a module on participation in education during school closures to allow us to understand what studying the girls had done at home, and who had helped them.

### School survey

We also conducted a **school survey**, to collect information on the school, the initiatives adopted by the schools to continue providing education throughout the Covid-19 period, and their plans for reopening.

#### Sample size

The samples for cross-cohort learning comparisons were 4,457 Kenyan girls assessed across 50 schools in Forms 1 and 2; and 1,478 Nepalese girls assessed in 45 schools in grades 9 and 10.

We aimed to replicate the sampled numbers from the midline evaluation data in Kenya, yielding 46 pupils on average per school. However, in Nepal, the midline evaluation data had quite small samples, so we aimed to increase the sample numbers, yielding 12 pupils on average per school and grade instead of an average of 3-5 pupils at midline.

In addition, the Nepal data include a **panel of 113 girls** who participated in the midline learning assessments (grades 8,9 and 10) and were identified in the sampled schools (see horizontal arrow in *Learning assessments* ) in 2021. These girls progressed, on average, two grades since midline.

Given the importance of radio lessons, we also looked at **coverage** to see if there were inequities of access based on locations by using data from the Radio Data Centre. The dataset included geographic information system (GIS) locations of radio transmitters from which radio stations were broadcasting, as well as JSON type polygons that were calculated for robust daytime propagation. The dataset included both short (FM) and medium (AM) wave frequency transmitters, which we restricted to those that were broadcasting the radio lessons.

For Kenya, the official Kenya Institute of Curriculum Development (KICD) website<sup>24</sup> showed the radio lessons were broadcasted via Kenya Broadcasting Corporation (KBC), Taifa, and Ifini stations. We found all but three schools were covered but as we lacked information on the girls' households, we cannot estimate the full coverage. We followed a similar process in Nepal, where coverage was much more universal. The main examination support was provided through a mix of Radio Nepal and community radio broadcasts, and all sampled schools were within the coverage areas of one of these stations.

Our primary quantitative data were complemented by **qualitative data to try and unpack and explain any changes in learning** – these data were collected through focus group discussions (FGDs) with girls and parents, as well as in-depth interviews (IDIs) with other key stakeholders (i.e., district officials, IPs) and girls.

Semi-structured topic guides were developed for both the FGDs and IDIs to facilitate discussion (see *Annex 1 – Consent Forms and Qualitative Research Tools*). This research was intended to shed light on the perceptions of different stakeholders on how access to learning and learning levels changed. Details of the achieved qualitative samples in each country are presented in *Table 7* below.

**Table 7: Sample completion of In-Depth Interviews and Focus Group Discussions by country**

	# Schools Visited	# IDIs with Girls	# IDIs with Caregivers	# IDIs with Teachers	# FGDs with Girls	# IDI / FGD with parents	# IDI with Mentor/Coach or Teacher	# IDI with Community Health Workers	Total
<b>Kenya</b>	6	20	20	16	16	12	4	4	<b>92</b>
<b>Nepal</b>	4	24	15	2	14	4	2	0	<b>61</b>

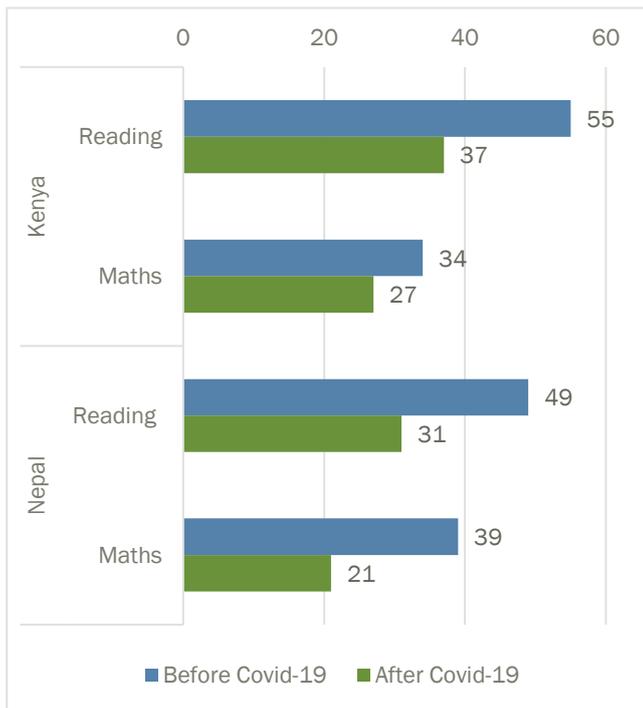
<sup>24</sup> [Radio Timetable 2021 : Kenya Institute of Curriculum Development \(kicd.ac.ke\)](http://radio.kicd.ac.ke)

## 4.2. Results – Changes in Average Learning Levels Over Time

In both countries we found large and statistically significant changes in the average levels of learning in maths and reading, with scores noticeably lower on average than before the pandemic. In Nepal, we also found that girls had lost maths and reading skills they had before, with a sub-sample of the same girls scoring lower on the same test.

These learning losses are linked to low levels of study during the school closure period and present a substantial challenge in terms of getting children back on track. The magnitude of the losses is noticeable with the current cohort scoring 0.37 standard deviations (SD) less than previous cohorts in maths and 0.86 SD in reading in Kenya; and 0.73 SD in maths and 0.89 SD lower in reading in Nepal<sup>25 26</sup>.

Figure 3: Total score (percentage correct) before and after Covid-19



In **Kenya**, we found that average learning levels fell more in reading (-18 percentage points – p.p.) than maths (-7 p.p.). Prior to the pandemic girls were getting over half the questions right in reading, which fell to just over a third. The fall was less in maths, but from a lower level – previously the cohort was getting about a third correct but fell to just over a quarter.

In **Nepal**, average learning levels fell across subjects (-18 p.p.). Again, average learning levels in reading fell from about half of the questions correct to under a third – and in maths fell from getting two out of five questions correct to about one in five.

For the **sample of panel girls**, who were tested two years apart, the changes in the scores tells us how much they have forgotten (or recalled). They have much lower post-covid scores in maths (-21 p.p.) and reading (-14 p.p.) despite being two years older. These changes are statistically significant. For these girls, we can say that this is knowledge they had before that they have lost. So, while previously they could answer two in five maths questions, they forgot how to answer half of these (falling to answering one in five questions correctly).

**The changes in learning levels vary noticeably between schools, with some schools experiencing higher average scores than before.** In Kenya, we found a range of between plus 12 p.p. and minus 22 p.p.; while in Nepal the range is even greater, with some schools scoring 37 p.p. higher and some 71 p.p. lower.

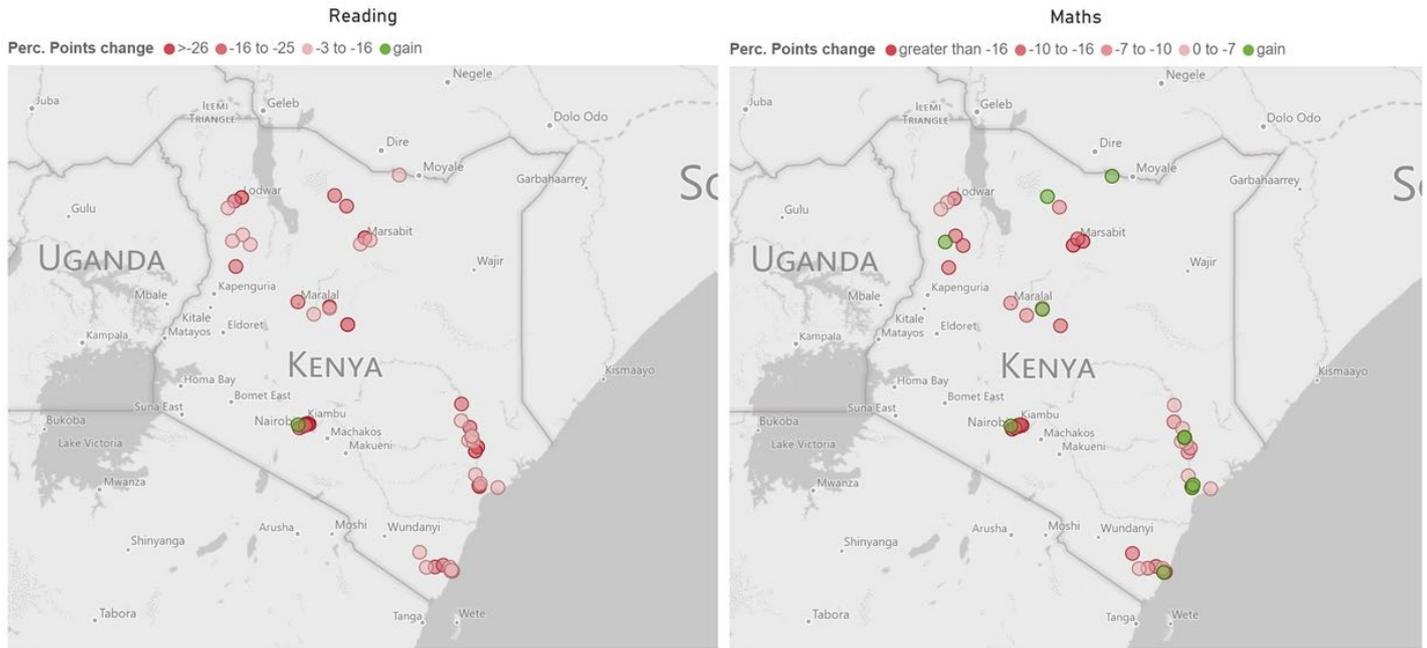
However, most schools had lower average levels of learning post-covid, but ten out of the 50 schools in Kenya had higher average performance in maths and one school improved in reading. In Nepal, we found five schools have improved in maths and four in reading (out of 45). The full distribution of changes in average scores are shown below.

Our results are consistent with those found by others in general (see [Annex 5](#) for more details) – with most studies finding learning losses during school closures. In Kenya, Maths Whizz found lower levels of learning on average, but with some pockets of gains. Our findings are at odds with EDT’s findings for primary schools, which found literacy to have been maintained overall (but with falls in rural areas) while maths scores increased from 18 to 25% correct for grade 7 – closing the gap between primary and secondary pupils. It is unclear what is driving this, though we know that EDT’s support did reach a greater share of their primary school girls than secondary (79% vs 69%) to help them access the media lessons.

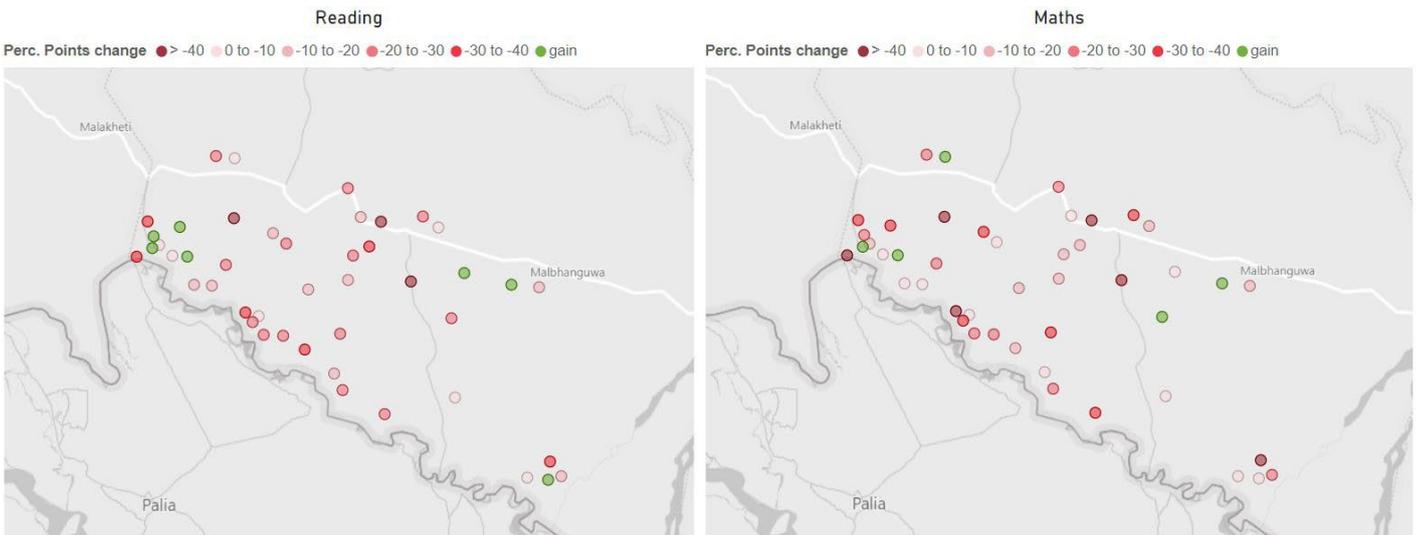
<sup>25</sup> We do not look at how these low levels of learning correlate with high teacher assessments of grades as it is beyond the scope of this paper to discuss inconsistencies across measures.

<sup>26</sup> We tried to estimate the average changes in learning between the time periods in terms of their equivalent years of schooling to aid comparability. To do this, we need to estimate the amount of learning in a previous school year, which is traditionally done by looking at between grade changes (so comparing scores for grade 9 children with grade 10). This was challenging, as the average learning levels between grades was only between one to four percentage points on the test – which when compared to the high percentage point falls in average learning between cohorts, suggests a very high loss in the equivalent years.

**Figure 4: Average changes in school performance in Kenya**



**Figure 5: Average changes in school performance, Nepal.**



**We found lower average performance on most of the SeGRA and SeGMA questions.** In Kenya, we found lower average performance in all but three questions of the SeGRA test (out of 15) and all but two questions in maths (out of 24). In Nepal, we found losses in 10 /11 questions in reading; and 15 /16 questions in maths. Alongside this, we also observed a slight pattern of greater falls in the harder questions.

As we are comparing two different cohorts of children, it is possible that the differences in the average learning levels are due to changes in the composition of children in the sample. We find our samples to be relatively balanced compared to the projects' midline evaluation samples, with no statistically significant differences in terms of age, proportion of girls married, disabilities (in Nepal) and serious illness (in Kenya).

In Kenya, more students reported disabilities than at midline, particularly in regard to memory recall or concentrating (5% versus 2% of the samples). In Nepal, a lower proportion of students reported a serious illness in the preceding year. In both Kenya and Nepal, we also found changes in average prevalence of the language girls reported spoken at home (see [Annex 7](#) for a detailed description). While this could indicate sample imbalance, girls in the panel sample also reported changes in the language spoken in their homes.

To understand more what was driving the lower levels of average learning, and to see how robust the estimated changes are to possible confounding factors, we ran a series of regressions – a first set where we estimate a pseudo-

treatment effect of Covid-19 school closures; and then a second set where we try to unpack the estimated Covid-19 effect.

### Estimating the effect of school closures

#### *Methodology for estimates of school closures on learning levels*

To estimate the effect of school closures on the average learning levels of girls, we first standardised the learning outcomes to a Z-score across the rounds to transform the scores so that the sample mean equals zero, and the standard deviation is equal to one. This allows us to estimate the changes in average learning in terms of standard deviations for comparability.

We used a dummy variable equal to one for data collected in the post-Covid-19 period, and zero otherwise. We regressed this variable on the Z-score of learning achievement.<sup>27</sup> As our Z-score transformed our data by taking all girls' performance (for both rounds) and ranked them from worst to best with the average being ranked zero, the dummy variable for post-covid tells us where the post-Covid test scores are compared to pre-Covid, with a positive sign indicating they are on average higher, and a negative sign showing they are, on average, lower.

