**SYRIA
EDUCATION
PROGRAMME**

Syria Education Programme's Learning Assessment Report 2020

SCHOOL-TO-SCHOOL INTERNATIONAL

Disclaimer

Project Description

The Syria Education Programme (SEP), also known as Manahel, provides access to safe, inclusive, and quality learning opportunities. Across its lifecycle the project will reach half a million primary-school-age children in Syria.

SEP enables teachers, school staff, and education sector leadership to deliver quality education. In response to the ever-changing landscape of conflict and crisis in Syria, SEP invests in and applies research to respond to the educational, psychological, and protection needs of Syria's children.

From the specialised requirements of disabled children to the psychological demands of childhood within conflict, students' needs are as diverse as they are urgent. SEP takes a broad and nuanced approach to the myriad needs of individual children and groups. By broadening educational access, promoting a safe and secure environment, and creating quality learning opportunities, SEP strives to meet children's holistic needs at scale.

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LIST OF ACRONYMS

AO	Access only
CAPPM	Correct addition problems per minute
CLSPM	Correct letter sounds per minute
CNPM	Correct numbers per minute
CNWPM	Correct nonwords per minute
CP	Child protection
CSPPM	Correct subtraction problems per minute
CWPM	Correct words per minute
ED	Education Directorates
EGMA	Early Grade Mathematics Assessment
EGRA	Early Grade Reading Assessment
FCDO	Foreign, Commonwealth and Development Office
IDP	Internally Displaced Person
MOE	Ministry of Education
ORF	Oral reading fluency
QE	Quality education
SGO	Safeguarding Officer
SIG	Syrian Interim Government
STEM	Science, Technology, Engineering and Math
STS	School-to-School International
TOT	Training of trainers
USAID	United States Agency for International Development
UKFIET	The Education and Development Forum

Executive Summary

Introduction

This report presents the results of a study of learning outcomes for students served by the Syria Education Programme, also known as Manahel, in Provinces A and B. Manahel is a three-year project funded by the UK Government's Foreign, Commonwealth and Development Office and implemented by Chemonics International. The project seeks to expand access to education and strengthen the capacity of educational actors to improve the quality of learning in Syria.

The study examines the performance of grade 3 and 4 students in reading and mathematics across Manahel supported schools. The results provide Manahel with insights to ensure the project meets the needs of the schools and students it serves. The study's results also serve as a point of comparison to the 2019 Manahel baseline assessment and the 2021 Manahel endline assessment.[1] The study was conducted by Manahel partner, School-to-School International (STS).

Four research questions guided the study:

1. What proportion of grade 3 students in 2019 and in 2020 are classified as 'progressing' and 'proficient' readers?

2. How have last year's cohort progressed in reading and mathematics outcomes (grade 3 in 2019, now in grade 4)?

3. How do this year's grade 4 students compare to this year's grade 3 students?

4. How does students' access to learning correlate with their learning outcomes?

The study draws on data collected from 730 grade 3 students and 731 grade 4 students attending 75 schools at the start of the 2020/21 academic year. Data collection captured student and school data using six tools: an Early Grade Reading Assessment (EGRA), an Early Grade Mathematics Assessment (EGMA), a student survey, a teacher survey, a headteacher survey and a safeguarding officer form.

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[1] The 2019 Manahel baseline assessment also includes comparisons with Manahel's predecessor project 2017 assessment. While no comparisons with the previous project's assessment are made in this report, the assessment uses reading proficiency benchmarks established under that programme.

Findings

A GREATER PROPORTION OF THIRD GRADERS WERE PROFICIENT READERS IN 2020 COMPARED TO 2019

Results compared the proportion of proficient readers amongst third graders in 2020 and third graders in 2019 to explore differences in grade three students who had two years of Manahel programming compared with students with just one year. Given school closures and prevailing conflict at the start of 2020, lower levels of reading proficiency were expected for 2020 students in grade 3.[2] However, 21.7% of grade 3 students in 2020 were proficient readers, a significantly higher proportion than the 13.9% of who were proficient in 2019.

READING AND MATHEMATICS IMPROVED FOR THE COHORT OF STUDENTS MOVING FROM GRADE 3 IN 2019 TO GRADE 4 IN 2020

The study also compared results between students in grade 3 in the 2019/20 academic year and those in grade 4 in the 2020/21 academic year. This comparison is meant to track growth within the cohort across an additional year of Manahel interventions. Students' scores improved from grade 3 in 2019 to grade 4 in 2020 in all reading subtasks. Similarly, mathematics scores improved in all subtasks between 2019 and 2020. Pages 15 – 17 explore this further.

> **Related Recommendation:** The programme should include a refresher for coaches and teachers to introduce opportunities every week for children to practice decoding using the "Al Rashidi technique". This will take the form of 15-20 minutes a week for children to practice using invented words. Lead teachers should work closely with students in groups likely to be non-readers. More literacy sessions should be held in districts that are falling behind.

IN 2020, GRADE 4 STUDENTS OUTPERFORMED GRADE 3 STUDENTS

Although learning loss was anticipated between 2019 and 2020, students in grade 4 in 2020 performed better than students in grade 3 in 2020. Overall, grade 4 students had higher scores than grade 3 students in every reading and mathematics subtask in 2020.

> **Related Recommendation:** The programme should introduce supplementary lessons for students in grade 4 and consider activities that encourage reading and mathematics practice, such as challenges or competitions.

ADULT-LED LEARNING ACTIVITIES SUPPORT LEARNING

Students who reported that their parents taught them or that they participated in face-to-face meetings with their teachers while schools were closed in the spring and summer due to COVID-19 had higher mean scores on the reading comprehension, missing number identification and word problems subtasks. This indicates that involving adults in student learning during school closures helps mitigate learning loss and may even improve student learning outcomes when schools are closed.

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[2] World Bank Group, Simulating the Potential Impacts of COVID-19 School Closures on Schooling and Learning Outcomes: A Set of Global Estimates, http://pubdocs.worldbank.org/en/798061592482682799/covid-and-education-June17-r6.pdf

> **Related Recommendation:** The programme should develop strategies to engage parents in children's learning, such as outreach from schools to familiarise parents with the content available to students via distance learning platforms. As schools re-open fully in March 2020, the WhatsApp groups should be used for supplementary reading/maths challenges, games and activities.

Lessons Learnt and Next Steps

The conclusions of the study point to several cross-cutting recommendations for Manahel to consider as the project carries out its activities. A summary of these recommendations appears in Table 1.

Table 1. Summary of Key Conclusions and Recommendations

Key Conclusion	Recommendation
Manahel Program Implementation	
2020 students in both grades in District 2 (Province A) are falling behind.	Undertake an outreach activity with parents to increase their engagement through the WhatsApp groups.
Gender continues to be a factor affecting learning outcomes.	Adjust the vulnerability criteria used by lead teachers to provide additional resource-room support so that it emphasises work with lower-attaining girls. Monitor the attendance of boys, particularly in grades 3/4, and have the SGO engage for those missing more than five days. This is something Manahel is doing already, but it will be moved up in the list of SGO's responsibilities and CP leads will monitor it more closely. New supplementary reading materials (e.g. bedtime stories) will be created over the year. Actively involve the Gender Focal Point so certain themes (e.g. older girls excelling in maths, female role models following careers in STEM) are covered in these materials. In next year's research agenda, continue to include classroom observations that check for equitable opportunities for girls and boys to participate (who is getting asked questions, who is speaking in small group work, who is coming up to the board, whose work is being celebrated etc).
Parental engagement can improve learning scores.	Develop parental outreach strategies. Familiarise parents and caregivers with distance learning resources. Cultivate support networks.

Study Design for 2021 Endline	
Students with high mobility have higher scores in literacy and numeracy.	Collect data at the endline on where students and teachers move from, in addition to the number of times moved, to capture a more nuanced picture of high-mobility students.

The EGRA and EGMA assessments in this report demonstrate that learning has continued even during conflict and COVID-19. Educators have been particularly successful in raising learners' comprehension. Our teaching and learning materials, online activities, teacher professional development and wider safety and inclusion activities are working. Teachers and learners need consistency — more time with these materials and approaches so they can acquire fundamental literacy and numeracy competencies. The evidence here provides a good justification for scaling up these approaches in more schools across Northwest Syria. The recommendations in this report can broadly be summed up with three themes: the need to increase learning time, to differentiate interventions to specific subgroups and to offer additional targeted support for most vulnerable groups.

> **Related Recommendation:** Once the programme's fifth year of funding is clear, identify the best way of institutionalising the Manahel approaches (in line with findings from the PEA report), so that teaching and learning materials and teacher professional development approaches can be used by more schools.

The findings here provide important evidence that learning is progressing at a good rate in Manahel's schools. The findings will probably not, in themselves, find a wide audience amongst practitioners: educationalists, often time-poor, want to read about how they can see improvements in schools they support. We should therefore focus our communication efforts on sharing how we achieved these results — sharing products, processes and policy ideas, and using the evidence from this report to justify those.

> **Related Recommendation:** Work with the FCDO to understand who might like to hear more about this work. The programme has shared findings with stakeholders in Syria in order to produce this report, and will share with the Cluster. The program will also submit an abstract to UKFIET (The Education and Development Forum). We will work with the FCDO to understand if there are further practitioner or donor audiences you would like us to reach.

Overall, this Learning Assessment has demonstrated similar findings to Manahel's continuous assessment approaches.

> **Related Recommendation:** We have undertaken two EGR/EGM assessments in the last two years. This is a good opportunity to reflect on the evidence they are giving us compared to the teacher-led continuous assessments and other diagnostic and evaluative assessment options. The programme should work with FCDO to clarify assessment objectives going into Year 5 so we can offer the best value for money.

Introduction and Background

Conflict and Education in Syria

The protracted Syrian crisis, which has been marked by ongoing conflict since March 2011, has been characterised by human rights violations, staggering displacement and significant loss of life. According to the United Nations High Commissioner for Refugees, nearly 5.7 million Syrians have fled the conflict to other countries while 6.2 million more have been displaced within Syria. Together, these groups comprise 55% of the pre-war population of Syria.