Our simplest model (model 1 in [Table 8-In Nepal](#), the average learning levels fell by about 0.73 and 0.89 standard deviations (SD) for maths and reading, which fall to 0.70 SD in maths and increase to 0.90 SD in reading when we control for changes in background characteristics of the girls. This is shown in [Table 9](#) above.

[Table 10](#)) includes just this variable, to get an estimate of the overall changes in learning scores between the time periods. As we are estimating the average changes at the school level, we included school-level dummy variables and form-dummies (models 2-4 in [Table 8-In Nepal](#), the average learning levels fell by about 0.73 and 0.89 standard deviations (SD) for maths and reading, which fall to 0.70 SD in maths and increase to 0.90 SD in reading when we control for changes in background characteristics of the girls. This is shown in [Table 9](#) above.

[Table 10](#)) to try to control for unobserved fixed-effects at the school and form level – anything which does not change over the time period within schools will be netted out. We then re-estimated, but using a range of control variables, including girls' ages, grade, household wealth, and language spoken at home (models 3 and 4 in [Table 8-In Nepal](#), the average learning levels fell by about 0.73 and 0.89 standard deviations (SD) for maths and reading, which fall to 0.70 SD in maths and increase to 0.90 SD in reading when we control for changes in background characteristics of the girls. This is shown in [Table 9](#) above.

[Table 10](#)).

#### *Statistical significance of learning loss estimates*

We find that the learning loss estimates are robust across all these specifications and yield statistically significant learning losses in Kenya and Nepal in both maths and reading.<sup>28</sup> This means that even after including girls' individual and background characteristics in the regression model, the estimated falls in average learning levels remain highly statistically significant and are not confounded by changes in the age of girls in the sample, grade, changes in family wealth, or language spoken at home (though all of these factors are correlated with learning outcomes).

In Kenya, we observed a decrease in average learning levels by around 0.37 and 0.86 standard deviations in maths and reading, respectively. This is shown in [Table 8](#) below.

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<sup>27</sup> Z-score of percentage achievement.

<sup>28</sup> The results remain statistically significant in all models even under the most robust specification which includes school fixed effects and clustering at school level.

Independent Evaluation of the Girls' Education Challenge Phase II - Evaluation Study 1: Effects of Covid-19 on Access and Learning in GEC II – Final Report

**Table 8: Learning loss, Kenya**

Estimates of learning losses - Z-Score of Percentage Correct								
	Maths				Reading			
	1	2	3	4	1	2	3	4
Covid-19 effect	-0.372*** (0.0295)	-0.371*** (0.0251)	-0.367*** (0.0252)	-0.372*** (0.0268)	-0.863*** (0.0271)	-0.875*** (0.0236)	-0.874*** (0.0234)	-0.868*** (0.0246)
Age			-0.0481*** (0.0120)	-0.0459*** (0.0128)			-0.0587*** (0.0111)	-0.0687*** (0.0117)
Class			0.168*** (0.0271)	0.154*** (0.0284)			0.287*** (0.0252)	0.282*** (0.0260)
Wealth index			-0.331*** (0.0816)	-0.355*** (0.0851)			0.184** (0.0757)	0.183** (0.0780)
Language: Kiswahili & Other				0.108 (0.0757)				0.120* (0.0691)
Observations	4,435	4,435	4,432	4,034	4,432	4,432	4,429	4,031
R-squared	0.035	0.313	0.320	0.330	0.186	0.396	0.414	0.423
School fixed effects	No	Yes	Yes	Yes	No	Yes	Yes	Yes

Standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 9: Learning loss, cross-cohort girls, Nepal**

Estimates of learning losses - Z-Score of Percentage Correct								
	Maths				Reading			
	1	2	3	4	1	2	3	4
Covid-19 effect	-0.729*** (0.0540)	-0.655*** (0.0488)	-0.696*** (0.0490)	-0.699*** (0.0525)	-0.885*** (0.0524)	-0.818*** (0.0487)	-0.887*** (0.0478)	-0.902*** (0.0513)
Age			-0.0923*** (0.0196)	-0.0901*** (0.0196)			-0.116*** (0.0191)	-0.116*** (0.0191)
Grade			0.185*** (0.0477)	0.183*** (0.0476)			0.443*** (0.0465)	0.443*** (0.0465)
Wealth index			0.178 (0.120)	0.138 (0.121)			0.0532 (0.117)	0.0276 (0.118)
Language: Tharu				-0.148** (0.0586)				-0.0783 (0.0572)
Language: Other				-0.0405 (0.0624)				0.0197 (0.0609)
Constant	0.516*** (0.0454)	0.583*** (0.128)	0.209 (0.437)	0.260 (0.437)	0.626*** (0.0441)	0.662*** (0.128)	-1.661*** (0.427)	-1.630*** (0.427)
Observations	1,478	1,478	1,478	1,478	1,478	1,478	1,478	1,478
R-squared	0.110	0.330	0.342	0.345	0.162	0.333	0.375	0.376
School fixed effects	No	Yes	Yes	Yes	No	Yes	Yes	Yes

Standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

In Nepal, the average learning levels fell by about 0.73 and 0.89 standard deviations (SD) for maths and reading, which fall to 0.70 SD in maths and increase to 0.90 SD in reading when we control for changes in background characteristics of the girls. This is shown in [Table 9](#) above.

**Table 10: Learning loss, panel girls, Nepal**

Estimates of learning losses - Z-Score of Percentage Correct								
	Maths				Reading			
	1	2	3	4	1	2	3	4
Covid-19 effect	-0.941*** (0.118)	-0.941*** (0.111)	-1.384*** (0.256)	-1.403*** (0.259)	-0.759*** (0.123)	-0.759*** (0.116)	-1.398*** (0.268)	-1.422*** (0.272)
Age			-0.0948 (0.0649)	-0.0900 (0.0654)			-0.0645 (0.0680)	-0.0594 (0.0686)
Grade			0.318** (0.125)	0.310** (0.127)			0.388*** (0.131)	0.382*** (0.133)
Wealth index			0.0171 (0.0460)	0.0149 (0.0463)			0.0127 (0.0482)	0.0111 (0.0486)
Language: Tharu				0.0341 (0.165)				0.000168 (0.173)
Language: Other				0.171 (0.213)				0.160 (0.224)
Constant	0.471*** (0.0831)	0.471*** (0.0781)	-0.983 (1.210)	-1.003 (1.218)	0.380*** (0.0872)	0.380*** (0.0823)	-2.184* (1.268)	-2.221* (1.277)
Observations	113	113	113	113	113	113	113	113
R-squared	0.223	0.380	0.401	0.403	0.145	0.313	0.342	0.344
School fixed effects	No	Yes	Yes	Yes	No	Yes	Yes	Yes

Standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

For the panel girls (*In Nepal*, the average learning levels fell by about 0.73 and 0.89 standard deviations (SD) for maths and reading, which fall to 0.70 SD in maths and increase to 0.90 SD in reading when we control for changes in background characteristics of the girls. This is shown in [Table 9](#) above.

Table 10), we estimated the gain or loss in knowledge for individual girls – that is, can they still answer the same questions as previously, or more/less? Here we observed similar levels of decreases, with girls scoring on 0.94 SD lower in maths and 0.76 SD lower in reading. This means that if we treat each girl's performance as a separate event, girls who are in the group 'post-Covid-19' score substantially lower than the girls before Covid-19. For these girls, we can also look at a simpler average change in learning scores by subtracting the score before from the score after – this shows a fall in the average percentage correct of 20 points in maths and 13 points in reading. As these are the same girls, these are questions that the girls got correct previously, which they no longer got correct, which is a true measure of 'learning losses'.

As the distribution of scores across the two samples (all the girls, and the panel girls) are similar, the SD can be used to compare the magnitude of the falls here showing that the impact on 'lost learning' for the panel girls was greater than the average learning lost between cohorts.

### 4.3. Understanding Why Average Learning Levels Fell

As part of the fieldwork, we also conducted two sets of surveys – one to obtain background information for the girls participating in our learning assessments, and the other with Headteachers. Where possible, the surveys used the same questions used for the projects' midline evaluations, allowing us to consistently identify changes over time. We used these surveys to explain the correlation between the average level of learning losses between cohorts, and how girls spent their time during school closures and the support they received.

As the information on the support was only collected during the post-school closures wave of data collection, we are limited to estimating this at the school level. So, caution is required given the de facto smaller sample sizes when drawing definite conclusions<sup>29</sup> – we explain the *average learning loss* for the girls in schools with the *average time spent studying by girls in that school* and the average share of children accessing textbooks (and so on).

<sup>29</sup> Our main concern is the de facto sample sizes of some of our estimates. This means that for the regressions where we look at the average changes at the school level (as we lack comparable individual level information and so we need to compare school group averages) we have low power, which means that we may not be able to detect effects even if they exist. It can also inflate our point estimates as smaller samples tend to have more variation, lowering confidence in the internal validity of results.

As with the estimates of the magnitude of learning losses, we took a stepwise approach to building the model, introducing categories of possible explanatory factors – starting with studying, before moving on to other uses of time.

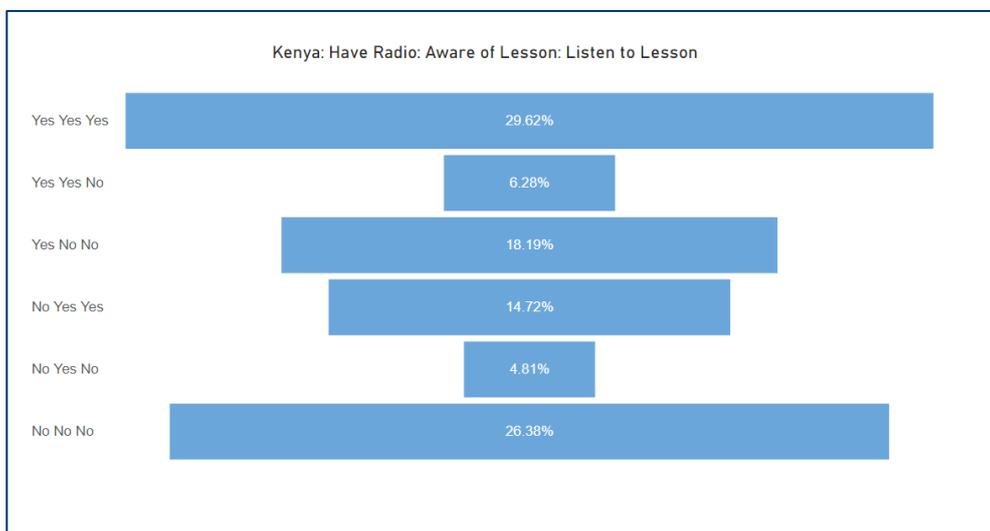
Our first set of factors related to how often children reported studying at home; how frequently they studied; how they studied (what activities); if they received study instructions from school; if they were helped by anyone during the school closures, or if they listened to the radio teaching programmes. We also looked at other uses of their time, such as household chores and working.

We regressed these factors on the school level estimates of learning changes in Kenya and Nepal; and also, on individual level changes for the panel of girls in Nepal. The results are discussed below.

### Why learning fell in Kenya

**In Kenya, none of the variables captured were found to be statistically significant for maths. For reading, the only factors which were found to be significantly associated with mitigating learning losses (so had a positive coefficient) were for schools with a greater share of children reading a book together with a parent or sibling; and a greater share of children receiving help from a teacher during the school closures.**

Figure 6: Radio access, awareness and use in Kenya



As the main modality of learning support was through radio lessons, we investigated this further and looked into coverage of the radio broadcasts, and cell phone coverage with the simple hypothesis being that if girls were out of the broadcast area, then they could not access the lessons. The vast majority of the sampled schools were located within range of the radio broadcast (which Government placed on medium wave stations to maximise coverage), but some were outside. As we lack girls'

household locations (and girls travel large distances for secondary) we were limited in our ability to fully unpack this statistically.

Despite this, we found just **55% of children reported being aware of the radio lessons, while 44% of children reported listening to a radio lesson.** To understand why this was the case, we looked at radio ownership, and if only those who owned the radio were aware – this was not the case, with 66% of radio owners being aware of the lessons while 42% of those without access were aware. Equally, 15% of children said they managed to hear the lessons without owning a radio (or phone with radio access) by listening at neighbours' or friends' houses, while just 6% of those who had a radio and were aware did not listen.

**Access to receivers, and knowledge of the broadcasts was a barrier to the radio lessons impacting on learning.** Equally, sustaining interest was challenging, as even for those who did listen, did so infrequently (just 15% reported listening every day). This is a major challenge for supporting learning during school closures, as the main support modality did not reach a majority of children.

While there were no obvious correlates between learning changes across the whole group sample, we also tried looking at differences in behaviours or girls studying between schools where learning fell, and those where it increased. We focused on maths scores, where 10 schools were found to have maintained or increased the average level of learning between cohorts.

One hypothesis is that the schools which experienced learning gains did so from a lower base – while we found significant differences in the percentage correct between the two groups at the midline evaluation stage, it is not large

– at 32.4% vs 34.8% at midline. Looking at the activities reported by girls, a greater proportion of **girls in schools that experienced learning gains in maths** reported having studied at home<sup>30</sup>.

They also reported getting helped by a sibling during the school closures. They were also more likely to report having practiced exercises in textbooks and solving assessments bought by parents; and listening to the radio lessons more often and using materials such as pen and paper.

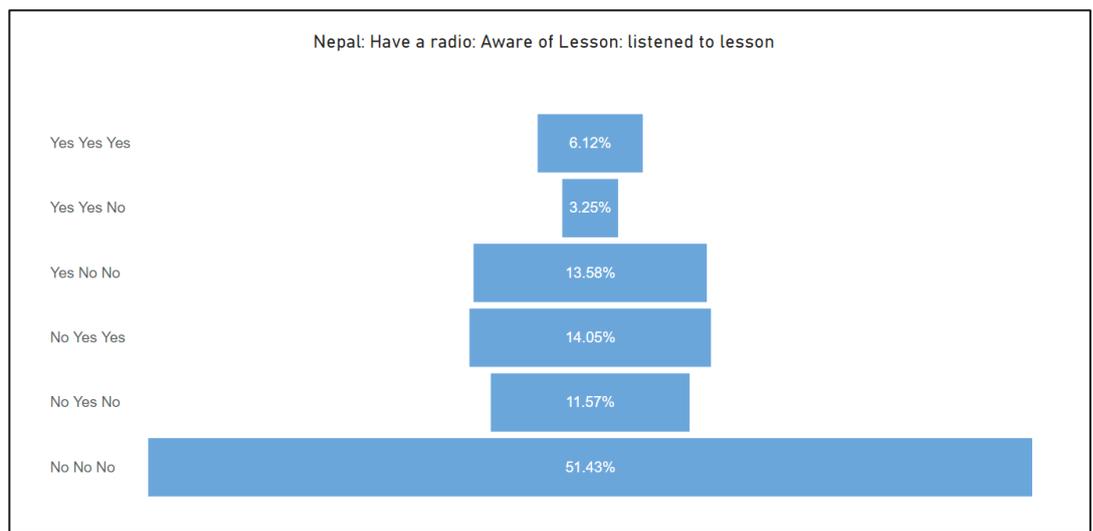
However, the contrary is found for the **TV lesson programmes**, where girls from schools with learning losses in maths are more likely to be aware and watch such programmes than girls from schools with learning gains in maths. This finding is counter-intuitive and suggests that the TV lessons were not effective – but as the share is quite small (34 vs 39%) we are cautious in drawing strong conclusions here.

We found very few other differences between the group of schools with learning gains and those with learning losses. The only exception was that that the schools with learning gains schools reported a wider range of support – including allowing the use of the school library, informing parents and students to come and pick reading materials, visiting students in their homes, informal teaching through contacts with parents, and providing holiday assignments.

**Why learning fell in Nepal**

In Nepal, we found that schools where a greater share of children **had a school textbook at home and received help from parents were positively associated with the learning changes in maths**. Parental help was also found to be positively associated with learning changes in reading. Given the low levels of access to other learning materials, it is likely that the textbooks were key to providing learning opportunities.

*Figure 7: Radio access, awareness and use in Nepal*



Where we tested the same girls in Nepal, we can directly estimate the impact of their activities on their learning losses. While our sample size is smaller, at 113 girls, it is greater than the de facto sample for the school level regression. We found that **girls who reported studying more frequently, reading from textbooks by themselves, or watching videos on YouTube showed a positive impact on their reading test achievements** (through mitigating losses and achieving gains). Unexpectedly, we find that **working in a family business is positively associated with learning in maths**, with one third of girls working in the business doing better than those not working.<sup>31</sup>

**In Nepal, we found much greater access issues to remote learning** – with only 6% of girls reporting yes to all three questions on having a radio, being aware of the lessons, and then listening. Some 77% of the sample did not own a radio; and an equivalent share did not know the radio lessons were being broadcast.

When we grouped the Nepalese schools into those with learning gains/losses between cohorts, we found that the midline performance for those with gains was (statistically significantly) lower. Schools where learning improved had midline scores of 25% correct, while those where learning fell had 41.5 percentage correct. This suggests that some of the gains could be due to catch-up.

<sup>30</sup> though a greater share of girls from schools with learning losses reported having spent some schooling time and homework time each day.  
<sup>31</sup> While time spent working in business might at first sight be seen as detrimental to learning, business also offers learning opportunity through mentoring and some businesses do not require girls to be excessively busy but simply wait in their stores for customers etc., which provides more time to study than if they had been at home where there would be too many chores and adult demands to attend to.

There are differences between the groups in terms of the time they reported on activities and how they studied, with studying being more frequent, but also more active in schools where learning increased.

As with Kenya, we found that a higher share of girls in schools with learning gains reported listening to a radio programme (for maths) and watching videos on YouTube (for reading); and were also significantly more likely to have their school textbook at home whilst studying. They also reported having listened to radio and TV lessons more frequently compared to their counterparts and used some learning materials (e.g., pens, paper, books) while listening to radio or watching TV lessons. Girls from schools with learning losses reported a greater share of their time being used on work activities such as caring for other family members, household chores (for maths), fetching water (for both maths and reading), and agricultural work (for reading).

At the school level, about 40% of head teachers in schools where learning fell, reported hearing of teachers from other schools who were paid for tutoring (this was asked as an indirect way of ascertaining the incidence of private tutoring), while none of the head teachers from schools with learning gains did. A greater share of schools with learning gains reported providing support in terms of offering online teaching during the school closures as well as extra support provided to students, including low and high achievers, and poor students.

### Summary

In Kenya we found **what girls reported to have happened during the school closures did not consistently explain the changes in learning between cohorts across all schools**. When we grouped schools into those with gains and losses, we did find more consistent patterns, with girls in schools with maths gains reporting studying more and using practise exercises more; and listening to the radio more.

In Nepal, the results were more consistent, and we found that schools where girls had access to school textbooks at home and received help from parents were positively associated with learning.

Where we could track the same girls over time, we found that the girls who **reported studying more frequently, reading from textbooks by themselves, or watching videos on YouTube suffered lower levels of losses**.

## 4.4. Perceptions of Why Learning Loss Occurred

In addition to measuring learning, we also asked girls, teachers, and caregivers (through the qualitative research) around their perceptions of changes in learning levels, and why these may have changed as a result of school closures.

In both Nepal and Kenya, insights from the qualitative data around why learning levels may have deteriorated as a result of school closures suggest **limited access to learning resources** and **difficulties in studying without the support of a teacher** or someone helping them to grasp difficult concepts or answer questions. **Motivation to study was also cited as negatively impacting on girls** the longer that schools were closed; while girls started to take on **other responsibilities** such as additional chores or work outside of the house the longer that schools were closed – particularly girls from households worst affected by the negative economic impact on household income as a result of Covid-19, which reduced the amount of time they spent on studying. This corroborates our quantitative analysis and findings that suggest girls were more likely to have helped with the family business (in Kenya) or on caring activities, agricultural work, and fetching water (in Nepal) than before school closures.

### *Limited access to physical and digital educational resources*

In both Kenya and Nepal, **access to educational resources** was cited as a reason why less time was spent on studying, with the gap between girls from richer and poorer households widening based on whether they could access these resources.

In Kenya, **access to physical resources** also presented challenges for girls studying from home, and this was widely reported in the qualitative research in Kenya. When asked about the experiences of studying at home, one girl in Mombasa mentioned “*I had time, but I didn't have any books,*” (IDI, ISG, Mombasa), while in Tana River, a girl highlighted a “*lack of electricity and revision books*” (FGD, Girl, Tana River) as key barriers to being able to study. While EDT delivered printed tutorials across all county areas in Kenya to support home learning, it is unclear whether these tutorials reached all in-school girls and/or whether this included textbooks to help them study.

Issues such as a **lack of electricity** may also have prevented girls from studying after dark or using a laptop or smart device to access online materials, while a lack of revision books may have affected which aspects of the curriculum girls could study. A further reported issue (more prevalent in rural areas) was access to phones. Relatedly, girls in

Kenya raised issues around needing to share resources within their household during school closures, which impacted their ability to study at home. Studies carried out on the status of remote learning in Kenya during the Covid-19 crisis show that access to digital learning is low and inequitable with only 22% of children accessing digital learning. (Uwezo, 2020). In Tana River, one teacher mentioned they were not able to contact the girls as they did not have access to a mobile phone:

*“In our school, most of them do not have phones. Most of them come from humble backgrounds. So [...] it's like we closed in March and waited until October when [schools] opened.”* (IDI, Teacher, Tana River).

A girl in Nairobi mentioned that although she wanted to watch EDU TV (the educational TV channel provided by the Kenyan Government), she was not able to do so as often as she wanted as, *“My siblings preferred watching other channels and I would find myself watching it just once a week”* (IDI, ISG, Mombasa). While there was some mention of girls being able to share access to phones and radios with friends or others in the community, there was no indication of how effective this was, or how much the students were able to engage with materials in this way. Moreover, with the exception of solar radios to help girls listen to government radio lessons and programmes, EDT did not plan (as part of their response) to deliver any other electronic devices or hardware such as phones or televisions. This suggests that **one of the key reasons that girls were not able to continue studying was the lack of resources to do so, either digitally or physically**, with limited alternatives being offered by schools to help girls continue learning.

The lack of both physical and digital resources was also presented as an issue in Nepal. Whilst many households, according to stakeholders, did have access to radios, the ability to access information through mobile devices was limited for many learners who **relied on shared family devices or the goodwill of neighbours**. Financial constraints and the cost of data for video calls as well as access to recharging facilities for mobiles were cited as reasons for not accessing online classes in Nepal. Learning was also hindered for many students by the **inability to access textbooks and other learning materials** (Kenya). This was noted by stakeholders to be a particular problem for children with disabilities in Kenya for whom adapted distance education and learning materials were not provided.

**Access to technology**, and in particular phones and the internet, have been highlighted by stakeholders as well as by secondary data as being a major challenge facing the education system in Nepal during Covid-19. Only 54% of rural households have access to one technology (radio, TV, internet) according to the Nepal Labour Force Survey 2017-2018, and Mercy Corps did not seek to procure or provide devices to girls as part of their response plan. Teachers in Karnali with whom we spoke also highlighted that so few of their students had access to phones, radio or online sources that **digital or technology-based learning was not really an option**: *“75% of our students don't have mobile phones... Some do not even have a radio”* (FGD, Teachers, Karnali).

The lack of access to technology was highlighted as a major challenge by stakeholders interviewed as part of this study. Some girls (particularly older children) reported having listened to lessons on radio or TV, however, learning was noted to have been severely disrupted for girls due to the increased burden of household chores and their disengagement with learning. This aligns with the Mercy Corps Q15 End-line Quarterly Report evaluation finding that 87% of girls started to lose interest in their studies, which affected their future aspirations for their studies and work.

Moreover, while girls and parents cited being aware of others who were engaging in online classes, it seems these differed by school and were not available to all:

*“We didn't have an internet facility for online classes... Our children couldn't get anything to do till the lockdown was over. Their study is spoiled.”* (FGD, Parents, Dhangadi).

While a girl in Darakh noted:

*“Online classes were conducted in other schools, but in our school nothing like that happened. If it was done then, in some point it would have been easier for us to read. But nothing happened.”* (IDI, ISG, Darakh).

### *Loss of motivation*

Our qualitative findings from Kenya suggest that girls were initially keen to continue studying while schools were closed, and that they made use of the resources that were already available or accessible to keep them engaged. However, over time, it appears that **girls' motivation to study was increasingly negatively impacted**, as reported by the girls themselves, teachers, and parents, across both urban and rural areas.

According to teachers, girls' motivation was negatively impacted the longer that schools were closed: *“At the first stages at home, they [girls] were studying [but] the culture faded away when they overstayed at home”* (IDI, Teacher, Turkana). In this example, the teacher further explains that the loss of motivation was a secondary effect of spending less time on studying since:

*“They admitted that they forgot about school after some time and focused on having fun by attending parties, visiting friends and relatives. That affected their performance, and we are not yet catching up.”* (IDI, Teacher, Turkana).

This highlights challenges not only arising from the conduciveness of the learning environment at home, but also the additional distractions that impact on the ability of girls to maintain **concentration** and time studying. Girls in our research also spoke about **“losing hope”** the longer that schools were closed. As one girl mentioned:

*“In our neighbourhood, we had a group of 10 school-going students comprising five boys and five girls. We used to study from morning till afternoon. Each day we would tackle a different subject. We later lost hope and stopped.”* (IDI, ISG, Turkana).

Another effect of motivation being negatively impacted by the school closures and spending less time studying was that it prompted (or was perceived to prompt) more girls to consider **alternative ways of spending their time**, including **marriage**. For example, one girl noted that:

*“The minister of education used to say that he would open on a certain date and when that date reached, we didn't go to school. So, you would just study and ask, when will I go to school? What is this studying for.”* (FGD, Girls, Turkana).

She further added that the **length of school closures also affected the norms and views of community members, who felt that marriage would be a more viable option for girls**: *“It reached a time when our neighbours even used to say that we won't go back to school, we should just get married.”* (FGD, Girl, Turkana). The findings therefore suggest that the length of school closures began to impact both individual aspirations among girls for education, as well as the perceived relevance or value of girls' education according to members of the community.

The **“loss of hope”** in returning to school also prompted some girls to seek alternative ways to spend their time, including **pursuing income-generating activities**. As one parent described, *“Looking at how things were, they [the girls] lost hope and interest in learning because of the situation. They [girls] decided to quit school and engage in income-generating activities.”* (IDI, Parent, Mombasa). This suggests that school closures may not have only reduced the amount of time spent studying (and therefore contributed to learning loss) but may well have resulted in some girls dropping out of school altogether.

An additional issue raised in Nepal, which was less prevalent in Kenya, was **confusion over whether exams would take place**, impacting girls' motivation to continue studying at home. This issue was pertinent across all regions. For example, in Karnali, the girls noted:

*“After school resumed, we collected books from the library and read. We were in confusion of whether the exam would be conducted or not so we could not give proper attention to study.”* (FGD, ISGs, Karnali).

While in Darak and Dhangadi out-of-school girls (OOSG) highlighted that because *“there was no fix regarding the exact date of the exam [...] I didn't like to study at that time.”* (IDI, OOSG Darak). This indicates that girls may have been more **motivated to study when they knew in advance they had exams to pass**, and that this uncertainty negatively impacted the amount of time that girls spent studying at home. This was because not knowing how to prepare for exams meant that girls would sometimes be reticent to study at all: *“[We studied] nothing, because we had no idea [of] the question patterns and exam conduction.”* (IDI, OOSG, Dhangadi).

One girl noted that the Nepali Government decided not to go ahead with the Secondary Education Examination (SEE) exams (transition exam), which meant that girls received predicted grades. While for some this was perceived to be beneficial, others noted that it may have further impacted student motivation: *“SEE students were evaluated as per their internal evaluation. We found two categories of students: weak students who felt they got chance to improve and work upon, and talented students who felt they got less than they deserve”* (FGD, ISG, Darak). While this will not have affected the learning levels measured in our sample (which were independently assessed in February – March 2021), this may, in Nepal at least, help to explain trends for why some girls who were predicted to have remained in school had dropped out, and vice versa (see section on **Predicting girls at risk of not returning to school**).

### *Limited interaction with teachers or peers*

Students lamented the **lack of interaction they had with their teachers** and the inability to get the support they needed remotely. In addition to negatively impacting girls' motivation to study and hindering their ability to grasp new concepts, the limited interaction also prevented teachers from being able to identify and provide direct support to weaker students.

Reports from teachers, the girls and parents in Kenya found that the learning modalities used during school closures, which included radio lessons, WhatsApp lessons, practising past exams or revising notes, meant that **children struggled to ask teachers questions directly** when they encountered challenges with the learning materials and concepts. This was highlighted with reference to issues in interacting with teachers on online portals, issues in accessing online materials, and the **one-way flow or modality of communicating and learning**. As one teacher in Mombasa noted:

*“When I am far from them and we are speaking on the internet, it’s hard for you to know who is getting whatever you’re teaching and who is not getting it [...] in class you are at least able to identify the weak person and the strong person and put much more effort into the weak person.”* (IDI, Teacher, Mombasa).

Beyond identifying learner needs, this also highlights that **teachers were not able to effectively use their time** to provide additional support to those individual students in need. A parent in Mombasa acknowledged this, noting:

*“This becomes a problem because they didn’t have face-to-face interaction with the teacher, which was way easier because they would ask where they didn’t understand.”* (IDI, Parent, Mombasa).

Even where teachers were contactable through remote or digital forms of engagement, the inability to ask specific questions, or have two-way interactions with teachers impacted girls' ability to learn. Girls who relied on textbooks echoed similar challenges: *“When you are at home reading on your own sometimes you do not understand, and you just leave it.”* (FGD, Girl, Mombasa).

In Nepal, a girl in Karnali cited similar challenges: *“They used to teach on the radio, but we could not ask questions in the radio.”* (FGD, Girl, Karnali). Parents also noted that they were unsure and unable to help and that they felt unsupported by schools to help their children; mentioning that some were not even informed that schools had closed, while others were unsure of what support would come from the school.

The lack of clarity on an individual and household level on the kinds of support girls were receiving could have contributed to a decrease in motivation to study, or as mentioned, girls and parents were waiting for guidance.

Even prior to the pandemic, stakeholders we interviewed as part of the PEA reported that girls were **heavily reliant on teachers and mentors** and their inability to access these individuals meant that they were then dependent on often illiterate parents, siblings, or neighbours to support their learning. According to report authors, (Radhakrishnan, et al., 2021) the most common form of remote learning for students in Nepal was through school textbooks (77% of children accessed these). Only 31% of students had some interaction with teachers and nearly 25% of parents spent no time helping children learn during the pandemic. The study also found that children in disadvantaged (by wealth or caste) families were significantly less likely to have access to remote learning, have parents who engaged in children's learning or receive teacher support during the crisis.