This decade of acute crisis has had a devastating impact on the education sector in the region. One in three schools have been destroyed. Children are burdened by the emotional and physical toll of personal loss and continued instability. Teachers, bearing the same burdens as their students, choose to go to schools in the face of danger, sporadic pay and the challenge of providing a semblance of normalcy for their students.[3]

These challenges only increased in the spring of the 2019/20 academic year when COVID-19 disrupted education worldwide. Schools closed in mid-March 2020 and were required to quickly pivot to an online-learning approach. Although schools reopened for the 2020/21 academic year in November 2020, two months later than scheduled, schooling continues to be punctuated by temporary closures due to spikes in COVID-19 infection rates.

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[3] Education: United Nations Children's Fund: www.unicef.org/syria/education

Manahel Project Background

The four-year Syria Education Programme is funded by the UK Government's Foreign, Commonwealth and Development Office (FCDO) and implemented by Chemonics International. From January 2018 to June 2022, the project provides access to safe, inclusive and quality learning opportunities for children in conflict-affected areas across northwestern Syria, while strengthening educational actors to manage education effectively.

The Manahel project builds upon the previous iteration of the project, funded by the United Kingdom and the European Union between 2014 and 2018. Manahel focuses on pedagogy, curriculum and planning, inclusion and child protection. Initiatives within Manahel's intervention structure include psychosocial support workshops and activities, child safeguarding and protection activities, fixed and mobile library support, teacher training and coaching, monthly teacher learning circles, accommodations for children with mild or moderate disability and reading and mathematics instruction. On average, teachers deliver 12 literacy sessions per month using Manahel materials. These sessions are in addition to the standard Arabic and mathematics lessons. In academic year 2020/21, Manahel supports 600 communities in Province A and Province B of northwestern Syria.

We reviewed our literacy materials in 2020, between April and June. The consultant explored these over the course of three workshops with coaches and education advisers from our partners, and with the Education Director of Province B (a very experienced Arabic specialist). The new materials introduce comprehension activities earlier on, link decoding and comprehension activities, include more graphics, and revise the continuous assessment approach. They include blending and segmenting activities with pseudowords. We looked again at the order in which small groups of letters were introduced, included games,songs, physical movement, and identified a high-frequency words for each grade. Teachers received training in these revisions during summer and autumn, and they were introduced fully in the autumn term. This means the impact of the changes will not have been fully felt this year.

With the school closures due to COVID-19 in 2020, Manahel built on their non-formal education experience to swiftly roll out a suite of online and remote learning tools. By the end of September 2021, Manahel had established 3,951 WhatsApp and YouTube channels to reach 4,611 teachers and 74,792 children. Manahel has also created and shared 222 WhatsApp video tutorials and audio guides for parents and caregivers. At the time of this report, Manahel publishes a weekly plan with a clear scope and sequence of lessons from grades 1 to 4 as well as specific learning objectives on the website and through WhatsApp. Each week students receive five reading lessons, three mathematics lessons, two science lessons and one English language lesson. Parents receive the lesson plans early in the week so they can review the curriculum material; teachers support parents with their child's learning through WhatsApp groups.

Methodology

Study Purpose and Research Questions

The Manahel learning assessment examines the reading and mathematics performance of students attending Manahel-supported schools. This study seeks to provide Manahel staff and FCDO with insights on factors influencing student performance to ensure the project meets the shifting needs of the schools and students it serves. The study was conducted by School-to-School International (STS).

The study draws on data collected from grade 3 and grade 4 students at the start of the 2020/21 academic year. Data collection in November 2020 captured student and school data using six tools: an Early Grade Reading Assessment (EGRA), an Early Grade Mathematics Assessment (EGMA), a student survey, a teacher survey, a headteachers survey and a safeguarding officers (SGO) form. The teacher survey and SGO form are newly added tools since Manahel's 2019 study.

Four research questions guided the study:

1. What proportion of grade 3 students in 2019 and in 2020 are classified as 'progressing' and 'proficient' readers?

2. How have last year's cohort progressed in reading and mathematics outcomes (grade 3 in 2019, grade 4 in 2020)?

3. How do this year's grade 4 students compare to this year's grade 3 students?

4. How does students' access to learning correlate with their learning outcomes?

Figure 1. Comparisons and Assumptions in Research Questions

Cohort	2019	2020
Grade 3	Grade 3: 1-year Manahel interventions at the school	Grade 3: 2-years Manahel interventions at the school
Grade 4		Grade 4: 2-years Manahel interventions at the school

(RQ1, RQ2, RQ3, RQ4 annotations shown with arrows)
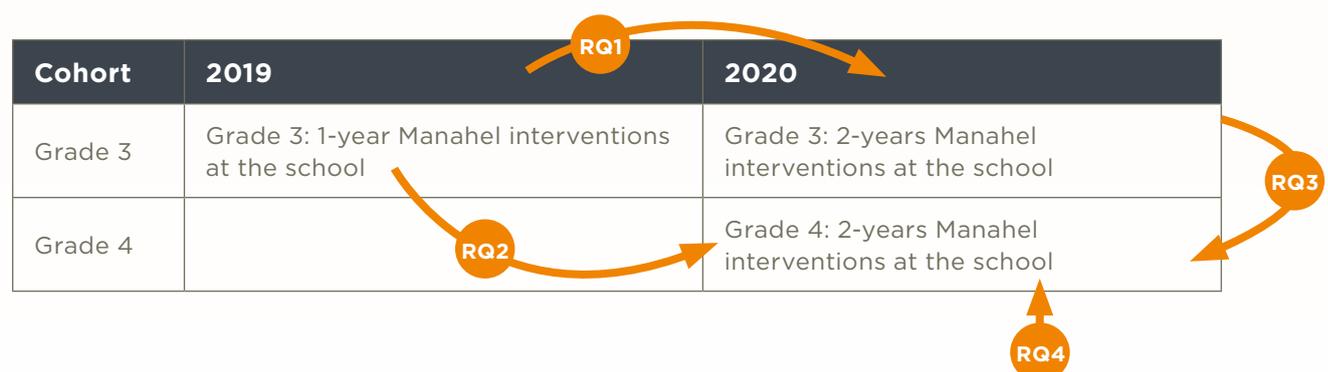
Sampling

Sampling was undertaken using a two-stage approach. First, STS randomly selected a number of schools per province proportional to the full Manahel school list. Next, enumerators randomly selected 20 students per school to complete the learning assessments — 10 grade 3 students and 10 grade 4 students, with an equal gender distribution. The headteacher, SGO and three teachers for grades 2–4 were selected to participate in their respective surveys. Table 2 provides a summary of the target and final sample.

Table 2. Target and Final Sample

Province	Target sample						Final sample					
	Schools	Students					Schools	Students				
		Total	G3 Girls	G3 Boys	G4 Girls	G4 Boys		Total	G3 Girls	G3 Boys	G4 Girls	G4 Boys
A	52	1,040	260	260	260	260	52	1,025	294	217	279	235
B	23	460	115	115	115	115	23	436	115	104	99	118
Total	75	1,500	375	375	375	375	75	1,461	409	321	378	353

The student sample is generalisable at the province-level or by gender. Results at lower subgroup levels are associated with lower levels of confidence. While the targeted number of boys and girls to be assessed varied within province, the numbers in the final sample do not deviate significantly. Therefore, results by gender and province are valid.

Assessment Tools

The Manahel learning assessment builds on previous early grade reading and mathematics research conducted within Syria and the broader region. The previous iteration of the Manahel project conducted an EGRA and EGMA in 2017 with a version of a 2012 tool developed by the MAHARAT project in Iraq. To maintain consistency across studies, Manahel used the same EGRA and EGMA tools for both the 2019 and 2020 learning assessments. However, Manahel did make changes to the tools and their administration to improve their quality and, thus, the accuracy of students' results. A summary of these changes is captured in Table 3.

Table 3. Summary of Assessment Changes Across Studies

	2017 Previous Project Study	**2019 Manahel Study**	**2020 Manahel Study**
Student Assessment Timepoint	End of grade 3	Start of grade 3[4] Closer in line with the Manahel logical framework indicators and reflects international best practices	Start of grade 3 and grade 4 Inclusion of grade 4 as proxy comparison group to grade 3
EGRA and EGMA Tools	EGRA and EGMA tools adapted from tools from the 2012 MAHARAT project in Iraq	Updated EGRA with Arabic modifiers for greater precision Same EGMA tool from previous project	2019 EGRA plus the previous project letter sound identification subtask without modifiers added to provide more nuance around students' reading ability of Arabic modifiers Same EGMA tool from previous project
Supporting Surveys	• War Stressor Survey • Headteacher Survey • Teacher Survey • Classroom Observation • School Observation	• Student Stressor Survey • Headteacher Survey	• New Student Survey with focus on access to learning • Headteacher Survey • New Teacher Survey with focus on displacement and teaching practices • Safeguarding Officer Tool to triangulate data with student responses
Assessment Administration	Paper administration with stopwatches and timers	Tablet administration using Tangerine®[5,6]	Tablet administration using Tangerine®
Accommodations for Students with Disabilities	None	Extended timed subtasks from one to two minutes Larger font on printed student stimuli	Extended timed subtasks from one to two minutes Larger font on printed student stimuli

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[4] International standards recommend assessing students at the end of Grade 2 or beginning of Grade 3.

[5] Tangerine® is an open-source software developed by RTI International specifically for the administration of EGRA and EGMA.

[6] Manahel chose to collect the data electronically on tablets to ensure more accurate scoring and better overall data quality. This change required extensive updates to all instructions. STS updated the instructions for the tablet administration in line with the Early Grade Reading Assessment Toolkit, Second Edition and the Early Grade Mathematics Assessment Toolkit.

The final tools for the 2020 assessment include an updated EGRA, consistent EGMA, revised student survey, headteacher survey, new teacher survey and new SGO form. These tools are described in Table 4.

Table 4. Description of 2020 Evaluation Tools

Instrument	Description
EGRA and EGMA	The EGRA and EGMA are comprised of subtasks that each measure a foundational skill of reading or mathematics to determine where a student is in their progression towards proficiency.
Student Survey	This survey asked students about their home and education experience—including questions on family size, displacement, academic history, learning experience during COVID-19 school closures, attendance and participation in Manahel activities.
Headteacher Survey	A brief survey on student enrolment, as well as questions about library and special education resources.
Teacher Survey	Survey of teachers' education levels, teaching experience, displacement status, professional development activities and teaching practices.
Safeguarding Officer Form	This online form captured demographic data, such as displacement status on the 20 students assessed at their school. This data served as a source of triangulation for student survey responses.

Data Collection and Analysis

For the data collection, 20 enumerators were selected internally — 10 Manahel staff members and 10 staff members from local Manahel partners. The enumerator training followed a training-of-trainer (TOT) cascade model. The TOT took place remotely over Zoom© on 22 and 23 October 2020 for four hours and thirty minutes each day. The STS team based in the United States trained four Manahel trainers on data collection procedures. The TOT was given in English with interpretation provided by the Manahel project leads. The Manahel trainers, in turn, trained 20 enumerators in Arabic with materials provided by STS from 31 October to 1 November 2020.

Between 16 November and 7 December 2020, enumerators visited 75 Manahel schools. Enumerators were divided into five teams of four. Each team visited one school per school day and assessed 10 students in grade 3 and 10 students in grade 4. Enumerators uploaded data daily from their tablets via wi-Fi to a secure, password-protected server maintained by STS staff.

- **Supervision and Quality Control:** Throughout data collection, enumerators were closely supervised to ensure data quality. The Manahel Lead tracked the progress of the data collection daily. The Manahel trainers performed site visits to ensure enumerators were following protocols. STS monitored the data uploaded to the server daily. An additional means of data quality control was the use of inter-rater reliability (IRR) measures during data collection with 10% of the sampled students, per standard EGRA practice.[7] Results showed that enumerators were administering the tools consistently.

- **Child Protection and Research Ethics:** The study tools were reviewed by the Manahel team prior to the beginning of data collection to ensure that the study adhered to applicable ethical rules and societal norms. All enumerators received training on the project's code of conduct and its child protection policies and procedures. Affirmative informed consent was obtained from all headteachers and teachers and all children provided affirmative assent to be assessed. They could opt out of the assessment at any time. Students were selected randomly on the day of the data collection. Students with disabilities were not excluded from the random sampling procedure or from participating. As a result, accommodations for students with disabilities — such as extended time for the timed subtasks and large print stimuli — were provided to all students throughout data collection.

Data Analysis

After data collection, STS cleaned the data to remove invalid observations, resulting in a complete, accurate and internally consistent final data set. STS followed a multistage data cleaning plan to ensure data values were within the allowable range. STS developed a master codebook and merged EGRA and EGMA data sets with data from the student survey, teacher survey, SGO form and headteacher survey.

The STS team applied sampling weights to the students' data to produce more representative estimates. To compute sampling weights, STS used the following information about all the schools in the relevant population: education authority or subdistrict; number of students enrolled in grade 3 and grade 4; and number of students in attendance in grade 3 and grade 4. This data was collected through the school's headteacher survey at the beginning of each school visit. Weights were computed using SPSS version 25.

After applying the weighting functions, STS produced descriptive statistics disaggregated by variables of interest. Descriptive results were analysed for statistically significant differences by gender, province and grade using chi-square tests and t-tests. The chi-square test is a statistical test comparing the proportion of students who did not respond correctly to any items on a subtask — known as zero scores — with what was expected. The independent-sample t-tests compare the difference between the means of two independent groups on the same dependent variable. Associations between respondent characteristics, factors around access to learning and student performance were further analysed using Pearson bi-variate correlations and multivariate regressions to identify predictors of student performance. All analyses were conducted using SPSS version 25.

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[7] Inter-rater reliability is the degree of agreement between 2 enumerators who are assessing the same student independently. It allows the data collection monitors to identify and resolve problems within enumerator teams during data collection to improve quality.

Challenges and Limitations

The following are limitations that should be considered when reviewing the findings of the 2020 study:

1. Schools were not randomly assigned to the treatment groups at the beginning of the study, so the study is not a randomised control trial design. Data analysis methods attempt to correct for the non-random approach to sampling by controlling for any confounding variables, but it is always possible that a major confounding variable is not identified and used in the analysis.

2. The sample size between the 2019 and 2020 studies decreased from 150 schools to 75 schools. The addition of another grade meant that resources were not available to cover the same number of schools as in 2019. This reduces the statistical power of the analyses conducted.

3. While schools assessed in the 2019 study were included in the 2020 study sample, the study design did not identify individual students who participated in the 2019 study for reassessment. Of the 333 students from schools that were assessed in 2019, 83.2% had moved one or more times in the past academic year, indicating a high rate of student turnover within these schools. Thus, results cannot confidently be ascribed to continuous student engagement in Manahel programming.

4. Schools closed in the spring and summer of 2020 due to the outbreak of COVID-19; however, this study does not aim to understand learning loss that may have occurred due to these school closures.

5. The study asks students several questions around their time out of school, their participation in interventions and activities during quarantine and their rates of displacement. Given that these events happened in the past, students' responses may be unreliable due to recall bias.

6. Ongoing instability in the region due to conflict provided logistical challenges during data collection. For example, one sampled school closed halfway through the day due to air strikes and needed to be replaced.

Findings

This section reports findings according to the study's four main research questions. Results statistically significant at the p < 0.05 level are referred to as 'significantly' lower or higher in the text.

Description of the Sample

The sample was equally balanced between grade 3 and grade 4 students, with each group representing approximately 50.0% of the overall sample. Girls made up 53.9% of the sample, while boys accounted for the remaining 46.1%. Students ranged in age from seven to 18 years old. Most (72.0%) were on-age for their grade, but 0.3% were underage and 27.7% were over-age.[8]

More than twice as many students in the sample came from Province A (70.2%) compared to Province B (29.8%). Within Province A, students were relatively equally divided between the District 1, District 2 and District 3 districts (16.2%, 13.4% and 17.6% of the overall sample, respectively). A slightly larger proportion (23.0%) came from the District 4 city limits. All students from the Province B sample came from the District 6 district. Although the sample's distribution is proportional to the relative populations of the provinces and districts, it does have the effect that overall results are mostly driven by trends seen in Province A.

Nearly three-quarters (72.9%) of students have been forced to move because of the war. Of those students, 28.2% have moved once in the past academic year; 17.1% have moved twice in the past academic year; 9.8% have moved three times in the past year; and 14.4% have moved more than three times in the last academic year. Despite the frequency and prevalence of moves, students' continuity at school has been relatively steady.

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[8] The majority of over-aged students were only one-year over-age for their grade. In grade 3, 22.3% of all students were over-age by only one year (10 years old). In grade 4, 16.1% of students were over age for their grade (11 years old). This might be due to the fact that students did not have access to a school the year they were meant to begin schooling and thus started late.

Only 15.3% (n = 219) of students have attended another school in the past academic year, and of those, only 75 students have attended more than two schools. This may be because students moved while schools were closed and did not have another school within the academic year to count. More than half (53.3%) of all students reported that their teacher changed partway through the last academic year.

Research Question 1: Progressing and Proficient Readers

Research Question 1: What proportion of grade 3 students in 2019 and in 2020 are classified as 'progressing' and 'proficient' readers?

As with the 2019 Manahel learning assessment, the 2020 assessment classified students' scores into proficiency bands established by the 2017 assessment conducted by the previous study. These bands tie reading proficiency directly to comprehension, while lower reading proficiency bands also take fluency into consideration. All data is derived from the oral reading fluency (ORF) and reading comprehension subtasks. The reading proficiency bands are defined as follows:

- Non-readers are students who did not read a single word of the ORF passage.

- Beginning readers are students who read between one and 22 correct words per minute (CWPM) on ORF and answered fewer than 80% of questions correctly on the reading comprehension subtask.

- Progressing readers are students who read 23 CWPM or more on ORF and answered fewer than 80% of questions correctly on the reading comprehension subtask.

- Proficient readers are students who answered 80% or more of questions correctly on the reading comprehension subtask.

Overall, grade 3 students in 2020 demonstrated higher levels of reading proficiency than grade 3 students in 2019 (Figure 2). There was a significantly higher proportion of proficient readers among grade 3 students in 2020 (21.7%) compared to grade 3 students in 2019 (13.9%). A significantly higher proportion of grade 3 students in 2019 were beginning readers compared to 2020 (55.4% and 45.4%, respectively). Differences in the proportions of non-readers and progressing readers were not significant.

Figure 2. Proportion of 2020 Grade 3 and 2019 Grade 3 Students by Reading Proficiency Level

Year	Non-reader	Beginning reader	Progressing reader	Proficient reader
2020	21.6%	45.4%	11.3%	21.7%
2019	18.9%	55.4%	11.8%	13.9%
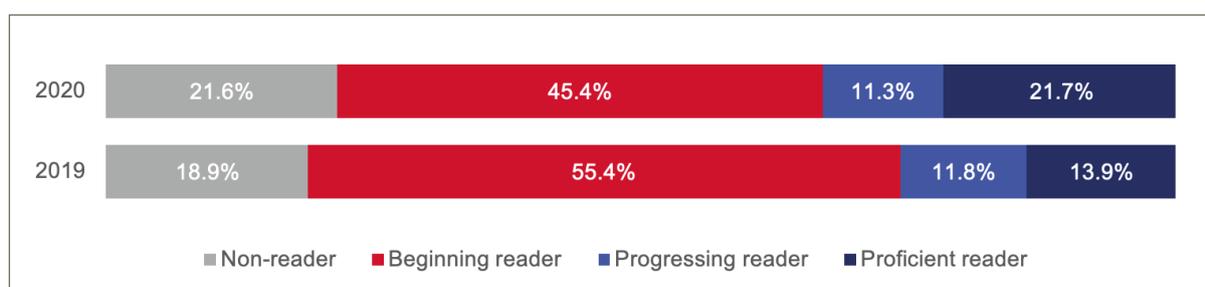
INSIGHTS AND RECOMMENDATIONS

The greater proportion of proficient readers in 2020 compared to 2019 paired with the relatively similar proportions of progressing readers, indicates that students' in 2020 have stronger comprehension skills while their fluency skills are similar to those in 2019.

Findings in *Research Question 4: Correlations between Access and Learning Outcomes* indicate that students with teachers who have participated in more Manahel trainings have higher learning outcomes. Students in 2020 would have had teachers with more trainings, potentially explaining the higher scores.