One girl in Darakh, Karnali highlighted:

*“My difficulty was that I had to read all by myself. In school, we would get chance to ask to our teachers. But at home we do not know whom to ask if we do not understand something. And we were not allowed to go to our friends’ house also. That was the difficulty.”* (IDI, ISG, Darakh).

This also highlights that there were **limited opportunities for girls to engage in peer support and learning** during school closures, as this girl went on to explain that before Covid-19 school closures, the girls would sometimes meet after school to discuss lessons but were no longer able to do so.

These challenges may have been exacerbated during school closures and interacted to have a cumulative effect on learning: teachers, girls, and parents all spoke of learning being lost because of **forgetting what was taught before**. As observed in our samples from Kenya, girls are struggling to progress to the next grade now that schools have

reopened due to learning lost from the content covered in the previous grade.<sup>32</sup> As one teacher in Karnali noted, *“When they came to school after school reopened, in class 12, during revision, I found that all the students have already forgotten what they have studied in class 11.”* (FGD, Teacher, Karnali). Again, as with findings from Kenya, girls mostly reported struggling in mathematics, and one of the reasons mentioned for this was not being able to grasp the key concepts behind the homework set: *“We had to do lots of maths problems, but we couldn't understand anything.”* (FGD, ISG, Dhangadi).

Although Mercy Corps noted in their quarterly report that a virtual workshop had been delivered on teaching techniques for maths as well as a teaching practices handbook between July and September, it is notable that additional teaching interventions had not been included as part of their response to the outbreak. No teaching interventions or skills training had been planned by EDT according to their IRP and MTRP.

These factors were widely cited as limiting girls' abilities to study during periods of school closures. As was also found in Kenya, these factors may have contributed to a deterioration in learning when girls were **not able to engage with teachers** or get support for concepts that they found more difficult to grasp or would normally ask for feedback on.

#### *Increased time on housework or income-generating activities*

The qualitative data also points to **increased time spent on work within or outside of the household**, which impacted girls' time spent on schoolwork. Many girls **reported an increase in the burden of household chores and income-generating activities** such as the need to fetch water or support with farm work as factors that prevented them from studying. A teacher in Turkana said the students *“were complaining about housework, there was a lot of work at home. You know that the school is the home to these kids. Now that they were home the parents left all the work to them.”* (IDI, Teacher, Turkana). There were reports that girls started to engage in work outside of the home, either to relieve them of boredom or because they needed to financially support their families.

In Kenya, one teacher in Mombasa linked girls working during school closures to their poor educational performance on returning to school:

*“We could see that most of the students dropped in performance and behaviour wise. This happened because most of the students engaged themselves in businesses.”* (IDI, Teacher, Mombasa).

More broadly, this could point to wider issues, such as how households, girls, and communities view the importance of girls' education while being engaged in non-school activities during the closures.

Similarly, in Nepal, several parents and girls noted the increased burden of household chores that they faced especially during the pandemic. One girl in Nepal, for example, reported that she attended school from 10 am till 4 pm and studied from 8pm to 9pm on a normal, pre-pandemic day. However, during school closures, she estimated she spent 10 minutes studying with the rest of the day spent on household chores such as grass cutting, preparing food, working in the fields etc.

Girls also seem to have borne the brunt of increased housework. As a girl in Darak astutely observed, *“In the house where we lived together brothers were not asked to work and I was. It was an odd feeling. I am also a part of this house.”* (IDI, ISG, Darak). A teacher in Karnali also mentioned the gendered division of labour, noting that:

*“In the Tharu community where most of our students belong to...the girls are mostly doing the household chores and the boys are playing.”* (FGD, Teacher, Karnali).

The quote above also suggests that **neither boys nor girls were studying in this time**. The increased time spent by girls on household chores suggests less time was spent on studying and could have contributed to learning losses. However, more broadly, the gendered nature of the housework also suggests that **gender norms or stereotypes were reinforced** during the school closures, further deepening the pre-existing community or household attitudes towards girls' education and the social barriers that girls in these communities face.

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<sup>32</sup> Literature from our secondary review of evidence refers to this type of learning loss as learning **deterioration**, or the loss of learning as a result of forgetting fundamental and basic principles (see **Annex 4 Methodology**).

### *Other factors contributing to learning loss*

In Kenya, teachers also noted that performance in English was particularly weak due to the **language of instruction being different from the language spoken at home**<sup>33</sup>. A teacher in Turkana highlighted, for example, that:

*“English is a problem even when you mark these papers, we have tried forcing them to speak in English, but the tradition at home does not support it.”* (IDI, Teacher, Turkana).

This highlights several challenges that are related to remote learning: a lack of teacher interaction when completing the schoolwork at home preventing students from asking for help; parents unable to support with schoolwork due to language barriers; and the potential for girls to not engage with their schoolwork if they do not understand the concepts or tasks.

## 4.5. Perceptions of Why Some Average Increases in Learning Were Found

As observed in our quantitative findings (see [Section 4.2](#)), in some instances in Kenya there were reports of girls' learning levels actually **increasing**. While uncommon, this was noted by girls who had been able to dedicate **more time studying at home** while schools were closed suggesting that time spent studying affects learning outcomes. One parent in Mombasa mentioned that they left the city during the school closures to go and stay with the girl's grandmother, and here the girl was able to study, and now back in Mombasa *“She is doing well in school, she comes on time, she does her homework, so I do not think she is progressing badly.”* (IDI, Parent, Mombasa). The closure of schools provided some girls with more time to study, although it is unclear from the data whether this might be attributable to factors such as the conduciveness of the working environment or how much time girls were required to spend on household chores.

Another factor which might have contributed to learning improvements during school closures is increased access to **resources supplementing home learning**. One girl who mentioned that she was able to study during the closures highlighted that she *“used to buy papers and do them and send them back to them to mark, just like universities so it helped me pass my exams.”* (FGD, Girl, Turkana). This could suggest that where learning levels had improved, it was because **girls had access to additional resources** (i.e., financial, or in-kind resources like study materials) and the ability to **dedicate time to study**, though in both cases, examples from the qualitative interviews on learning gains are more limited.

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<sup>33</sup> It is worth noting that the difference between the language of instruction and the language spoken from home is not specific to Covid-19 and school closures. However, with the shift to home learning during the school closures and the resulting lack of teaching support and/or exposure to the studied language, this had a larger impact on girls' ability to learn than if the girls had been going to school.

## 4.6. Effects of School Closures on Girls Beyond Learning Outcomes

This sub-section presents how participants perceived the broader impact of school closures on girls beyond learning outcomes, including how more marginalised or harder-to-reach girls have been identified and impacted because of Covid-19.

### Increased risk of transactional sex, early marriage, and pregnancy

The qualitative interviews highlighted additional adverse effects from school closures on girls in both Kenya and Nepal. In Kenya, the **most reported issue among parents, teachers and girls was the increased risk of pregnancy**. Two main reasons were given for this: either increased time spent with boys recreationally, or transactional sex for money or in-kind resources. As reported by parents and teachers, there was a strong sense that girls had more free time which they would spend with boys and would engage in sexual behaviour, which increased their risks of falling pregnant. However, a teacher in Tana River also highlighted that during this period of school closure, girls were at risk of engaging in transactional sex (i.e., sex work) as their families' financial situations worsened:

*“The girls will feel they are a burden to the parents. The girls would then strive and chip in to help the parents and this leads to them selling their bodies to make ends meet. So, the older girls faced more challenges than the younger girls.”* (IDI, Teacher, Tana River).

A CHV in Nairobi also highlighted this risk, as girls would enter relationships or engage in transactional sex to be able to **afford the sanitary products that their families could no longer afford** because of the economic impact of Covid-19. This in turn led to several pregnancies. Although the Kenyan Government put in place a policy to enable pregnant girls to return to school following their re-opening, not all were able to. Often the girls did not return as they would be embarrassed to be attending school when they were pregnant, or else required special assistance or had dietary requirements which they could not easily cater for at school. This would lead to girls dropping out of school; as one teacher described as part of the stakeholder interviews undertaken for the PEA, there was a 'mass exodus' of girls due to pregnancy or early marriage. Stakeholders attributed the high increase in **early pregnancy**<sup>34</sup> to the fact that many girls were engaging in transactional sex to meet basic needs and the financial pressures that their families faced.

In Nepal, by contrast, while pregnancy was highlighted less as an issue, **early marriages were widely cited as resulting in school drop-out** (see *Predicting girls at risk of dropping out*). Early marriage is reported to be a widespread issue in Kailali District,<sup>35</sup> and many girls drop out of school because they move in with their in-laws and become housewives. As housewives, girls reported facing pressure from their in-laws and families to prioritise staying and taking care of the home rather than education. Some participants suggested that lockdown may have exacerbated this trend as children were “idle” when schools were closed. There were also reports from girls and parents in the qualitative interviews that young people were increasingly opting to marry, because of the free time they had. It was suggested that some girls in the sampled schools, who did not interact with the school or receive proper direction in learning, began considering marriage as a viable alternative.

### Deterioration in girls' mental health

**Girls in both Kenya and Nepal also reported a loss of 'safe spaces' and a deterioration in their mental health.** Interviews with IPs in Kenya indicated that, as expected, the initial response of the project was focused on health aspects (mainly because in the first instance access to schooling was limited due to ill health or malnutrition and health representatives were used to accessing households to follow up on children's health). But, during the second phase of the project response, the focus shifted more to access to education and learning e.g., in finding out reasons for absence from school and focusing on increasing girls' attendance.

The qualitative data from the sampled schools suggests that girls viewed schools as important for the **social interactions** they are able to benefit from, and not just direct learning opportunities. In Nepal, there were reports from

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<sup>34</sup> An extensive number of reports documented a 40% increase in monthly teenage pregnancies during Covid-19. Over a three month period, from early July 2020, it was estimated that 152,000 Kenyan teenage girls became pregnant, a 40% increase in the monthly average with reports citing government figures as evidence of these estimates ([https://www.popcouncil.org/uploads/pdfs/2021PGY\\_ImpactCovidAdolKenya.pdf](https://www.popcouncil.org/uploads/pdfs/2021PGY_ImpactCovidAdolKenya.pdf); <https://nation.africa/resource/blob/731188/f174dd7e419dc2bd0162824d206d7310/machakos-teen-pregnancies-data-data.pdf>)

<sup>35</sup> Early marriage was noted as a common issue in the district according to PEA interviews with District Officials.

both girls and teachers that **suicide rates** increased in Nepal as a result of the school closures and national lockdowns. In Karnali, one teacher reported the following safeguarding incident, which was escalated to the FCDO:<sup>36</sup>

*“During that time, we got the information that one of our girl student committed suicide. Another information that we got was the death rate due to suicide, accidents and rape cases were higher than death due to Covid-19. Nationwide it was found that death due to school closure was higher than death due to Covid-19.”* (FGD, Teacher, Karnali).<sup>37</sup>

One of the reasons reported for increased suicide rates included **poor financial situations, and unplanned pregnancies**. In Kenya, some reference was made to other girls or peers who had committed suicide upon discovering they were pregnant. In an FGD, the girls reported instances that they came across of other girls who:

*“Get pregnant, they get discriminated against, they get very stressed, they do not know what to do with that pregnancy, so they opt to kill themselves.”* (FGD, Girls, Tana River).

## Key Implications

### Why did average learning deteriorate as a result of school closures, and what steps were taken by EDT and Mercy Corps to mitigate these?

- Average levels of learning fell noticeably between our testing periods, which chimes with wider literature on learning loss reported globally as a result of school closures. Where we could test the same girls, we found they had forgotten maths and reading skills that they knew previously.

Our study found evidence of **girls spending less time studying** in both Kenya and Nepal, which appears to be a **key factor contributing to learning deteriorating**.

Our qualitative findings point to additional factors contributing to learning loss in Kenya and Nepal, including a lack of **direct teaching support, loss of motivation, and limited access to educational resources**.

- **Project planning as part of the initial Covid-19 response may not have sufficiently considered the needs of girls without access to mobile phones or radios.** While EDT in Kenya delivered targeted tutorials, homework, and tests to support learners through SMS and social media platforms such as WhatsApp, they did not consider procuring or providing any direct access to mobile phones – although they acknowledged these were barriers especially for vulnerable learners or those living in rural and ASAL areas. Printed materials were only introduced for learners several months after the initial outbreak.
- In Nepal, while distance learning through local FM radio stations was a key part of Mercy Corps' Response Plan and delivery approach while schools were shut, the **lack of household access to radios or televisions** as reported in interview data and in wider literature was notable, suggesting additional measures may have been needed to strengthen access to learning interventions.
- **Motivation was a key factor that negatively impacted learning in both Kenya and Nepal** – this did not feature as an issue in EDT's and Mercy Corps' Response Plans, suggesting **further planning might have been needed** and assumptions revisited as the pandemic took hold to consider the interventions and impact of longer periods of school closures on girls and the impact on their learning.
- Limited or one-way interaction with teachers was reported widely in both Kenya and Nepal – **neither project continued with targeted interventions to support teacher development while schools were closed**, which may have constrained teachers' capacity to adapt to new teaching modalities and challenging working environments during school closures.
- Reported instances of **transactional sex in Kenya in exchange for resources** suggests that cash transfers or dignity kits offered by EDT may not have been sufficient to mitigate the effects of school

<sup>36</sup> As noted in the Access and Learning Fieldwork Report, when a safeguarding issue related to the respondents' mental state was reported to the research team, a Safeguarding incident report was completed and sent to FCDO in line with due process. BASE Nepal and Mercy Corps were also informed about the incident and steps were taken to ensure the safety of the girl. The quotes in this report refer to how issues to do with mental health and suicide were discussed with the team more broadly, and not in relation to the girls.

<sup>37</sup> While the views expressed here reflect the views of the teacher that was interviewed, wider evidence (Mahato P, 2020) and (Pokhrel S, 2021) does confirm that there has been an increase in attempted suicide and suicide rates among the general population due to lockdown and other restrictions on mobility: one paper cites an increase of 25% as compared to pre-lockdown levels.

closures on girls' wellbeing, or broad enough to target all households and girls at risk of dropping out or falling behind in their education.

#### 4.7. Limitations of Analysis

Our greatest limitation in this research was our inability to find and assess the same girls as before. This means that individual histories of girls are not available for inclusion in our models, with most of our estimates being estimates of losses within certain grades for the same schools. As a result, our principal analysis is a repeated cross-section at the school level, which due to the small number of schools, statistically limits our ability to do sub-group analysis beyond the school level (as the de facto sample size is the number of schools rather than the number of girls).

For Nepal, we were able to track some of the girls, in the sub-sample of schools that offered grade 11 and 12, giving us a panel dataset for a lower, but adequate, number of girls than the number of girls sampled at midline.<sup>38</sup> Nonetheless, while panel data models are preferable, it is worth noting that repeated cross-sections suffer less from non-response and attrition, the latter of which we observed in our sample in Nepal. Ideally, repeated cross-sectional observations are equally powerful for system-level analysis and can be relied on to make system-level /school-level decisions.

There is potential bias due to unobserved variables which may affect our estimates of learning losses. However, while we use panel data methods (or pseudo-panel in the case of our repeated cross-sections) and school fixed effects to reduce the source of bias in our estimates, causal interpretation is not possible.

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<sup>38</sup> In Nepal, girls assessed at midline in grades 8, 9 and 10 were expected to be found two years ahead in grades 10, 11 and 12. All girls who were enrolled in the sub-sample of schools that offered grade 11 and 12 were surveyed. Girls who dropped out of school or enrolled in schools outside our sample were not tracked.