The difference in proficiency levels may be due to a shift in teaching practices that placed greater emphasis on comprehension. Manahel staff report that, beginning in the summer of 2020, teachers emphasised comprehension within literacy modules. This shift was in response to findings from the 2019 learning assessment that indicated students were mastering foundational reading skills such as phonemic awareness, but not yet progressing to decoding or comprehension. Additionally, teachers reported that the comprehension modules are easier to teach remotely — a distinct advantage when schools throughout Province A and Province B ceased in-person instruction due to COVID-19. Beyond this, partners shared that remote learning modules were also scripted and thus lessons were more standardised than had teachers developed their own lesson plans.

> **Related Recommendation:** As comprehension is an important end goal of reading, Manahel should continue to introduce comprehension modules in literacy instruction early. The programme might also create structured lessons targeting skills that students are not as strong in, such as decoding.

Research Question 2:
Student Progression From Grade 3 to Grade 4

Research Question 2: How have last year's cohort progressed in reading and mathematics outcomes (grade 3 in 2019, grade 4 in 2020)?

Data for grade 4 students in 2020 show overall improvement when compared with data for grade 3 students in 2019. Grade 4 students in 2020 have significantly higher accuracy scores on every subtask for both reading and mathematics. This trend held true within Province A and Province B, across districts and when considering students' gender.

However, these findings should be interpreted with caution as direct comparisons between subgroups of students in 2020 and 2019 are not possible due to the differences in sampling strategy and resulting sample sizes. The sampling frame in 2019 was designed to ensure provincial-level and intervention-level (AO and QE) generalisability whereas the sampling frame in 2020 was designed to ensure district-level representation and project-level generalisability. As a result, the 2020 sample of grade 4 students is roughly half the size of the grade 3 students from 2019; it was also selected using different strategies to respond to different generalisability requirements. The comparison is further complicated by the high level of turnover amongst students.

Furthermore, in the absence of a comparison group, this research question cannot determine how the progression of students participating in Manahel interventions compares to expected progression without Manahel interventions between grade 3 and grade 4.

READING OUTCOMES

Due to the different sampling strategies used in 2019 and 2020, comparisons in reading outcomes should be interpreted with caution. Grade 4 students in 2020 had significantly higher accuracy scores than grade 3 students in 2019 in every subtask in reading (Figure 3), a trend which holds in both Province A and Province B as well as within districts in the provinces. As with the 2019 assessment, nonword reading was the most difficult subtask for students, with students averaging 14.9% correct and 20.4% correct, respectively. Data show the largest increase in reading comprehension scores, where the average increased from 29.4% correct in 2019 to 59.8% correct in 2020. ORF had a similar increase — 31.6% correct to 57.0% correct.

Figure 3. Reading Accuracy Scores by Subtask and Grade
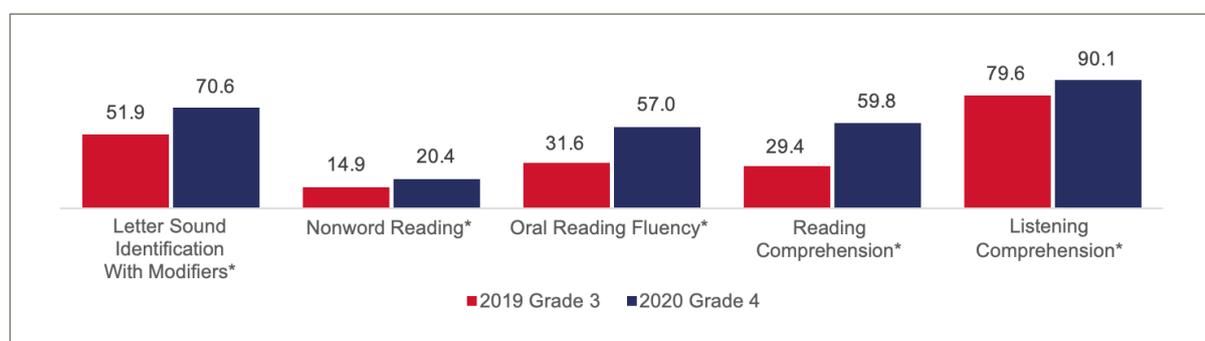
READING INSIGHTS

Accuracy scores for nonword reading and reading comprehension moderately correlate in 2019 and 2020, indicating some meaningful relationship between students' decoding skills and their comprehension skills. However, feedback from teachers and coaches indicate that the nonword reading subtask may not be suitable for students. The 2019 Manahel Learning Assessment also found the nonword reading subtask to be problematic. Research on measuring reading in Arabic similarly indicates that because of the nature of the language, decoding may not contribute to reading comprehension.[9,10]

The dramatic increase in reading comprehension stands out as students in the 2020 cohort experienced significant disruptions to their learning during the past academic year, including COVID-related school closures in the spring and summer as well as continued disruption from the ongoing conflict. Simulations of school closures on learning outcomes indicates that COVID-19 could result in learning loss of over half a year of schooling.[11] Given these predictions, the results seen in this assessment were very surprising.

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[9] Arabic is a diglossic language, meaning it has two variants for different situations. In this case, one variant is Modern Standard Arabic (MSA), used for reading and writing, while another variant is the spoken colloquial dialect which can differ differ quite considerably from MSA. The simple view of reading (SVR) model, on which the EGRA is based, explains reading comprehension as the product of decoding (the ability to apply knowledge of letter-sound relationships, including knowledge of letter patterns, to correctly pronounce written words) and listening comprehension. However, the validity of SVR for Arabic has not been tested.

[10] Ibrahim A. Asadi, Asaid Khateb, and Michal Shany, How simple is reading in Arabic? A cross-sectional investigation of reading comprehension from first to sixth grade, Journal of Research in Reading, Volume 40, Issue S1, 2017, pp S1–S22, https://onlinelibrary.wiley.com/doi/pdf/10.1111/1467-9817.12093

[11] World Bank Group, Simulating the Potential Impacts of COVID-19 School Closures On Schooling And Learning Outcomes: A Set of Global Estimates, http://pubdocs.worldbank.org/en/798061592482682799/covid-and-education-June17-r6.pdf

To better understand this increase, STS analysed the distribution of the number of ORF and comprehension items students attempted in 2019 and 2020, as well as distributions of accuracy scores for those subtasks (Figure 4).[12] Between 2019 and 2020, the mean number of ORF items attempted and the accuracy scores increased significantly (35.8 to 56.9 items and 31.6% to 57.0%, respectively). Accordingly, average rates for attempted and correctly answered reading comprehension questions also increased significantly (2.1 to 3.6 items out of 5 and 29.4% to 59.8%, respectively). Simply put, students in 2020 attempted to read more words and were consequently able to attempt — and answer — more reading comprehension questions than students in 2019.

Figure 4. ORF and Reading Comprehension Percentage of Items Attempted and Items Correct by Year [13]
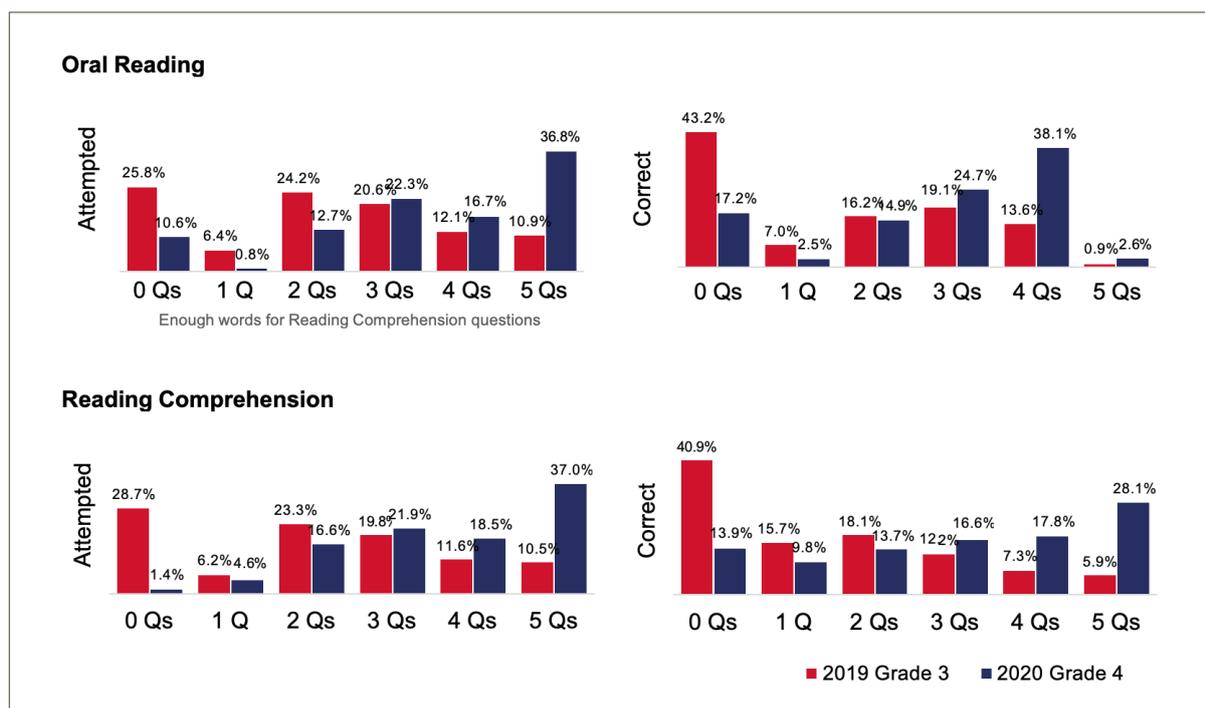
By all measures, students showed a shift in reading skills from a good grasp of phonemic awareness in 2019 to greater fluency and comprehension in 2020, though there is a gap in measuring the acquisition of all foundational skills due to the decoding task. This may be due to the increased emphasis on comprehension in literacy instruction, discussed in the previous section. It may also be due in part to a natural progression in skills after an extra year of schooling. Feedback from Manahel coaches and enumerators also emphasised that the learning assessment used vocabulary that grade 4 students would be familiar with, therefore allowing them to rely on sight words rather than using decoding skills on the ORF subtask.

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[12] The ORF and reading comprehension subtasks are linked in that students are asked one to 5 comprehension questions based on how far into the ORF reading passage they attempted to read. Students are not asked questions about parts of the story they did not read.

[13] In Figure 4, ORF distributions are binned by the number of words a student read, which is in turn linked to the number of words needed to have read to be asked reading comprehension questions. Thus, 3 Qs indicates that the student read enough words in the ORF passage to be asked 3 reading comprehension questions.

MATHEMATICS OUTCOMES

As with reading scores, grade 4 students in 2020 had significantly higher mean accuracy scores in every mathematics subtask when compared to grade 3 students in 2019 as shown in Figure 5. Subtraction 2 remained the most difficult subtask for students, with students averaging 25.6% and 41.9% accuracy, respectively. Notably this subtask also saw the second greatest year-over-year improvement — 16.3 percentage-points — exceeded only by word problems, wherein students averaged a 17.1 percentage-point increase.

Figure 5. Mathematics Accuracy Scores by Subtask and Grade
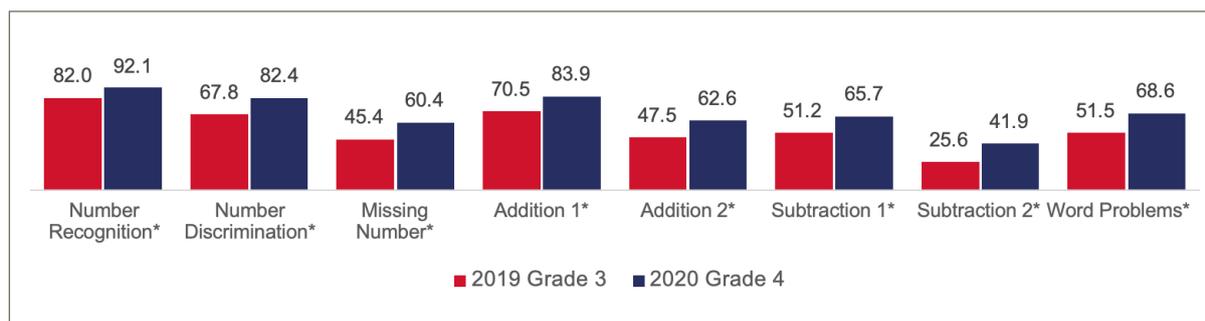
Unlike findings related to reading, mathematics improvements from 2019 to 2020 are not universal when disaggregating for students' province, district and gender. In 2019, students in District 3 and District 5 consistently averaged the lowest mathematics scores. However, in 2020, District 2 averaged the lowest scores and District 6 averaged the highest.

Additionally, in 2019 boys had significantly higher scores than girls on all eight mathematics subtasks. However, in 2020 the differences were only statistically significant on four subtasks — number discrimination, missing number, addition 1 and subtraction 1.

MATHEMATICS INSIGHTS AND RECOMMENDATIONS

Over the past academic year, the Manahel team has introduced more play-based numeracy activities, which may account for the general improvements between the 2019 and 2020 cohorts. Given school-opening restrictions, most of these have been home-based activities. These changes included structured lesson plans with interactive activities for children to supplement the numeracy curriculum.[14] The nature of activities encouraged children to link mathematics to real life, thus demonstrating the utility of the mathematics skills.

> **Related Recommendation:** More emphasis should be given to addition, subtraction and word problems as these subtasks had the lowest scores among students in grade 4. The programme should add more levelled subtraction activities for lower grades as, currently, there is a drastic shift in skills emphasised in each grade level.

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[14] The curriculum focused on one unit per month with four to six ideas per month to include in mathematics and numeracy lessons. Lesson ideas were shared at the beginning of each month and changed into actual lessons that were uploaded to Manahel online platforms. Teachers could prepare their own lessons using the plans or use the uploaded versions. They then shared these via WhatsApp with their group of children.

Shifts in performance at the district level may be related to population movements and reflect increasingly disruptive — or comparatively peaceful — learning environments brought about by the ongoing conflict. For instance, students in District 2 suffered from a disproportionate increase in conflict over the past academic year and may explain why scores were lowest in this district in 2020.

> **Related Recommendation:** Manahel staff should continue monitoring learning outcomes for students in this district and provide targeted support as needed.

The change in performance patterns by boys and girls between 2019 and 2020 indicates that the gender-based performance gap in mathematics is closing in basic mathematical functions, such as understanding whole numbers (Figure 6). This may be because grade 3 students received targeted support in mathematics, as outlined in the Manahel Distance Learning Brief.[15] However, girls are still lagging between their male peers in skills related to mathematics operations and real-world problems.

> **Related Recommendation**: The programme should focus on supporting girls in higher grades who are not achieving the same numeracy outcomes of boys in their grade, specifically in more advanced mathematics skills. This could include supplemental lessons targeting girls at this age and level.

Figure 6. Mathematics Accuracy Scores by Year and Gender

Number Recognition: 84.2, 79.7, 92.7, 91.5
Number Discrimination: 72.5, 62.9, 84.6, 80.3
Missing Number: 48.5, 42.3, 62.7, 58.2
Addition 1: 73.4, 67.5, 85.7, 82.2
Addition 2: 51.6, 43.3, 62.4, 62.7
Subtraction 1: 55.5, 46.8, 68.1, 63.4
Subtraction 2: 30, 21.2, 41.1, 42.7
Word Problems: 53.9, 49.1, 68.6, 68.6

■ 2019 Grade 3 Boys   ■ 2019 Grade 3 Girls   ■ 2020 Grade 4 Boys   ■ 2020 Grade 4 Girls

Significance shown between peers of same grade level, not across grades.

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[15] Manahel Distance Learning Brief, p.6.

Research Question 3:
Comparison Between Grade 3 and Grade 4 Students

Research Question 3: How do this year's grade 4 students compare to this year's grade 3 students?

This research question serves as a proxy comparison group, exploring two different cohorts at the same time point (beginning of the academic year 2020) with the same level of exposure to interventions (two years). For comparability, this question assumes that students have been enrolled in schools that have had two years of exposure to Manahel interventions and that cohorts are comparable on external factors, such as exposure to conflict and COVID-related closures. However, high rates of student displacement over the past academic year make these assumptions tenuous. Results should be interpreted with caution.

READING OUTCOMES

Overall, students in grade 4 significantly outperformed students in grade 3 in every reading subtask in 2020 (Figure 7). Across both grades, students had the highest accuracy scores on letter sound identification with modifiers (62.5% for grade 3 and 70.6% for grade 4) and listening comprehension (82.2% for grade 3 and 90.1% for grade 4) subtasks.[16] As seen in research question 2, students struggled with the nonword reading subtask (15.6% for grade 3 and 20.4% for grade 4).

Figure 7. 2020 Reading Accuracy Scores by Subtask and Grade
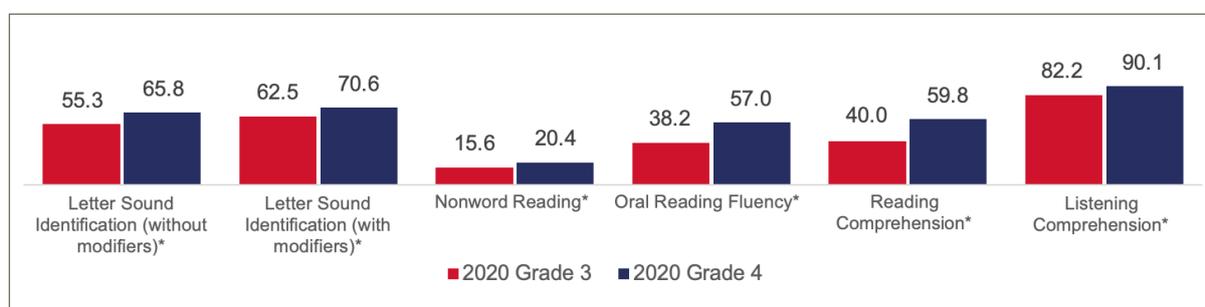
Additionally, data disaggregated by district reflected the overall trend. Grade 3 students in District 3 and District 4 averaged the highest scores on all reading subtasks, while District 6 had the highest average among grade 4 students on the letter sound identification and listening comprehension subtasks.

READING INSIGHTS AND RECOMMENDATIONS

The overall trend that students in grade 4 outperform students in grade 3 on reading subtasks indicates that students are progressing as expected. Therefore, to better

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[16] The EGRA included two versions of the letter sound identification subtask. One version was used in the 2017 previous project assessment and did not have consistent use of modifiers for the letters. As such, there were four potential correct answers for several items on the subtask. The second version was used in the 2019 Manahel assessment and did have a single modifier for each letter. In the 2019 version of the subtask, there was only one possible correct answer for each item. Both were included this year to see if there was a difference in students' performance. Overall, students had higher mean scores on the 2019 subtask with modifiers.

understand which students are performing well or falling behind, STS analysed student demographics of students in the non-reader and proficient reader proficiency bands. These are outlined in Table 5 below.

Table 5. Non-Readers' and Proficient Readers' Characteristics, by Grade

Grade 3	Grade 4
Non-readers' characteristics	
• More likely from District 2 or District 6 • Less likely to have internet at home	• More likely to be boys • More likely to be over-age • More likely to be from District 2 • Less likely to have internet • More likely to have moved twice in the last year
Proficient readers' characteristics	
• More likely to be girls • More likely to have internet at home • More likely to live in District 1, District 3, or Province A	• More likely to be girls • More likely to have internet at home • More likely to live in District 1, District 3, or Province A • More likely to have moved more than three times in the last year

The relationship between number of moves and proficient readers in grade 4 may appear counter intuitive but may be explained by complex factors around displacement further discussed in the *Unusual Research Findings* section.

Manahel enumerators and coaches indicated in their feedback that the assessment would be easy for students performing at the expected level in grade 4. However, the analysis did not show any ceiling effect in grade 4 students' scores, indicating that there is still room for these students to improve in these specific subtasks.

> **Related Recommendation:** Should the endline assessment continue tracking students in higher grades, the assessment should include subtasks levelled at these specific grades to understand if these students are meeting grade-level performance expectations.

MATHEMATICS OUTCOMES

As with reading outcomes, students in grade 4 significantly outperformed students in grade 3 in every mathematics subtask (Figure 8). This trend held in every district as well. In both grades, students averaged the highest accuracy scores on subtasks assessing understanding of whole numbers, specifically number recognition and number discrimination (85.1% for grade 3 compared to 92.1% for grade 4 and 72.8% compared to 82.4%, respectively). This indicates a mastery of foundational skills important for building numeracy. The hardest subtasks for students in both grades were missing number identification (49.0% and 60.4%), subtraction one (53.6% and 65.7%) and

word problems (52.0% and 68.6%).[17] Subtraction and word problems represent the most complex of the mathematics tasks — computational skills and problem solving — indicating that students in both grades may need more focused assistance in these areas.