## 5. Predicting Girls at Risk of Not Returning to School

### Key Findings

#### Which girls are most at risk of not returning to school?

- Predictive analytics, through machine learning algorithms, have the potential to help improve early warning systems in education programming. To maximise their effectiveness, they need to be integrated into regular data collection systems as girls' circumstances change.
- Girls that have **already repeated a year of schooling**, who come from **less-educated families**, are part of **larger households or families**, have been **involved in farming more than their peers** or who are **married** are predicted to be **more at risk of dropping out of school** as compared with their peers. **Household poverty** was the largest factor reported by girls as to why they dropped out of school.
- Our model was able to **successfully predict** which girls were likely to remain in school and which were likely to drop out with **70-80% accuracy (Kenya and Nepal respectively)**.
- Our model was limited by the use of outdated information – factors such as marriage are strong predictors of drop-out – and girls getting married since projects collected data was the leading cause of inaccuracies. Integrating key factors into regular monitoring is key to success.
- **Girls' self-esteem, aspirations, and intrinsic motivation to study**, as well as support and encouragement from others were all reported to have helped girls to remain in school. Capturing this in models is difficult, but worth pursuing.

At the start of the pandemic, there was a widespread concern that children, particularly the most marginalised, would not return to schools after prolonged periods at home. This question aimed to understand if this fear was realised, and the extent to which new technologies can help improve our understanding of the main risk factors contributing to whether girls returned to school or dropped out. We piloted the use of **predictive modelling – machine learning algorithms** – to try to identify the girls who were at risk, with a view to understanding more about the risk factors that influenced girls returning to school when schools re-opened. We further validated the predictive models with a 'roll-call' at the schools which we sampled for learning assessments to identify the causes of drop-out / re-enrolment by speaking to the girls with a view to checking if the models overlooked anything.

This builds on the existing literature, which has applied multivariate regression analysis to identify statistical factors that are correlated with drop-out. We build on this by not only modelling the statistical relationship between girls' characteristics and drop-out, but also trying to use these relationships to **predict which girls would drop out in the future**. This is a key difference between machine learning algorithms and traditional casual inference in statistics. It is this predictive element, and validation of the predictions, which is the value-addition of this research study compared to the literature.

We started by first understanding how the projects were currently modelling risk with a view to testing their methods against the predictive algorithms. However, a direct comparison with our results was not feasible for a number of reasons discussed below. This meant that we **could not conduct comparative analysis** between the results of the machine learning models and the projects' methods, and so we focused on our methods as set out in the section below.

Machine Learning models are not new, but they are more accessible than before because of advances in computational power. They look to identify **statistical relationships between variables** – in our case girls' characteristics, circumstances and if they drop-out or not; but crucially they seek to do this not just for the girls whose data they use, but also for girls whose information they do not have access to and use.<sup>39</sup> To do this, a model is

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<sup>39</sup> In standard statistical analysis we would want to maximise the model performance across all the data – usually through minimising the error terms; while here we want to maximise the model performance on the 'test' data – that is, data it has not seen when fitting the algorithm.

'trained' on one group of girls, which is then 'tested' on another group before being used to predict on a set of girls for whom drop-out is unknown (in this case, the girls in the GEC projects after Covid-19).

## 5.1. Methodology

We split this question into three steps, with the first two centred around the training and predicting using a machine learning model.

- 1) **Which girls are identified 'at risk of drop-out' by the machine learning algorithm?**
- 2) **How accurate were the predictions from the machine learning model compared with those who actually dropped out?**
- 3) **Which factors affecting drop-out were highlighted by girls but had not been considered in the machine learning model?**

The first step involves defining the problem and finding the datasets to 'train' the predictive algorithms. We were interested in predicting which girls would not return to schools after the school closures due to Covid-19. However, as this was yet to happen, we had to proxy this with information on situations which had already occurred – specifically, we used data on girls who had previously dropped out of school to predict which girls would be at risk of dropping out.

To make the predictions we needed a large sample of children for whom personal characteristics *and* school enrolment status were available. For this, we drew on large-scale public datasets which collected enrolment information at the child level – the Multiple Indicator Cluster Survey (MICS) for Nepal and the Demographic Health Survey (DHS) for Kenya – to train our data, which we then tested, refined, and predicted based on the information projects collected on their beneficiary girls.

**The main challenge we faced was data availability** – that is information on girls collected by both the project IPs *and* through the wider surveys. As we did not define either of these questions, we also wanted to know if there were any factors that were important that were currently being overlooked. This fed into our final question, where we conducted qualitative interviews with girls to understand their views of the barriers to re-entry and progression to identify any overlooked factors, which could be integrated into future data collection efforts by project IPs.

The differences in project data and the different household surveys meant that the models tested varied by country. We had to work with the lowest common denominator in terms of the characteristics (or features) that we could train and predict against.<sup>40</sup> In general, the household surveys contained a broader range of possible features than project data, as they were developed to capture a wider picture of poverty, with the MICS data collecting additional education data compared to the DHS. The projects' monitoring data was often more focused because of practical data collection reasons.

In Kenya, our predictions **focused on secondary school children** since we did not visit primary schools as part of our roll call exercise; while in Nepal, we **focused on key transitions** (from lower secondary to secondary; from secondary to higher secondary) to try to predict whether girls would progress between grades.<sup>41</sup>

In Kenya, we tested two sets of models – depending on whether we factored in previous drop-out in our 'at-risk status' (a **broad** model, which included whether children had dropped out previously; and a **strict** model, which did not); and, varying the sample group for training to either focus narrowly on the age group in question (e.g., secondary only), or include a wider age range. While we trained the model using data from both genders, we validated the model using data from girls only. Testing both models allowed us to compare the relevance of cumulative school attainment in predicting drop-out.

In Nepal, we were able to explore the models in detail for both genders and female only, and model progress between key stages of education – notably from grades 8 to 9 (lower secondary to secondary) and from grades 10 to 11 (secondary to higher secondary). To do this we ran models for three separate groups: (1) all grades ('grades 8, 9 and 10'); (2) transition years – 'grade-8' only (transition to secondary); and (3) 'grade-10' only<sup>42</sup> (transition to higher secondary).

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<sup>40</sup> These included variables such as age, grade, overage (Kenya only), over/underage (Nepal only), household size, head of household educational level, gender, marital status, agricultural land ownership, etc.

<sup>41</sup> Note that the range of grades covered in this section is larger than those used for learning estimates.

<sup>42</sup> Grade 10 marks the completion of basic compulsory education in the country.

The **first step was to ‘train’ the model**, which we did by testing a range of possible algorithms (see [Annex 8](#)), with the random forest algorithm providing the best fit. As we are interested in maximising the predictive power of these models for all girls, not just those who data was collected for, we withhold a share of the sample from the training runs to ‘test’ the model against, before using the refined model to predict on another group of girls.

The selection of the underlying algorithm for machine learning can be based on prioritising features of the algorithm, or by trial and error with **trade-offs** between the interpretability of the models (with simpler models easier to follow) and their predictive strength (with very complex neural networks yielding high predictive power, but with very complex mathematical underpinnings). We used trial and error and identified the model which yielded the greatest predictive power for our combination of factors and sample sizes, looking at the performance statistics on the test sets (comparing the weighted average of the F1 statistics for various algorithms). We found the random forest was the best option.

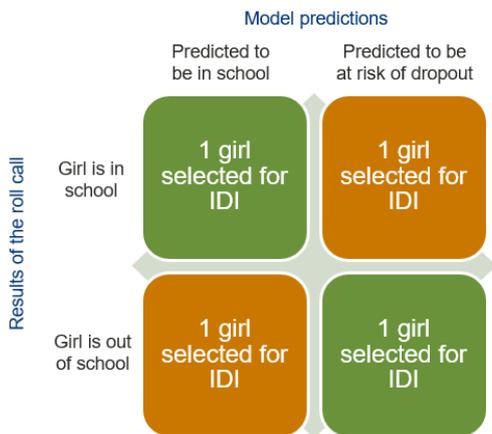
A random forest algorithm takes a random subset of the girls and makes a set of decision trees, which, at each stage, tries to split the girls by their features into groups that maximise the share of each status (drop-out/continue) in each group. It does this repeatedly, and then asks each tree to predict if a girl, with certain features, will drop out or continue – it then compiles each tree into a forest and assigns the label which is most prominent among the trees (so if 75% of the trees say drop-out, it’s a drop-out).

We then applied the trained models to the girls in the project data, to generate a prediction for each girl which was validated through the roll-call in schools. While we were interested in how valid our predictions were, we were also interested in why our predictions were wrong (if they were found to be). To do this, we integrated follow-on questions for the teachers into the **roll call**, so on arrival at the sampled school, the research teams spoke with school administrators and/or teachers to verify the status of each girl and reasons for absence. If they were enrolled, the current grade level was recorded. If not currently enrolled, the team tried to determine the reason by speaking with teachers or by calling the parents or caregivers.

These data were shared in real-time to allow us to check the status against the prediction and draw a sample for in-depth discussions with the girls. To do this, each girl was categorised in one of the quadrants in [Figure 8](#).

Correct predictions (in green) are when: (1) we predicted the girl to be in school and the girl was found in school; or (2) we predicted the girl to be at risk of dropout and the girl had dropped out. Incorrect predictions that occurred are in orange and when: (1) we predicted the girl to be at risk of drop-out but is enrolled in school; or (2) we predicted the girl to be in school, but the girl had dropped out.

**Figure 8: Selection of girls for IDIs**



We tried to conduct qualitative interviews within one group from each of these categories to understand the reasons for drop-out / progress, with a view to identifying reasons which were not available in the quantitative data that underpinned the predictions. This also helped in triangulating the findings of the machine learning. During interviews, teachers and caregivers were asked if there are any girls who are more marginalised or more at risk of not returning to school. Through questions such as these, we were able to infer which factors may be more or less likely to lead a girl to drop out, to understand how these factors fit with the prediction model and try to identify factors that may not be captured in the model.

More details on the methods can be found in [Annex 12](#).

## 5.2. How Are Projects Identifying Girls as Being ‘At Risk’ of Dropout?

Alongside piloting our model, we also sought to compare its efficacy with the projects’ existing methods of identifying girls who were at risk of drop-out. However, it was not possible to do this directly during this period, as the systems that were historically used were focused on monitoring attendance at school (or girls’ clubs) which was not tracked by projects during school closures.

**EDT’s retention system**, for example, sends SMS alerts to community health volunteers (CHVs) if there are more than three days of unexplained absence. School attendance is recorded by teachers in schools on a weekly basis

through an attendance register. Data are then uploaded by a teacher/coach into the system.<sup>43</sup> A girl is flagged at risk when her weekly attendance drops down to two days or less. At this time, CHVs visit the families to talk through issues and record the reasons for absence, which could range from needing to support a family business at the market to long-term illness or pregnancy.

This system is currently set up in primary schools to support girls completing their primary school phase and to prevent early drop-out. Although the route to secondary schools is the most favoured for girls' transition, the project does not currently monitor attendance in secondary schools.

**Mercy Corps**, on the other hand, encourages accurate administration and registers through a cash grant scheme that is given to schools to invest in infrastructure. Accuracy is assessed through periodic spot checks conducted by the project. 'In-school' girls are flagged after one week of absence from girls' clubs against school registers. Mobilisers then follow up with girls and families to discuss the reasons for absence.

Over time, these projects have analysed and used the information gathered on the reasons for absence to provide localised support. In Kenya, the retention system's data has been utilised to address two concerns that contribute to absenteeism on a large scale: (1) children's absence from school due to market days; and (2) attendance at long-lasting burial ceremonies. Data have improved negotiations and raised awareness with community leaders resulting in the relocation of one of the two market days to the weekend, as well as community leaders encouraging children to attend school instead of burial ceremonies.

In Nepal, home visits highlighted early marriage as a reason many of its girls were dropping out of school. In response, Mercy Corps launched a community campaign which included street theatre focusing on the benefits of delaying marriage, as well as creating safe spaces through life skills classes for girls to explore the issues around early marriage in a more personalised way. In addition, Mercy Corps has used its data to inform the local Ministry of Education's Education Development Plan and to increase budget allocations to geographic areas with low attendance and learning.

**Due to school closures, however, these retention mechanisms became obsolete.** Proxy indicators of structural and individual risk factors, like attendance, were deemed irrelevant in a context of school closures. Previously held retention systems were severely challenged and the possibilities for data collection during Covid-19 were very limited, or simply not available.

### 5.3. Which Girls Were Identified by the Prediction Model as Being 'At-Risk' of Dropout?

It is important for policy and programming purposes that the prediction models that we have developed are **not just accurate, but also interpretable** to help schools with the early detection of girls at risk of dropping out and help them improve support for these girls. We do this by using the feature importance<sup>44</sup> from the 'sklearn' package, which identifies the factors whose inclusion in the models leads to the greatest reduction in variance of the classifications.

In Kenya, the features vary depending on the age groups that are included – age and being over-age for their grade matter most for the model including primary and secondary students, while this declines in relative importance for models only including students in secondary school where grade becomes the most significant feature – it moves up the ranking and gains more predictive power. For the model just trained on secondary students, marital status increases in its predictive power and relative importance. When we focus on predicting for girls only, we find similar results, although married status has more predictive power. This is shown in [Table 11](#) below, where we report the ranking of each feature across the models.

**Table 11: Feature importance analysis, Kenya**

Feature ranking	Broad	Strict	Broad & Strict, only Secondary	Broad & Strict, only females	Broad, only female & Secondary	Strict, only female & Secondary
1	Age	Age	Grade	Age	Grade	Grade

<sup>43</sup> EDT envisages that teachers will be uploading data directly into the system.

<sup>44</sup> The algorithm automatically computes the relevance score of each feature in the training phase. The relevance is then scaled down so that the sum of all scores is 1. These scores help us choose the most important features for model building and drop the least important ones.

2	Grade	Grade	Marital status	Grade	Marital status	Marital status
3	Overaged	Overaged	Household size	Overaged	Household size	Household size
4	Household size	Household size	Age	Household size	Age	HoH educational level
5	HoH educational level	Age				
6	Gender	Gender	Overaged	Marital status	Overaged	Overaged
7	Agricultural land ownership	Marital status	Gender	Agricultural land ownership	Agricultural land ownership	Agricultural land ownership
8	Marital status	Agricultural land ownership	Agricultural land ownership	Animal ownership	Animal ownership	Animal ownership
9	Animal ownership	Animal ownership	Animal ownership	Animal ownership		

In Nepal, we considered how we can best model the transitions between levels, particularly the transition year from secondary to higher secondary ('grade 10'). We found similar factors to Kenya for the grade 8 to 10 model with age, being over- /under-age, grade and household size being the most important features in models. Looking specifically at 'grade 10', these factors (age and over- /under-age) fall to sixth and seventh place, with the education levels of the household head (HoH), the size of the household, and students reporting feeling anxious being more relevant. For the female-only models, marital status, giving birth and the number of children are prominent.<sup>45</sup>

below shows the ten most important factors identified for each prediction model in Nepal.

**Table 12: Feature importance analysis, Nepal**

Feature ranking	All grades	Grade 10	All grades, only female	Grade 10, only females
1	Grade enrolled last year	Household size	Grade enrolled last year	Household size
2	Age	HoH educational level	Marital status	HoH educational level
3	Household size	Anxiety	Household size	Number of children in household
4	HoH educational level	Number of children in household	Age	Anxiety
5	Over/under-aged	Depression	Anxiety	Depression
6	Anxiety	Age	HoH educational level	Age
7	Depression	Over/under-aged	Number of children in household	Over/under-aged
8	Number of children in household	Location/environment	Depression	Agricultural land ownership

<sup>45</sup> These variables were not available for males in the MICS data, and therefore, are excluded from 'both gender' models.

Feature ranking	All grades	Grade 10	All grades, only female	Grade 10, only females
9	Gender	Gender	Over/under-aged	Marital status
10	Location/environment	Agricultural land ownership	Gave birth	Location/environment

As features vary by the model specification, **one lesson is that the prediction models (and the data systems designed to facilitate these) should be as specific as possible to the population that is being predicted** – with gender-specific variables such as marriage or having children likely to be significant in programmes whose primary beneficiaries are girls.

Aside from these factors, there are other indicators which could be monitored by project IPs / schools to improve the early detection of drop-out – for example, being over-age has a more prominent predictive role in determining risk of dropout during earlier stages of education.

We checked the differences across these factors using t-tests to see whether there were any significant differences between the girls in the projects' data who are predicted to be 'at risk' and not. These are detailed in [Annex 10](#) and support our findings that a larger proportion of those predicted to be 'at risk' are married, older, in a higher grade, and more over-aged than children not at risk.<sup>46</sup>

## 5.4. How Accurate Were Our Predictions?

To test the accuracy of the predictions, we conducted a roll call of every girl in the projects' data who had been enrolled in the sampled schools before school closures, and who should have returned. We found that 8.6% of girls did not return to school in Kenya (15 of 171 girls), while 26.2% of girls did not return in Nepal (116 out of 442 girls). This is roughly the same as the training data in Kenya, but higher in Nepal, where drop-out rates were 17%.

**In Kenya, we achieved an accuracy ranging from 73.4% to 79.8% across models.<sup>47</sup> The accuracy rate in Nepal was lower, ranging between 65.8% and 70.8 percent across models.<sup>48</sup>**

Model performance is variable, and there are no clear patterns across the sub-samples used for training. To recap – we tested training on primary, or primary and secondary girls; on boys and girls or just genders; and with a stricter definition of drop-out.

**In Kenya, the 'secondary-only' models have the greatest overall accuracy** (regardless of the strictness of the at-risk status).<sup>49</sup> The 'both gender' model is more accurate than the model limited to females, but for 'Strict, Primary & Secondary' and 'Broad, Primary & Secondary', the 'female-only' version is slightly more accurate.

**In Nepal, we find the opposite, that the all-grades 'female-only' model has the best model performance**, and the models looking at all grades outperform the grade 10 model by 16 p.p.

We differentiate between the accuracy in terms of predicting progression and predicting drop-outs. There is a trade-off between specificity (the percentage of true negatives identified) and sensitivity (the percentage of true positives identified) of models. This means that there is a **trade-off between correctly predicting continued enrolment and correctly predicting drop-out**.

Which of these options should be favoured is a matter of judgement. For GEC projects, this trade-off is between incorrectly flagging someone is at risk of drop-out (and potentially providing additional support at a cost); and not flagging them risking them subsequently dropping out.

**All the models were better at predicting continued enrolment rather than drop-out.** In Kenya, the best models at predicting dropout are the models trained on both genders and all grades ([Table 13](#)). These correctly predicted drop-out for between 33-40% of the cases. In Nepal, the widest training set has the best performance on drop-out ([Table](#)

<sup>46</sup> These findings are significant in both countries, although they do not apply to all Nepalese models.

<sup>47</sup> Eight models are included: strict/broad, Primary & Secondary/Secondary, and both genders/female-only.

<sup>48</sup> Four models are included: all grades/grade-10, and both genders/female-only. We exclude grade-8 models in Nepal because they have a small number of observations.

<sup>49</sup> To recap, we use a broad – where previous drop-outs are included, and strict, where we only focus on children who drop out in the last year.

14). All models were more accurate at predicting progression, getting up to 83% of cases correct in Nepal and up to 87% correct in Kenya.

**Table 13: Prediction success rates, Kenya**

Prediction model	Broad	Strict	Broad & Strict, only secondary	Broad, only females	Strict, only females	Broad & Strict, only females & secondary
Overall model accuracy	73.4%	76.9%	79.8%	75.7%	77.5%	78.6%
Accurate prediction of dropout	40.0%	26.7%	6.7%	33.3%	26.7%	13.3%
Accurate prediction of progression	76.6%	81.6%	86.7%	79.7%	82.3%	84.8%

**Table 14: Prediction success rates, Nepal**

Prediction model	All grades	Grade 10	All grades, only females	Grade 10, only females
Overall model accuracy	65.8%	49.7%	70.8%	64.6%
Accurate prediction of dropout	18.1%	34.9%	1.7%	25.6%
Accurate prediction of progression	82.8%	54.5%	95.4%	77.3%

In Kenya, for the fifteen girls who were not back in school we asked teachers if they knew why. This was unknown in nine cases; early pregnancy was cited three times and marriage and fees cited once. In Nepal we saw more drop-outs (116 girls from 442). Marriage was the main reason that was reported for nearly two thirds of the girls. Other issues were more nebulous – such as they reported they stayed home, or they did not complete – indicating the teachers did not know the underlying reasons.

From the perspective of the model design, this highlights that the **main reason for low performance in Nepal was the demographics of this group of girls shifted**, and notably their status in the prediction factors – these girls have changed from being unmarried (status in 2019 when demographic data collected) to being married (status in 2021 during primary data collection).

This raises a very pertinent issue with prediction models, which is that the **predictions should be made on real-time data wherever possible** – in this case, this would have considered girls' marital status just before they made the decision not to progress to grade 11, and even assuming nothing else had changed, would have increased the accuracy of the model substantially.

These findings suggest that there is merit to explore this area further, as the **accuracy of the predictions, even with outdated data, was relatively high**. While it was not possible to formally compare the effectiveness of this to models simply using projects' attendance data – which lacked the range of characteristics in the DHS – an extension of these models could involve integrating the demographics into the monitoring data systems, which could be updated / used on a termly basis to further improve the accuracy, notably around drop-out. In addition, the models used were relatively simplistic, given the time available – more complex models, such as neural networks, could also be tested to improve performance.

## 5.5. Were There Any Risk Factors Overlooked by the Predictive Model?

We used qualitative research to identify whether there were any factors which were not included in the data available for the model. For example, girls repeatedly cited pregnancy as being a factor contributing to drop-out, but this was not available in the project data.

In both Kenya and Nepal, **girls' esteem, aspirations, and their intrinsic motivation were key factors that have helped them remain in school following the outbreak of Covid-19**. In Kenya, we spoke to girls who were predicted not to be in school but were found in school, who highlighted that their own aspirations played an important role in retaining them in school. One girl in Tana River highlighted the importance of remaining in education to act as a role model for other girls, noting, for example, that *"In my family none of the girls have studied. I am the first-born girl and I want to study so that the ones behind me can see."* (IDI, ISG, Tana River).

### *Motivation and aspiration of girls*

Girls had also been **motivated by their peers to continue pursuing their education** e.g., seeing other girls and peers going to school or studying. As one girl in Turkana said, *“My best friend was the one studying and at that moment I decided to follow her steps by also joining school. She used to visit our rural home to visit me, and it's at that point I decided to join school.”* (IDI, ISG, Turkana). This reinforces the **importance of school as a space, which, beyond being a place to study and learn, also enables girls to maintain social interactions.**

In Kenya, even those girls who dropped out due to pregnancy demonstrated a **strong intrinsic desire to return to studying**. One OOSG in Turkana shared her aspirations of returning to school next year to become a doctor, stating *“[now] my baby has grown big, he has reached the age where I can leave him at home.”* (IDI, OOSG, Turkana).

While limited household income was cited as one of the largest barriers to returning to school, there was evidence of girls making use of different **coping mechanisms to continue in their education** despite this. Girls frequently cited a **lack of electricity, books or fuel lamps** as limiting their ability to learn. However, there was evidence of girls trying to overcome these obstacles through **sheer aspiration and desire to continue studying**. For example, one girl in Tana River who did not have a smart phone or access to a radio tried to study everyday using her own notes and was concerned that *“If I do not work hard in this life where will I go?”*, adding that she *“tried really hard to not let down my parents given all the advice they have given me.”* (IDI, ISG, Tana River).

### *Poverty*

**In Kenya, household poverty was the largest reported barrier to girls continuing in their education.** Financial difficulties and poverty (due to parental loss of income e.g., in the tourism and hospitality sectors in Kenya; and climate impact on agricultural income in both countries) compounded by the pandemic affected families' abilities to pay school fees and other costs of schooling such as uniforms. Stakeholders in Kenya reported that many girls outgrew their uniforms and faced difficulties in replacing them once schools reopened. These financial pressures on families had far reaching consequences for girls according to interviewees. Girls' employment in the workforce increased (particularly as household help in Kenya or as tailors in Nepal) with girls and families placing higher value on immediate income to meet basic needs rather than increased future incomes through investments in education. These factors are available in the training data for the models and can be further refined for project data to improve the prediction.

Families reported not being able to afford keeping girls in school due to the costs associated with books or uniforms, which ultimately led some girls to drop out during the school closures. Interviewees also reported **not having enough money for school fees**. Given that school tuition is free in Kenya, it is unclear what these fees relate to;<sup>50</sup> interviews with the project team were also unable to confirm this. A teacher in Mombasa also raised this as an issue that impacts girls' ability to return to school, noting that attendance had been fluctuating since Covid-19: *“I guess it goes back to the financial status of the family so maybe it might be a lack of school fees. They might be sent back home for the school fee, where they then stay for maybe two to three weeks.”* (IDI, Teacher, Mombasa). When talking about peers and other girls who had dropped out, a girl in Mombasa also highlighted this as a barrier, indicating that: *“She stopped studying; her parents could not pay her school fees. Covid-19 led to her parents losing jobs. So, she stopped going to school as a result.”* (FGD, Girl, Mombasa). These examples show a need for the data to **detect changes in parents' financial situations**, and the impacts that these may have on girls' access to school. This may highlight the need to focus efforts on identifying girls who may become more vulnerable or at risk of dropping out of school due to sudden shocks and changes to the economic situations of their families.

**In-kind resources** that girls ordinarily receive from schools such as **food and sanitary products** were also highlighted as important factors that would help to re-enrol girls who may otherwise have dropped out and not returned to schools. Interviews highlighted that lacking access to food and sanitary products during school closures presented issues for many families, though the offer of these when schools re-opened would encourage girls to re-enrol. An IDI with a mentor in Mombasa highlighted the importance of this, noting that *“Last week we witnessed a surge in enrolment in most of the schools because food has been brought to school.”* (IDI, Mentor, Turkana). In-kind resources such as food and sanitary products are important factors that can be captured at the school level in any expansion of the model.

Overall, discussions with girls suggest that **predictive models could be strengthened by including data on individual motivations or aspirations of girls**. These factors are harder to capture in surveys, but the importance

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<sup>50</sup> These could be fees associated with boarding and uniform, which are not covered under the constitutional right to 'free and compulsory basic education'.

girls placed on this suggests that it is worthwhile. Alongside this, the importance of poverty (and ability to pay) was an on-going challenge – as this is dynamic, more thought should be given to how this can be systematically captured.

One factor which was not raised, but that recent evidence<sup>51</sup> suggests is associated to drop-out, is learning levels. As the project data did not include learning level data, we could not use this in our model – but as MICS collects such data, it is feasible for this to be included in models going forward.

### Limitations

We used large-scaler public data (MICS and DHS) to train our models, and projects' data to run predictions. We were limited to features which were in both datasets, which was a small subset of the possible factors that influence drop-out. Specifically, this meant that information projects used for flagging at-risk girls, such as attendance to girls' clubs, could not be used, since they were not available in the wider datasets; while the project data alone was too small to adequately train the algorithms. This meant that **our features may not capture fully the key operational information to determine drop-out and as such may limit their effectiveness.**

A related issue with using project monitoring and evaluation data for prediction was that the most recent project data was from 2019. **This meant that any changes in circumstances of girls between 2019 and 2021 were not taken into consideration in our predictions.** This limitation was realised, and the roll call findings during data collection reflected some of these changing circumstances, i.e., we found girls had dropped out due to marriage, which was identified as a key predictor when the algorithms were trained. This is a key limitation as the predictions should ideally be based on the probability of these events happening (not the event itself) – if it is a strong predictor, then children may have already dropped out once the event occurs, limiting its use in an early warning system.

In Kenya, the **roll call exercise also faced several challenges.** One school denied permission to complete roll call verification. No specific reason was given for the refusal; however, the school administrator did allow the team to complete assessments and surveys with girls. Roll call also had to be verified due to social desirability bias in teachers' responses, which was spotted when the team was already in the field. To minimise this bias, roll call results were triangulated with enrolment lists, and where possible, with caregivers who could be reached by phone.

The roll call results collected in four schools selected for qualitative research informed the selection of four girls for IDIs per school, one for each quadrant per school in *Figure 8*. We encountered cases where no girls were a sufficient fit with one of the quadrants in the schools in the qualitative sample. These girls were replaced by girls in the other quadrants. In the few cases where the sample did not allow for replacements, we sampled girls following recommendations from teachers i.e., the teacher expected the girl to have returned, but the girl dropped out.

There were **challenges in locating out-of-school girls (OOSG) in both countries** – those who were predicted to be in school but had dropped out, and those who were predicted to drop out and who had, and therefore our sample size for these interviews was lower than what we had planned (see *Table 7* for achieved qualitative samples).

In addition, there was an **issue of trust among some parents or caregivers with interviewers**, particularly for girls who had dropped out of school. There were fears among some that the interviewers would try to persuade girls to leave their marriage (if that had been the reason for drop out) to return to school.

## Key Implications

### What potential is there to use predictive analytics in education projects?

- While it is not possible to compare the success rate of our prediction model with an existing system, the overall success rate of the model (at 70-80%) is high considering the use of historical data. A majority of errors were a result of girls' circumstances changing, notably high rates of marriage.
- This implies that to maximise the potential, the data used needs to be regularly updated, and structured within a system. This is feasible with current technology but requires careful planning in terms of data collection and information processing.

<sup>51</sup> <https://riseprogramme.org/publications/role-low-learning-driving-dropout-longitudinal-mixed-methods-study-four-countries>

- What information should be collected will vary by context and target group. Discussions with girls highlight the importance of aspirations and motivation, and financial challenges. Efforts should be made to integrate these factors in a simplified manner.

## 6. Supporting Girls to Return to School

### Key Findings

#### How are projects supporting re-entry to school and with what effects on learning?

- EDT delivered a combination of **back-to-school campaigns, community mobilisation activities and cash transfers** to re-engage girls in school when they re-opened.
- **Mobilising and engaging community members (as in Kenya) has proven a critical driver of change** for improving girls' education and other outcomes, although the **provision of financial support to parents directly**, such as through cash transfers, can alter the incentives within households and change their power dynamics.
- In Nepal, school readiness measures by Mercy Corps included a combination of **community mobilisation, economic support, and Water, Sanitation and Hygiene (WASH) interventions**.
- To support girls to catch up with their learning, EDT deployed **remedial teachers**, as well as focusing more intensively on home learning efforts and rolling out remedial classes and out-of-hours reading camps.
- **Intensive classes** in Nepal were delivered by Mercy Corps to help girls pass their Grade 10 / SEE exams, while additional hours and extra tuition were rolled out to support girls in key topics.
- **Headteachers in both Kenya and Nepal are confident in girls' abilities to catch up with their learning**, with only 4% of headteachers in Kenya (and none in Nepal) reporting not to be confident.

### 6.1. Methodology

**Methods used:** secondary data analysis of Quarterly Reports and Annual Reports for selected projects; KIIs with project IPs and local partners for selected projects; and school surveys.