Figure 8. 2020 Mathematics Accuracy Scores by Subtask and Grade
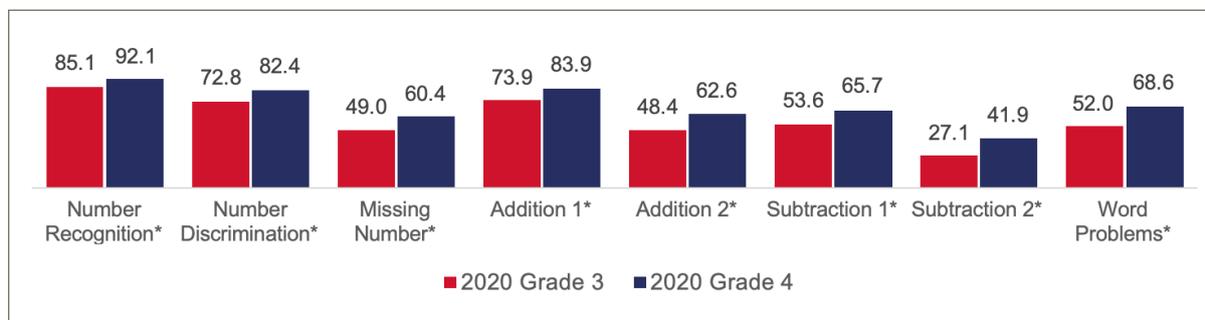
MATHEMATICS INSIGHTS AND RECOMMENDATIONS

Because student progression from grade 3 to grade 4 was as expected, STS compared subtasks' mean accuracy scores against specific demographic categories to understanding which students were under- or over-performing in mathematics. Grade 3 students who are boys, on-age for their grade, have internet in their homes and are from either District 1, District 3 and Province A tended to outperform compared to their female peers. Interestingly, grade 3 students who had moved either once or more than three times in the past academic school year also averaged higher accuracy scores in general. Grade 3 students from District 2 had the lowest overall mean scores in all subtasks. Grade 4 students who are boys, have internet in their homes, are in District 6 and moved more than three times in the past year tended to outperform their female peers on mathematics subtasks.

> **Related Recommendation:** Like reading, the seemingly counter-intuitive number of moves and increased mathematics performance may be explained by complex factors around displacement. These are further discussed in *Unusual Research Findings.*

Although higher performance on mathematics subtasks correlated to gender — and favoured boys in both grades — the gender gap was not consistent across grades. Specifically, gender-based differences were significant for fewer subtasks in grade 3 than in grade 4. This indicates that girls and boys demonstrate comparable numeracy skills in grade 3, but boys begin to pull ahead in grade 4. While not provided in every district, the Manahel Distance Learning Brief indicated that targeted support in mathematics was provided to students in grade 3 in District 6. This support may be the reason that fewer significant differences were seen between boys and girls in grade 3.

> **Related Recommendation:** New approaches to teaching mathematics in grade 3 may be helping to close the gender gap. These activities may be helping younger girls match boys' numeracy performance, while older girls may need more support or additional approaches to match their male peers.

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[17] Note that while scores were lower for Addition 2 and Subtraction 2, not all students received these subtasks as they were administered only based on performance in Addition 1 and Subtraction 1.

> Manahel should continue to support girls in their numeracy learning, especially older girls who have not benefitted from new numeracy teaching strategies that build their foundational skills through the previously mentioned targeted supplemental lessons or with direct support from lead teachers.

Research Question 4:
Correlations Between Access and Learning Outcomes

Research Question 4: How does students' access to learning correlate with their learning outcomes?

STS created a multivariate linear regression model to understand how students' access to learning might correlate with learning outcomes. Looking at these factors together provides a more holistic view of the relative influence of each factor. The model included demographic factors that showed a relationship to learning outcomes, various composites derived from survey responses and accuracy scores for selected subtasks as the dependent variables. STS used a stepwise solution to narrow findings and identify meaningful factors that correlate with increased accuracy scores. Table 6 provides an overview of the factors identified as influential to reading and mathematics learning outcomes. Rows represent specific characteristics that showed influence when taking all other factors in the model into account.[18] A plus sign (+) indicates that accuracy scores were higher for students with this characteristic. A minus sign (-) indicates that accuracy scores were lower for students with this characteristic. Mean scores for students according to characteristics.

Table 6. Significant Factors Around Access to Learning in Reading and Mathematics Outcomes

If the student...	Comprehension		Missing Number	Addition 1	Word Problems	Hypothesis[19] or Reflection
	Reading	Listening				
Is a girl	+			–		See hypotheses in previous research questions.
Is in grade 4	+	+	+	+	+	
Is in District 2			–	–	–	The high levels of conflict and displacement likely contributed to lower performance.
Is in District 1	+			+		Students from these districts are in more urban areas, and research suggests a link between urbanicity and learning outcomes.
Is in District 3	+					
Is in Province A	+			+		

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[18] The sample size and composition do not provide enough statistical power to confidently compare results at this level. Results here are shared as trends rather than statistically significant differences.

[19] The hypotheses listed here are potential explanations for the finding, not research hypotheses being tested in the analysis.

If the student...	Comprehension		Missing Number	Addition 1	Word Problems	Hypothesis[19] or Reflection
	Reading	Listening				
Is over age for their grade[21]	–		–	–	–	Research suggests that over-age students generally have lower performance than their on-age peers.
Has moved more than 3 times in the last academic year	+		+	+		See Unusual Research Findings for more.
Has access to the internet			+	+		Students with internet at home may have been better able to access remote learning activities and practice more in mathematics.
Has a teacher who moved 3 or more times			–			Research corroborates that high teacher mobility breaks teaching routines and classroom dynamics, which affects students' learning.
Has a teacher who participated in 5-10 Manahel professional development activities	+	+	+		+	Higher teacher engagement in Manahel activities could indicate teachers who have gained more skills, who have access to more resources through the programme, or who are simply more motivated.
Participated in adult-led learning during COVID closures	+		+		+	Partners hypothesised students might have felt more comfortable interacting with parents or teachers one-on-one rather than in large, overcrowded classrooms. In addition, the perceived safety of home compared to school safety could have an impact on students' stress and thus resulted in more positive learning outcomes.
Watched videos sent by teachers during COVID closures	+	+				Students who watched videos were likely exposed to more comprehension-forward teaching modules.

Note: A plus sign (+) denotes mean accuracy scores were higher for students in this category; a minus sign (-) denotes mean accuracy scores were lower for students in this category.

READING OUTCOMES

Findings from research questions two and three indicate that the greatest shifts in students' reading outcomes centred on comprehension. Thus, STS used accuracy scores from the reading comprehension and listening comprehension subtasks as the dependent variables in the multivariate model.[20]

Analysis of demographic factors showed that students' gender, grade level, district, age group and the number of moves in the last academic year affect reading comprehension. When layered with the demographic factors, STS identified six additional learning-related factors that correlated with students' reading comprehension accuracy scores. Four related to the students' teachers — their level of education, continuity throughout the last academic year, number of moves due the war since 2019 and number of Manahel trainings they participated in — and two related to students' experience during COVID-related school closures; participation in adult-led learning and watching videos sent by the teacher (Table 6).

MATHEMATICS OUTCOMES

As with reading, STS used accuracy scores from three subtasks — missing number, addition one and word problem — as proxies for students' overall mathematics learning outcomes. These subtasks had lower correlations with one another and represent skills in whole numbers, operations and real-world problems, respectively.

Analysis of demographic factors against these three subtasks showed that students' gender, grade, district and age group all correlated to scores. Learning-related factors affecting scores include access to internet, as well as two related to students' teachers — their number of moves due to the war and number of Manahel trainings they participated in — and one related to students' experience during COVID-related school closures; participation in adult-led learning (Table 6).

INSIGHTS AND RECOMMENDATIONS

Students' participation in activities during COVID-related school closures and teachers' participation in Manahel professional development opportunities correlate with reading comprehension scores and multiple mathematics subtasks. In addition, high mobility among students showed a surprising relationship to learning outcomes. In particular, these factors were found to affect learning outcomes when considered along with demographic factors — including students' gender, grade, district and age group.

Teacher Participation in Manahel Professional Development Opportunities. Students with teachers who participated in five to 10 Manahel activities — as compared to one–five activities or more than 10 activities — had higher accuracy scores on the reading comprehension, listening comprehension, missing number identification and word problems subtasks. Manahel professional development opportunities covered a variety of topics as outlined in Figure 9.

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[20] Reading comprehension and listening comprehension are not significantly correlated and give different pictures as to what factors affect students' comprehension. ORF is highly correlated with reading comprehension and could confound interpretation of those influencing factors. Thus, it was excluded from these models.

Figure 9. Percentage of Students with Teachers' Professional Development Activities

Activity	Percentage
Teaching Literacy with Manahel Materials	91.8%
Teaching Numeracy with Manahel Materials	90.9%
Learning Circle	88.4%
Individual Support with Lead Teacher	62.9%
Peer-Assisted Methods and Group Work	60.9%
Lesson Observation with Lead Teacher	60.9%
Pedagogy and Teaching	57.7%
Using a Personal Development Plan	56.4%
Psychological First Aid	54.0%
Shadowing Lead Teacher	49.1%
Assessment for Learning	39.0%
Adaptation for Children with Disabilities	30.3%

This correlation might indicate that teachers who have more pedagogical strategies at their disposal are better equipped to support students' learning but that participating in more than 10 professional development opportunities may not have a strong relationship with students' outcomes.

Students' Participation in Activities During COVID-Related School Closures. Many schools in Province A and Province B closed during the spring and summer of 2020 in response to COVID-19. During that time, students were given the option to participate in various remote learning activities. Those who participated in some sort of adult-led learning — lessons led by their teacher or being read to by parents — had higher mean accuracy scores in reading comprehension, missing number identification and word problems than students who did not. Additionally, students who watched videos sent to them by their teachers achieved higher mean accuracy scores on both reading and listening comprehension (37.4% correct in reading comprehension among those who did not watch videos, compared to 54.5% correct among those who did; 81.7% correct in listening comprehension among those who did not watch videos compared to 87.8% correct among those who did). This indicates that adult-supported learning activities outside of school, either asynchronous through videos or in-person, contributed to students' learning. As noted in Table 6, partners hypothesised that one-on-one attention from either parents, caregivers or teachers through remote learning may have provided a more supportive learning environment than an overcrowded classroom, thus giving students the space to engage more directly.