This question was answered through a combination of a documentation review – drawing on Quarterly Reports and Annual Reports submitted by selected projects between March 2020 and March 2021 – as well as KIIs with project IPs and their downstream partners. The documents were *harvested* to identify which project interventions or activities were delivered while schools were closed to support re-entry to school. The documents were harvested to determine which selected projects reported on their efficacy in supporting the re-entry of girls in school and in learning. The IDIs provided deeper insights of the type of support put in place to ensure re-enrolment, and the practical challenges projects faced in doing so. Alongside this, we used data from the quantitative school surveys, which collected information on what schools are doing (or plan to do) to ensure that students catch up in class.

### 6.2. What Support Did the Projects Offer to Girls to Re-enter and Resume Learning Once Schools Re-open?

While this study has not involved a detailed literature review of support offered to girls to resume learning, the Accelerated Education Working Group (2020) “Pathways for the Return to learning following Covid-19”, is a useful reference point to understand and contextualise how selected projects planned to support girls to return to school. The authors identified the following types of support following school closures:<sup>52</sup> **catch up programmes; extending instructional time; remedial programmes; and accelerated learning programmes**. They also provide examples of evidence-based practices to re-enrol learners in schools following closures such as those encountered during Covid-19, including **back-to-school campaigns, cash transfers, in-kind support, school vouchers, community**

<sup>52</sup> Catch-up programmes: short-term transitional educational programmes to support children previously enrolled in school with the opportunity to learn content following re-opening; Extension of instructional time – either by lengthening the school day, week or semester, complementing in-school study time with distance learning, or double shifting; Remedial programmes – which involve additional targeted support that run alongside regular classes for students needing short-term content or skill support (this can be provided through one-to-one or small group support in targeted areas of the curriculum); and, Accelerated education programmes – programmes that enable learners to gain equivalent certifications and competencies to transition into formal education, livelihoods, or vocational training. See further [\(AEWG, 2020\)](#)

**monitoring, the use of female teachers and provision of WASH facilities in school**, which are in line with the support offered by the GEC projects.

### **What support did EDT offer to girls to support them to re-enter school?**

As part of their MTRP, EDT outlined plans to deliver **accelerated learning and catch-up programmes** in preparation for and following the re-opening of schools in January 2021.

According to their MTRP, EDT planned to prepare girls for schools re-opening through student tracking to account for their learners, home and community learning and through community-led social accountability to take responsibility for student learning. EDT also planned to support target schools for school readiness through policy support to the Ministry of Education and the roll out of innovative delivery models to ensure learning continuity through a community-learning approach. Finally, EDT planned to resume professional development for teachers and Communities of Practice for teachers to support them in addressing the needs of learners in the shift from remote to in-person teaching.

According to quarterly reports submitted in the period, EDT in Kenya delivered a combination of **back-to-school campaigns, community mobilisation activities (such as awareness-raising), and cash transfers** to re-engage girls in school when they re-opened. While teacher professional development activities were planned, such as training on accelerated learning, remedial teaching, and catch-up management, these were not noted in Quarterly Reports. Similarly, although planned for, there was little reference to the community of practice for teachers noted in Quarterly Reports.

**Back-to-school campaigns** were brought forward in response to the partial re-openings of schools from September 2020, and in line with the Government of Kenya's preparation for a phased return to school and community learning programmes. Qualitative findings noted that school leadership was working closely with village elders and area chiefs to re-engage girls who had not been enrolled back to school. As explained by one respondent:

*For children who have not been enrolled back to school, communication has been made to the local leadership; to the village elders, we have got the area chiefs. So, this leadership is trying to sweep across all the villages to ensure that these children have been brought back to school. That campaign, in fact, is ongoing as we speak right now. (IDI, Mentor, Mombasa).*

**Mobilising and engaging community members has been evidenced as a critical driver of change for improving girls' education and demographic outcomes** (Aslam, Rawal, Morrow & Sarfraz 2020). In their MTRP, EDT planned to hold targeted forums to share back to school messaging with parents and caregivers, as well as conduct community-based mentorship forums for girls. Interview findings support the relevance of the EDT project approach of engaging community members and using mentors in Kenya. The project also relied on volunteer community teachers particularly given that teachers left ASAL regions to return home during the pandemic. Interviewees valued the community engagement and mentoring aspects of the programme. However, it was noted that the programme could further benefit from girls and women from within the community also acting as role models to help drive girls' education.

Between July and September 2020, EDT also conducted **meetings with key education stakeholders** (Ministries of Education and Health and school head teachers) to support schools in preparation for their reopening. The purpose of these meetings was to influence schools and ensure appropriate planning and coordination so that they could reopen safely and in adherence to government requirements. These meetings were also intended to ensure that schools were gradually scaling up the standard of their infrastructure (e.g., through access to water, toilets, desks, additional classrooms) to provide a safe learning environment for when girls returned to school. The project also participated in the County Covid-19 response meetings to discuss strategies to strengthen government preparedness to return to school, including discussion of harmful cultural practices that may place certain girls – such as teenage mothers or pregnant girls or girls with disabilities – at risk of failing to re-enrol.

**Cash transfers were delivered to around 500 households to support them with the negative economic effects brought on by Covid-19.** CHVs conducted follow-on visits with recipient households to ensure the cash transfers were being used appropriately to supplement the household income and ultimately benefit girls. Qualitative findings acknowledged this support, noting that these and in-kind support were helpful to young mothers in their return to school.

However, the **provision of financial support to parents can directly result in the creation of power dynamics** at the household level that can alter incentives. According to one stakeholder in Kenya interviewed as part of the PEA,

the nature of the EDT project intervention that provided financial support directly to parents for girls' education, whilst it helped families, it did not empower girls or benefit them directly. It was noted that there was evidence of this money being used for the household as a whole and not just for the beneficiaries and, therefore, this stakeholder suggested that the project *'should be specific: do they want to help the whole family because there is a girl who comes from the family that is poor, or do they want to help the girl so the girl can help the family.'* However, other stakeholders noted that, particularly in families that do not have a tradition for learning, the fact that organisations provide financial support to families and girls removes financial pressures that prevent these girls from attending schools.

According to Quarterly Reports, following the phased re-opening of schools from October, regular attendance at school varied between 93% (Tana River) and 99% (Turkana and Marsabit). The project further noted that 96.2% of boys returned to school.

### **What support did EDT offer to girls to support them in resuming learning once schools re-open and with what effects on learning?**

EDT set out to **double down on efforts to promote home learning** even after schools reopen to help students catch up with their learning and deliver **community-based learning**. In their plan, EDT estimated learning loss of up to 2 years and planned to support learners who had fallen behind through a hybrid remote learning model (including tech- and non-tech options). They also planned to assess learning levels and provide support to learning 'at the right level'.

The project conducted a **rapid survey of schools' preparedness for reopening**, and found that by March 2021, over 97% of schools had already established plans to support learners to cover the remaining curriculum, the most widespread approaches being remedial teaching (88%) and additional lesson hours (69%). In addition, between a quarter and a third of schools reported using topic-focused and catch-up learning to support learners.

**The project identified learning gaps among some students and further identified the need to provide targeted learning support to low performers on an assessment.** The project deployed 192 remedial teachers to support those learners in need of deeper understanding and/or foundational skills in certain topics and a further 247 remedial teachers to teach in community-based learning centres across all eight project counties.<sup>53</sup> In addition, the project delivered remedial classes where entire lessons had been missed, or in topics poorly understood by pupils, or in key subjects like literacy that require further instruction and support to ensure confidence in reading. For pastoralist girls, the project deployed roving teachers to provide additional support.

EDT also set out plans to support the return to school by including **further teacher training on remedial teaching**, in addition to catch-up programmes and supporting teachers with **Teaching at the Right Level**.<sup>54</sup> They planned to implement reading camps to increase instructional time outside normal school hours and during weekends and school holidays and provide targeted support to girls with illiterate parents who may otherwise have struggled in reading comprehensions. The project continued its work in catch-up technical and vocational education (TVET) centres to support them in their transition to formal learning schools.

In addition, EDT set out plans to establish **Communities of Practice (CoPs)** for different groups of learners to provide targeted support for learning gaps. CoPs were expected to be facilitated through virtual platforms, bringing together subject experts, teachers, and learners to improve teacher ability and help them better support learners.

According to their Annual Report submitted in March 2021, **94% of project girls resumed learning once schools reopened**. In addition, girls who attended reading camps supported by roving teachers performed better in SeGRA and SeGMA than those who did not attend reading camps (SeGMA score of 20.9 for girls who attended reading camps, as compared with 15.2 who did not; and SeGRA score of 28.9 for girls who attended reading camps as compared with 24.6 for those who did not).

In their Quarterly Report EDT noted that good progress had been made in relation to transition, with 'good performance' at the end of primary examinations which was a positive indication of progression towards secondary school (although this cannot be independently verified by the IE team).

Findings from our school survey, in which, as part of this study, we asked headteachers about the activities they were implementing (or planning to) suggest that the most widespread strategy was to deliver classes during weekends (90%). About a third of head teachers also mentioned giving **morning and evening lessons** to make up for missed

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<sup>53</sup> According to quarterly reports submitted by EDT, CBL was legally challenged by the Ministry of Education while schools remained closed: 120 out of 213 schools that had planned CBL centres were able to establish them.

<sup>54</sup> Further information on this approach is available here: <https://www.teachingattherightlevel.org/the-tarl-approach/>.

learning. Schools also planned to adjust the hours taught to catch up and to offer extra tuition for students most affected by the school closures (78% and 70% respectively).

Relatively fewer schools reported plans to offer teaching during school holidays (24%) or reduce the amount of curriculum content to be covered because of lost time (16%). In contrast to what was reported in Quarterly Reports, fewer than one in 10 schools said they were providing remedial learning.

### **What support did Mercy Corps offer to girls to support them to re-enter school?**

Mercy Corps was not required to submit an MTRP because the project closed in March 2021. As such, there is little information on what Mercy Corps planned to do to support girls to re-enter school; information is taken largely from Quarterly Reports submitted prior to their close-out.

In Nepal, according to Quarterly Reports, school readiness measures undertaken by Mercy Corps have included initiating enrolment drives, supporting school reopening plans and installing handwashing stations in all 30 project schools. Mercy Corps also distributed safety and hygiene materials to girls including Covid-19 safety measures, and established a referral system for psychosocial, GBV and safeguarding support to girls. Public service announcements were also broadcast through local radio stations to share information on school reopening and on referral services and support mechanisms for psychosocial wellbeing and stress. This is in addition to posters and pamphlets on the availability of scholarship schemes and school enrolment campaigns.

Finally, Mercy Corps also collaborated with municipal governments to develop municipal education development plans to publish a resource booklet on creating an inclusive school environment.

### **What support did Mercy Corps offer to girls to support them in resuming learning once schools re-opened and with what effects on learning?**

In Nepal, according to Quarterly Reports, there was a concerted drive by Mercy Corps to support girls to prepare for their Secondary Education Examinations (SEE) through **SEE intensive classes**. These may be considered as an intervention designed to increase instructional time. Classes were delivered to over 1,000 girls in Grade 10 over a month-long period, covering maths, science, English, social studies, and economics. The aim of the classes was to help girls prepare for the SEE exams. Under normal circumstances (i.e., prior to the outbreak of Covid-19), the project noted that girls and their families would usually pay for private tuition classes, which places a financial burden on families. These classes were designed to support girls in passing their SEE examinations and transitioning into the next grade, with a reduced financial burden on families. **Remedial learning** was also delivered, with additional hours allocated for key topics (such as fractions, word problems, algebra) requiring improvement or additional support. No information was available from project reports on what effects these interventions had.

Mercy Corps also **delivered training to maths teachers on teaching techniques**. A workshop was held to strengthen teachers' knowledge and skills in teaching maths. Topics included: teaching methodologies, working with children with disabilities or learning difficulties, working with children in a language of instruction different to their mother tongue, involving boys and girls equally in classroom and school governance, child safeguarding and business entrepreneurship. **Vocational training** was also delivered to out-of-school girls to support with their technical and business management skills and help them achieve financial independence – 131 out of 141 girls selected to enrol in the training successfully completed this, with 10 girls dropping out.

In their Quarterly Report, Mercy Corps noted that over 87% of girls from treatment and control groups stated that the ongoing pandemic affected their studies and their future aspirations regarding studies or work. Over 11% of out-of-school girls supported by the project reported having to stop their businesses due to the prolonged lockdown.

Findings from our own school survey suggest that more than half the schools planned to offer teaching during school holidays. Moreover, about half the schools reported adding more hours to the school day, reducing the amount of curriculum content covered due to lost time, and giving extra tuition for pupils most affected by the school closures. In addition, 24% of schools reported teaching on weekends. Besides this, no further activities were reported by schools.

When head teachers were asked how confident they were in being able to help students catch up on lost learning due to school closures, half of those who responded to our survey in Kenya said they were "very confident", less than half said they were "somewhat confident", and only 4% were "not at all confident". This compares with 16% of headteachers in Nepal who said they were "very confident", and 84% who reported feeling "somewhat confident".

## Limitations

There was very little information collected on project specific support in Quarterly Reports or as noted in qualitative data. In Nepal, Mercy Corps had ended their activities and were not planning on delivering any specific activities to support girls to re-enter school.<sup>55</sup> In Kenya, there was a high re-enrolment rate (which was largely attributed to the Government of Kenya's scheme to get 100% re-enrolment after Covid-19), and therefore the projects (and schools and teachers) did not mention any specific activities in this regard, even when this was investigated further.

## Key Implications

### How have Mercy Corps and EDT supported girls to re-enter school following school closures brought on by Covid-19?

- Projects in Kenya and Nepal responded appropriately in supporting girls to return to school and catch-up with their learning after school closures.
- Our qualitative research findings support the relevance of their approach in supporting girls to return to school in Kenya. Participants welcomed the **communication and communication engagement by EDT** through back-to-school campaigns and community mobilisation activities. Quarterly Reports submitted by EDT highlight the effectiveness of return-to-school activities, with 94% of project girls resuming learning once schools reopened and regular attendance reported of between 93% and 99%.
- **Remedial learning activities delivered by EDT have also supported girls to catch up with their learning:** according to project reporting, girls who attended reading camps supported by roving teachers deployed by the project performed better in SeGRA and SeGMA tests than those who did not attend reading camps; suggesting these have been effective in helping girls to offset their learning loss.
- While Mercy Corps supported girls to re-enter schools through enrolment drives, school reopening plans, and public service announcements, **it is not possible to conclude how useful these activities** were in supporting girls return to school. Little information was available on the activities delivered by Mercy Corps to support girls to return to school and catch up with their learning, which is likely because the project closed out in March 2021.
- While information is not available on how effective remedial learning activities were, findings reported by the project suggest that Mercy Corps' support to **out-of-school girls** in Nepal was beneficial to girls' transition, with 93% of girls having successfully completed vocational training designed to help them secure financial independence.

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<sup>55</sup> It is worth noting, however, that there were wider national efforts in Nepal to mitigate learning loss, including a campaign led by the Nepali government in tandem with UNICEF and other partners in January 2021. See further [UNICEF \(2021\)](#).

## 7. Conclusions

### How did projects try to mitigate the impact of school closures and with what effects on learning levels? (RQ1 and RQ2)

- **On the whole, GEC projects reacted appropriately in response to the Covid-19 outbreak to mitigate the impact of school closures on girls.** Projects across the portfolio planned to broadcast radio lessons, distribute printed learning materials, and communicate with girls by phone and through social media platforms to keep in touch with girls while schools were closed and support them to continue in their learning. Evidence from wider literature suggests these types of interventions were common across education systems around the world as they responded to school closures.
- **GEC projects also planned to support girls more holistically while schools were closed to offset the impact of the closures on their wellbeing.** Based on a review of their response plans, half of GEC projects planned to deliver some form of psychosocial and wellbeing support to girls while schools were closed. This type of support seems to be especially prominent among GEC projects compared with wider education provision more generally and tended to be less commonly referenced in the broader literature.
- **While selected projects (EDT in Kenya and Mercy Corps in Nepal) reacted appropriately to the Covid-19 pandemic, stronger planning may have helped to offset some delivery challenges in supporting girls during school closures and prevent drop-out.** Both projects planned and delivered activities that were consistent with educational policies within Kenya and Nepal. Both encountered challenges that impacted how well their activities could reach girls while schools were closed. While some of these challenges were not uncommon within the Kenya and Nepal contexts – such as access issues associated with operating in areas with poor radio signal and weak internet connectivity – others might have been more readily anticipated and planned for when planning their responses. Examples of these challenges include the competing priorities of CHVs in Kenya, which eventually forced EDT to consider alternative ways of reaching girls while CHVs were taken up with responding to the broader public health emergency in the wake of Covid-19; and in Nepal, Mercy Corps struggling to track and support some out-of-school girls who married and moved away or migrated for economic reasons, which they recognized as a risk during the pandemic.
- **Greater support for girls was needed to mitigate the impact of school closures on learning levels.** Learning levels have been severely impacted as a result of school closures in Kenya and Nepal. The average level of learning for girls in our sample in Kenya and Nepal fell between our testing periods, which is consistent with other studies on learning loss reported as a result of school closures. Our findings highlighted that girls were spending less time on studying in both countries, and there was a lack of direct teaching support, a loss of motivation, and limited access to educational resources.
- **While both projects actively took measures to support girls' wellbeing during school closures, they did not sufficiently plan for or anticipate the impact that prolonged school closures might have on girls' motivation to learn.** Although motivation was cited as a key factor that negatively impacted learning in both Kenya and Nepal, this did not feature in the response plans that EDT and Mercy Corps submitted to the FM. This may be because, understandably, response plans largely focused on the early response to the pandemic, and how to keep in touch with girls immediately after public announcements and government directives mandating the closure of schools. As motivation to study diminished the longer that schools were closed, this suggests that **further planning might have been needed** and **assumptions revisited** to consider the interventions and impact that longer periods of school closures would have on girls and their learning.
- **Limited teacher interaction may have further contributed to a decline in learning and exacerbated inequalities for different learners.** While both projects continued to support girls with learning materials, tutorials, radio programmes and lessons while schools were closed, they struggled to facilitate two-way learning with girls. Girls lamented the lack of interaction they had with their teachers, while teachers also raised issues with not being able to identify learner needs due to one-way modalities of communicating and learning. Even prior to the pandemic, evidence suggests that girls were heavily reliant on teachers and mentors: their inability to engage effectively with their teachers while schools were closed meant that they were then dependent on parents, siblings or neighbours to support their learning, with girls from poorer

households more likely to struggle with support from family members who may be illiterate or too time-poor to help.

- **Covid-19 related school closures have also underlined the importance of school as a space where girls can learn, stay well and interact with their peers.** Findings from our study have highlighted the harmful effects that school closures have had on girls' abilities to study and learn. Our study also found that these effects have been more pronounced for marginalised and 'hard-to-reach' girls: girls for whom access to learning materials that they can engage with at home - and dedicated time for study - have remained significant challenges when living in poverty-stricken households hit hard by the economic effects of the pandemic. Even where GEC projects adapted their interventions and provided opportunities for girls to learn at home (through the distribution of learning materials or programmes or resources to study like radios or solar lamps), the absence of a conducive environment to concentrate and study at home and the lack of dedicated time to study while schools were shut have made this a challenging task. Not being able to interact sufficiently with teachers during the closures or to study and learn from other peers has made learning even more difficult and underlined the importance of **schools not only as places that provide learning and teaching resources but that provide environments that protect the conditions needed to study and learn effectively.**

### Which girls did we identify as being at risk of drop-out? How useful has a machine learning approach been in identifying them? (RQ3)

- **Our study finds that girls are at risk of dropping out if: they have already repeated a year of schooling, have come from less-educated families, are part of larger households or families, have been involved in farming more than their peers or who are married.** In Kenya, being older and older for their grade matters most when predicting which girls are at risk of not returning to school; while in Nepal, being older or younger for their grade, as well as age and household size are the most important features.
- **Girls highlighted poverty as the main factor behind drop-out.** In Kenya, household poverty was the largest reported barrier to girls continuing in their education, while migration (for work) was widely cited as a reason for girls dropping out in Nepal. While EDT delivered dignity kits and cash transfers to vulnerable households, these measures may not have been sufficient to offset the economic impact of Covid-19 on households. Mercy Corps' response plan did not include specific interventions to address the economic impact of Covid-19.
- **Predictive analytics, through machine learning algorithms, have the potential to help improve early warning systems in education programming.** The machine learning model used in our study, based on historical data, successfully predicted whether a girl would drop out of school in seven to eight of every 10 cases. However, our model was limited by the use of outdated information – factors such as marriage are strong predictors of drop-out – and girls marrying since the time that projects collected data was the leading cause of inaccuracies. Additionally, factors such as girls' self-esteem, aspirations, and intrinsic motivation to study, as well as support and encouragement from others, were all identified through our qualitative research as factors helping to retain girls in school, even though they were predicted by our machine learning model to drop out.

### How have projects supported girls to return to school and recover learning? (RQ4)

- **The projects selected for this study responded appropriately in supporting girls to return to school after school closures ended.** Back-to-school campaigns and community mobilisation activities delivered by EDT had some success in supporting girls to re-enter schools, with 94% of girls reported to have resumed learning once schools reopened. While Mercy Corps also supported girls to return to school through enrolment drives, school reopening plans and public service announcements, it is not possible to conclude how useful these have been due to a lack of information and data available for this study.
- **Remedial teachers, intensive classes in key topics and out-of-hours learning camps have supported girls to catch-up with their learning or transition after the re-opening of schools.** EDT delivered remedial learning activities such as reading camps and roving teachers and found that girls attending these camps performed better in SeGRA and SeGMA tests than those who did not. This suggests that these activities have promise in helping girls catch up with their learning and offset learning loss encountered as a result of the school closures. In Nepal, Mercy Corps supported out-of-school girls delivering vocational training designed to help them secure financial independence, with 93% of girls successfully completing the

training. Our study confirms the promising effects of these interventions, with head teachers interviewed in our survey expressing confidence in girls' abilities to catch up with their learning after schools have reopened.

## 8. Recommendations

The following recommendations have been developed to inform FCDO's policy decisions on successor programmes to the GEC, and to inform the ongoing development of the GEC by the Fund Manager (FM) and Implementing Partners (IPs).

### **RQ1 and RQ2: How might education projects and programmes look to minimise learning loss when facing school closure? (RQa and RQb)**

The emergence of Covid-variants, and other risks (including climate change related shocks and stresses) mean that school closures may happen again. There is a broad recommendation to key education stakeholders, specifically Governments and Local Education Groups to integrate schooling and learning contingency planning into sector planning processes – as is done for emergency settings. The following recommendations focus specifically on girls' education for existing and future girls' education projects and programmes.

#### **1. GEC IPs (and schools) need to strengthen how they plan for potential future school closures in order to mitigate and offset the risks to girls' learning and wellbeing.**

While projects set out how they would respond to school closures following the Covid-19 outbreak, they were understandably asked to focus on immediate (short term) priorities, with neither the FM nor IPs accounting for lengthy periods of school closures. Yet, our findings highlight the impact that lengthy school closures had on girls' abilities to learn and remain motivated in their education.

IPs need to develop contingency plans for how to deliver education for each of their target groups remotely in the eventuality that schools close again. Plans should consider carefully where target learners are based, what access they have to radios and mobile phones, and how best to reach and engage with them while schools are closed. Plans should cover not only the immediate aftermath following school closures, but also include clear plans for longer-term education delivery if needed. Plans should detail how learners will access educational resources and teaching support while schools are closed, be protected from risks to their wellbeing and safety while they are at home, and how they will be supported to remain engaged and motivated in their learning, with dedicated time to study.

#### **2. FCDO, the FM and GEC IPs should review assumptions underpinning the pedagogy of radio lessons, with a view to identifying pedagogies that allow for continued engagement for marginalised girls.**

Projects largely relied on radio or television broadcasts to reach girls while schools were closed, with more limited use of WhatsApp and paper learning materials distributed to households. While this was useful to raise awareness and share information with learners during school closures, one-way learning modalities prevented girls from checking their understanding or grasping difficult concepts, adversely impacting on their ability to learn.

As part of planning for future closures, projects should look to understand in advance the suitability of various remote learning techniques for active pedagogy for marginalised girls. If radio broadcasts or radio lessons are considered, projects need to plan how to complement or supplement these with engagement channels that lend themselves to two-way forms of communication, such as more interactive digital channels or community-based learning where internet access is more restricted.

#### **3. Projects should adopt a multi-pronged approach when planning for remote education delivery to ensure learning reaches and engages all learners.**

Even before the Covid-19 pandemic, girls faced multiple barriers to attending school regularly and learning effectively: these included barriers at the level of the individual, home, community and school. These barriers are exacerbated for the most marginalised and hard-to-reach learners, who may not have environments conducive to learning at home, either because they lack the resources to support home learning or because their parents or caregivers may not be literate or sufficiently educated to be able to step in and support them to learn during school closures. This means that additional planning is needed to support children from poor and marginalised backgrounds to ensure they can continue to learn during school closures.

A multi-pronged and differentiated approach to remote education delivery is necessary to ensure learning modalities benefit all learners, not just those households who are able to provide additional resources, time or support while schools remain closed. This means not taking a one-size-fits-all approach and instead

delivering different forms of support based on a careful identification of the needs, barriers, and constraints to remote learning faced by different groups of learners. Projects should identify and triage learners based on their access to remote channels, and plan to continue delivering education accordingly. For the most hard-to-reach learners, interactive paper-based learning materials should be planned for and distributed as part of the early response to school closures and complemented with face-to-face community learning or household visits to ensure two-way learning. Projects could also consider equipping households and learners with equipment such as solar radios or phones to enable them to access digital forms of learning.

**4. Stronger support needs to be available for teachers to help them to continue teaching learners during school closures.**

Across the GEC portfolio, very few projects planned to continue supporting or training teachers while schools were closed. Yet, even prior to the pandemic, evidence suggests that girls were heavily reliant on teachers and mentors. During school closures, teachers raised issues about being able to identify and support learners appropriately.

As part of contingency planning, projects should plan for how they will support teachers to deliver education remotely while schools are closed. This should include plans to train and equip teachers with the skills needed to engage with digital forms of learning, and how to check for signs that learners may be struggling to grapple with new concepts or ideas when learning at home. Teachers should also be supported to spot signs of learners losing motivation and receive guidance for how to address these remotely while schools remain closed (such as through interactive exercises or regular check-in calls or household visits).

**RQ3: How might education projects and programmes predict which girls are at risk of dropout and look to retain them?**

**5. GEC IPs should systematically and regularly collect and track data on girls' characteristics and circumstances to identify and plan to retain girls most at risk of dropping out of school and/or falling behind in their learning.**

Projects' and schools' capacity to *prevent* girls from dropping out of school and mitigate barriers to girls' education and learning is dependent on knowing *which* girls are most at risk. This is particularly difficult for barriers that are most prevalent outside the school environment. Systematic monitoring of those key indicators of girls who are most at risk – for example, those at risk of early marriage because of a reduction in household income and livelihoods due to the economic impact of Covid-19 – may help projects identify mitigation strategies to prevent this outcome happening.

Projects should regularly track and monitor indicators or known characteristics that place girls at risk of dropping out or falling behind in their learning. These include marginalisation factors like ethnicity or native language, as well as girls' age, their household income, household size, and occupation of their parents / caregivers. These were all factors that were identified by our study as being important predictors of whether girls would drop out of school. Projects should then develop strategies to retain those girls most at risk of dropping out after shocks or crises, such as delivering economic support (e.g., cash transfers or dignity kits) to those households most vulnerable or susceptible to the economic effects of a crisis or emergency.

**6. IPs and education practitioners should continue supporting girls' wellbeing during school closures to avoid them dropping out or falling behind in their education.**

From a review of response plans from GEC projects across the portfolio, it is clear that projects set out to intensify their efforts to keep in close contact with girls during school closures and deliver psychosocial support and awareness-raising to them and their parents / caregivers to keep girls well while schools were closed. Both EDT and Mercy Corps also kept in touch with girls closely to support and monitor their wellbeing while schools were closed.

While mental health concerns were a pertinent issue raised by girls and their caregivers, our study also found that factors such as girls' self-esteem, aspirations, and support and encouragement from others all helped to retain girls, even when they were predicted to drop out. Girls we interviewed welcomed the regular calls and check-ins from projects, suggesting that these were important drivers that helped to retain them in education while schools were closed. Projects should continue delivering this support and identifying other ways and strategies to support girls with their self-esteem and aspirations to avoid them dropping out or falling behind in their learning.

**7. Further research is needed to explore the usefulness of machine learning as a model that can be used to support education practitioners with 'early warning systems' to predict who is at risk of dropping out of school.**

Evidence from our machine learning model shows early promise as a way of predicting which girls are at risk of dropping out of school. Yet, an absence of benchmarking data or suitable comparable models limits our ability to conclude how effective this has been relative to other systems. Further research is needed to explore the benefits of machine learning to predict girls at risk of dropping out against the relative trade-offs to determine the applicability and replicability of the model in different contexts, and the extent to which there is value in scaling this up in education systems more broadly.

**RQ4: How might education projects and programmes support girls to return to school after school closures to recover learning?**

**8. GEC IPs need to re-assess girls' learning levels (as soon as possible after schools have reopened) to develop and deliver targeted remedial support to those most in need.**

Our study finds that learning losses have not been uniform across GEC schools in the selected projects, and in some schools, we observed learning gains. Once schools reopen, GEC projects should take steps to assess current levels of learning and to prioritise those girls with the lowest learning scores for targeted remedial support to help them catch up with their learning.

**9. GEC IPs should re-assess the barriers girls face to learning, to understand the extent to which these have changed as a result of Covid-19 and/or will persist as they return to school.**

Our study highlighted the barriers faced by girls studying at home e.g., poverty, balancing time for study with duties in and outside of the home, accessing learning materials and receiving one-to-one support with their learning. These challenges were prevalent before the outbreak of Covid-19. However, Covid-19 and school closures have clearly exacerbated inequalities, increased poverty and contributed to socio-emotional effects on motivation and engagement in education, which may continue.

**10. GEC IPs should plan for remedial activities at the outset to help girls catch up with their learning and recover lost learning.**

While both projects supported girls to return to school after school closures and to catch up with their learning through a combination of remedial learning and back to school campaigns, neither of them included these interventions as part of their early response to the Covid-19 outbreak, which focused on how to support girls while schools were closed. Both projects included in the study were also at different stages in their implementation, with Mercy Corps' project closing in March 2021, a year after schools were initially closed, which meant less time to plan for a return to school within the project lifetime.

In the event of future school closures, projects should plan for how to support girls to catch up with their learning at the very outset to ensure they have factored in sufficient time to support girls once schools have reopened. This includes planning for remedial activities, such as reading camps and catch-up programmes, to support girls to recover any learning they may have lost while schools were shut and get back on track and to resume learning at the correct level.

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