> **Related Recommendation:** The programme should develop engagement strategies to ensure parents and caregivers are aware of the distance learning resource available to their children and know how to access and use them. The programme should also encourage parental support networks via commonly used communications platforms, such as WhatsApp. Teachers should be encouraged to share successful remote learning engagement strategies with one another.

Student Mobility. Students who reported moving more than three times in the last academic year because of the war had higher accuracy scores on the reading comprehension, missing number identification and addition one subtasks. Although STS developed many iterations of the model to try to understand what other variables might be interacting with or moderating these results, and although the data indicates that other factors are at play with this group of students, the data set does not have enough information to explain why displacement correlates with improved learning outcomes. This phenomenon is further discussed in the *Unusual Research Findings* section. While higher student mobility is clearly a predictor of some factors, it is not clear what those factors are. It is inaccurate to conclude that frequent movement leads to higher academic performance.

Unusual Research Findings

As discussed in the previous sections, results reveal some counterintuitive findings as well as some patterns that deserve a deeper exploration. Chief among these is an apparent link between students' displacement rates, their residence in District 6 and their mathematics learning outcomes.

HIGH MATHEMATICS SCORES IN DISTRICT 6

While students in District 6 (Province B) had significantly lower reading scores than their peers in Province A, the reverse was true in mathematics. Specifically, grade 4 students in District 6 averaged significantly higher accuracy scores on nearly every mathematics subtask when compared to other regions (Figure 10).

Figure 10. Mathematics Accuracy Scores by Subtask and District
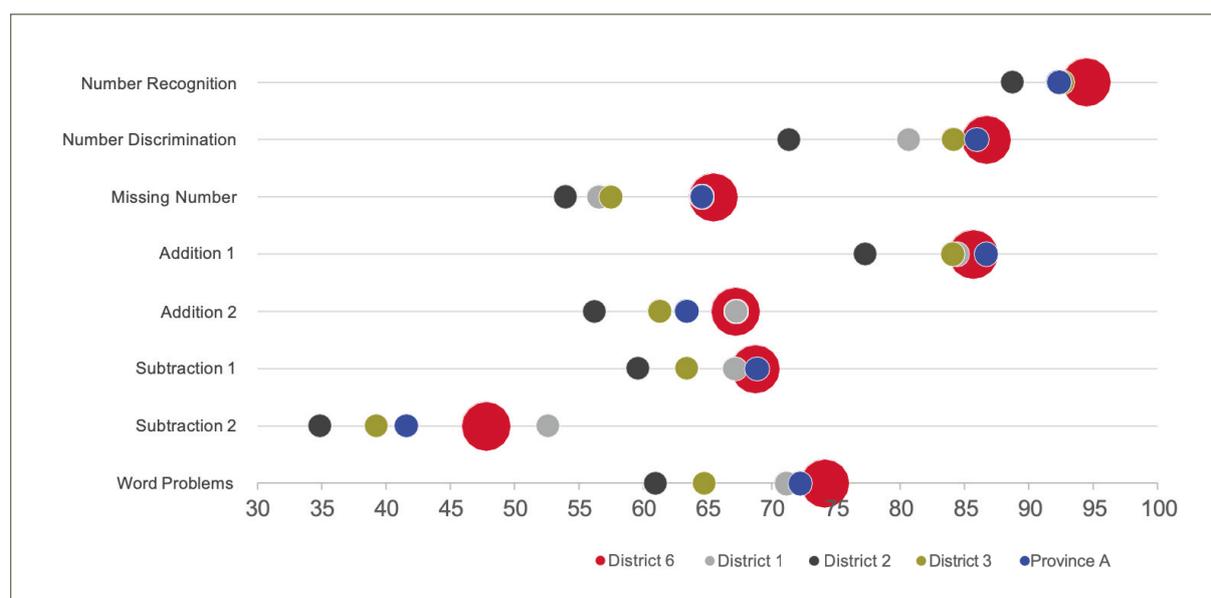
The superior performance by District 6 students surprised analysts and Manahel staff because most education settings in the district occur in camps or other informal settings. Indeed, District 6 had the highest proportion (44.6%) of students who reported

that their school provided both remote and in-person lessons, indicating that education facilities were open inconsistently over the past year. The Manahel Distance Learning Brief provides some insight, reporting that in April of 2020, Manahel started providing more targeted support to grade 3 girls and boys in District 6 after seeing no progress in numeracy in continuous assessment results.[21]

Additionally, similar to other districts, there were fewer significant differences between grade 3 boys' and girls' mathematics scores in District 6. However, grade 4 boys in District 6 significantly outperformed grade 4 girls on every mathematics subtask and at much higher rates than in other districts. This indicates that targeted support might be necessary for girls in grade 4 in District 6 as well, as there is still a clear gender gap in mathematics scores in this grade and district.

> **Related Recommendation:** The same targeted support given to grade 3 students in District 6 should be given to all students in grade 4. This is especially true for girls who are further behind their male peers. Support should also focus on addition, subtraction and word problems so that students build a foundation for more complex mathematics skills. The programme should also integrate levelled activities in these areas in lower grades so that students begin to build these skills earlier.

STUDENT MOBILITY CORRELATED WITH HIGHER LEARNING OUTCOMES

Results from research question 4 of this study showed that students who moved three or more times averaged higher accuracy scores on the reading comprehension, missing number and addition one subtasks — a result that is counterintuitive to experts' general understanding of children's need for education continuity. Data from this study suggests that students' displacement at such high rates is confounded with other variables; however, the data is not sufficient to explain what these variables might be.

To explore this seemingly illogical finding, analysis first examined other characteristics of students who moved more than three times. High-mobility students are nearly evenly split between boys and girls (49.0% and 51.0%, respectively). They are similarly split between grade 3 and grade 4 (46.6% and 53.4%, respectively). However, high-mobility students disproportionately live in District 6 — 51.9% of the sample — and account for nearly one-quarter of students in the district. Such a strong overlap in populations with higher mathematics outcomes may account for some portion of the increase; however, data cannot not reveal which, if either, factor influences the other.

Displacement is a complex topic, and new research shows that student displacement goes beyond the number of moves.[22] Displacement is also informed by the resources or education students had before moving, as well as what type of location they moved to – a camp or poorly-served area, compared to a big city, for example. In addition, the area from which a family was displaced can play a role in students' experience. For instance, if the family moved from an area witnessing multiple airstrikes and intense conflict amongst regimes and opposition forces, it is likely the child witnessed prolonged and intensive violence before displacement. Unfortunately, STS could not test this hypothesis as the student survey did not ask about previous educational experiences or students' previous locations. Beyond this, it is important to remember that this question

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[21] Manahel Distance Learning Brief, p.6.

[22] Additional information and recent research on student displacement can be found in USAID's 2021 report, Mapping the Ecosystem of Education Data for Internally Displaced Persons in the Middle East and Beyond: Issues, Challenges, and Recommendations.

was self-reported, and young students might not be able to accurately recall how many times they moved in the last year.

Next — recognising that young children may not have reliable recall of long-term memories and may inaccurately report the number of moves they have experienced — analysts tried to triangulate findings using other data to either substantiate or refute students' self-reporting. Data collected from the SGO was used to verify if a student had been displaced, but it did not provide information about the quantity or frequency of moves. Analysts then attempted to use students' self-reports of the number of different schools attended in the past year to inform findings. However, high mobility did not overlap with the number of schools attended. This indicates that students may not accurately report the frequency of moves but, unfortunately, does not shed light on the correct count. Thus, one hypothesis that might explain the high percentage of students who reported high mobility in District 6 is that because students in this district had experienced significant disruption in the past year, they may have been more likely to over-report the number of moves their families made.

Additional Findings Related to Girls' Performance

As previously discussed, gender was a strong predictor of performance on the 2020 learning assessment. This section supplements those findings with additional analysis of girls' performance.

GRADE 3 GIRLS

In 2020, grade 3 girls averaged significantly higher accuracy scores than boys on all reading subtasks (Figure 11). This trend held when disaggregating by province as well. Grade 3 girls performed on par with boys on most mathematics subtasks. However, boys averaged significantly higher accuracy scores on two mathematics subtasks — number discrimination and subtraction 1.

Manahel collects continuous assessment data each quarter for literacy and numeracy. That data also shows Grade 3 girls outperforming boys in literacy. According to our continuous assessment data, they are now also outperforming boys in numeracy overall. This continuous assessment does not break data down by subtasks.

Figure 11. Selected Reading and Mathematics Accuracy Scores for Grade 3 by Gender
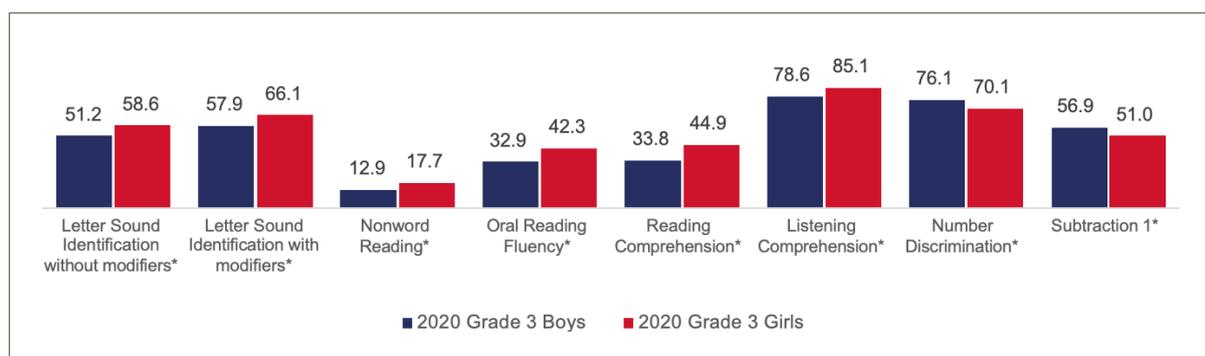
Grade 3 girls in Province A generally outperformed their peers in Province B on reading and mathematics. Province A girls averaged significantly higher accuracy scores than Province B girls on three reading subtasks — letter sound identification (without Arabic modifiers), letter sound identification (with Arabic modifiers) and oral reading fluency. Similarly, Province A girls averaged significantly higher accuracy scores than Province B girls on 5 mathematics subtasks — number recognition, missing number, addition 1, addition 2 and subtraction 1.

GRADE 4 GIRLS

In 2020, grade 4 girls averaged significantly higher accuracy scores than boys on three reading subtasks — letter sound identification (without Arabic modifiers), oral reading fluency and reading comprehension (Figure 12). Girls averaged significantly lower accuracy scores on four mathematics subtasks — number discrimination, missing number, addition 1 and subtraction 1. Our continuous assessment data also suggests grade 4 girls are performing less well than grade 4 boys.

Figure 12. Selected Reading and Mathematics Accuracy Scores for Grade 4 by Gender
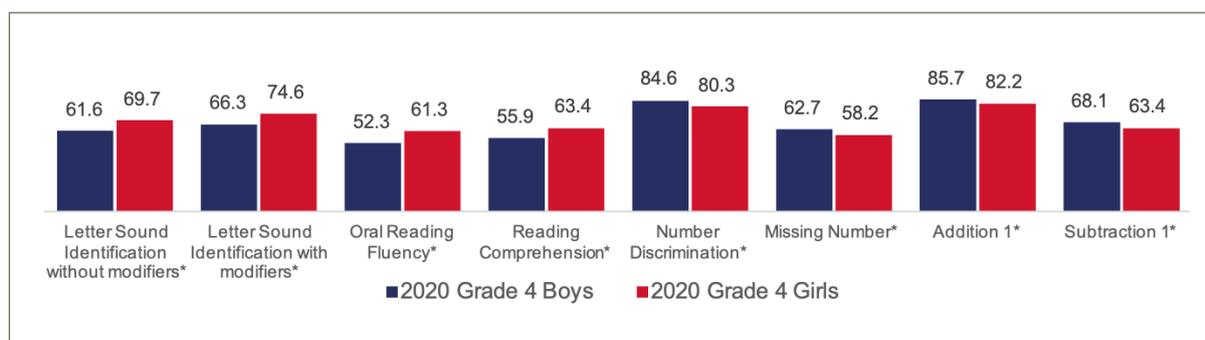
Contrary to grade 3 performance, grade 4 girls in Province B generally outperformed their peers in Province A on reading and mathematics. Province B girls averaged significantly higher accuracy scores than did Province A girls on one reading subtask — letter sound identification (with Arabic modifiers) — and six mathematics subtasks, number recognition, number discrimination, missing number, addition 2, subtraction 2 and word problems. Province A girls averaged significantly higher accuracy scores than Province B girls on only one reading subtask — oral reading fluency. Continuous assessment data concludes the same. Notably, there was more marked improvement amongst girls in Province B this year than girls in Province A.

GIRLS IN DISTRICT 3

While the sample was not large enough to make statistical comparisons between genders within districts, a notable trend did emerge within the District 3 district. In 2020, grade 3 girls in District 3 outperformed grade 3 boys in District 3 on every subtask. The same was true for grade 4 girls and boys in District 3, apart from the nonword reading subtask, where differences were not as stark.

INSIGHTS AND RECOMMENDATIONS

Manahel staff noticed from different assessments that boys are spending more time outside of the house during COVID-19, likely engaging less in distance learning compared to girls. Parents and teachers also report that girls spend more time reading and studying at home compared to boys.

Staff hypothesise that this could be related to gender roles and motivation. Girls' performance at schools offers opportunities for self-actualisation and appreciation by parents and extended family, serving as motivation. However, boys are under pressure culturally to be more outgoing and less compliant with school expectations. As a result, COVID-19 and school closure may have made these cultural expectations for both genders even more distinct. Girls found studying as a pathway to improve their self-esteem while boys had to spend more time socialising and working to support their families to achieve social acceptance.

At a more granular level, grade 4 girls in Province B are performing better than grade 4 girls in Province A in mathematics — a reversal from grade 3 trends. However, this is likely related to the previously discussed targeted support given to students in this district and possibly the trend in student mobility. It is not clear from this assessment data why grade 4 girls in Province B are doing so much better than other girls or why they are still performing significantly poorer than their male counterparts.

Related Recommendation: Focus on girls' numeracy skills and boys' reading skills. Teachers should work with grade 3 boys to build on foundational reading skills to scaffold them to higher fluency rates and comprehension. As recommended in research question 3, additional support to grade 4 girls should be provided in numeracy to help them master whole number recognition and operations — the areas where their differences with boys were starkest.

Related Recommendation: Adapt teacher gender training. Manahel should adapt the existing teacher training on gender mainstreaming to include details of how COVID-19 school closures may have contributed to existing gender differences. The training should provide guidance on how to better engage with girls in numeracy and boys in reading in a remote setting.

Key Findings and Recommendations

This section presents key findings from the results of all four research questions and discusses hypotheses around these findings with suggested recommendations and next steps based on this evidence.

Key Finding: More Students in Grade 3 in 2020 are Proficient Readers Than in 2019

Overall, 21.7% of grade 3 students in 2020 were proficient readers, a significantly higher proportion compared to the 13.9% of third graders who were proficient in 2019. There were several differences between students in 2019 and 2020 at the district level as well. In 2019, students in District 4 district were most likely to be proficient readers. In 2020, proficient readers were most likely to be from District 4, District 1 and District 3.

Although the percentage of non-readers was slightly larger in 2020 (21.6% compared to 18.9%), this difference was not statistically significant. Non-readers in 2019 were most likely to be from District 1, District 3 and District 5, while in 2020 non-readers were most likely to be from District 2 and District 6, areas with the most instability in conflict. In both years, girls were more likely to be proficient readers compared to boys.

HYPOTHESIS

An additional year of exposure to Manahel interventions may be the reason for the differences in learning outcomes; results from research question 4 support this. Discussions with the Manahel team indicated that teachers, coaches and instructors began to emphasise comprehension earlier in the students' schooling. As proficient readers are categorised by comprehension, this may account for the shift in the proportion of proficient readers between these two time points.

This suggests that this teaching approach is effective in supporting students in their progress towards attaining reading proficiency. However, district-level changes in student reading performance are less likely to be due to specific teaching practices or Manahel actions and more likely due to shifting demographics in all districts. Ongoing conflict led to high levels of movement and displacement among students in the sample and *Unusual Research Findings*.

> **Related Recommendation:** The programme should conduct further research on how the new comprehension-forward modules may be affecting student learning, especially in remote teaching settings. It could also experiment with different structures of remote lessons to see which specific formats or activities are linked with greater comprehension. In addition, further research into student displacement and mobility, discussed later in this section, would provide more insight into how these factors truly affect student learning in specific districts and how teachers might best support new students in their classrooms with varying educational backgrounds.
>
> The programme should prioritise schools in District 6 and District 2 and use the most recent ongoing assessment results for grade 3 and 4 students who are still in levels one and two. Gender will be used as a factor for prioritisation — for instance, start with grade 4 girls and move to grade 3 boys depending on the individual school results.
>
> The team will offer added instructional time in the form of small group targeted support during school day by lead teachers — three added sessions per week with better student-teacher and tailored lessons to the individual level of students.
>
> The team will explore opportunities for after school clubs — four additional 45 minutes per week starting with areas that witnessed lowest results using both EGRA and Manahel's continuous assessment. High level mobility will not be used as a vulnerability criteria but the end destination and conditions of displacement will. For instance, displacement to an informal camp setting in District 6 is an example of factors to consider in prioritisation of additional support.

Key Finding: Students Progressed in Learning Between 2019 and 2020

Students' scores improved from grade 3 in 2019 to grade 4 in 2020 in all reading subtasks. Especially notable was the increase in reading comprehension accuracy, from 40.0% correct in 2019 to 59.8% correct in 2020. Similarly, numeracy scores improved in all subtasks between 2019 and 2020. During a normal school year, these findings would be no surprise. However, because of the COVID-related school closures, in addition to the continued conflict in 2020, expectations were that students would maintain their learning levels, if not experience some learning loss.[23]

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[23] A World Bank paper exploring simulations of learning outcomes resulting from COVID-19 closures estimates that this could result in a loss of just over half a year of learning. http://pubdocs.worldbank.org/en/798061592482682799/covid-and-education-June17-r6.pdf

HYPOTHESIS

As previously mentioned, changes to the reading curriculum emphasising comprehension and introduction of play-based numeracy modules may have contributed to these substantive improvements in learning over the course of the year. The Manahel Distance Learning Brief provides further insight, reasoning that these increases in numeracy might be a result of the extra practice time to master foundational skills afforded to students while at home.[24]

> **Related Recommendation:** More emphasis should be given to addition, subtraction and word problems in grade 4 as these subtasks had the lowest scores. The programme offers beginner (mainly for grade 1-2) and advanced (grade 3-4) modules for children. The team should revisit the advanced module to include more practice time on basic skills (addition, subtraction and word problems) but levelled to grade 3-4 and add more levelled up activities related to subtraction, patterns and multiplication. The team should use the distance learning platform and engagement with children outside school hours to allow for more practice time at home. The activities should be designed to improve engagement with adults at home and use play and available resources at home to encourage children to practice addition, subtraction and word problems.

Key Finding: In 2020, Grade 4 Students Outperformed Grade 3 Students

Overall, grade 4 students had higher scores than grade 3 students in every subtask in 2020. These results indicate that students in higher grades have greater literacy and numeracy competencies, as expected.

Feedback from Manahel coaches and instructors indicated that the assessment was too easy for grade 4 students who are performing at grade-level. While the assessment is levelled at students starting grade 3, examination of subtask distributions showed that grade 4 students' scores were not skewing towards higher scores. As such, there is still substantial room for improvement for students in grade 4.

HYPOTHESIS

Analysts expected that grade 4 students would have higher grade 3 students as they had an additional year of schooling before COVID-19 closures — and potentially had the highest exposure to Manahel interventions. Another hypothesis to explain the grade 4 higher scores is that they would have benefited more from the aforementioned changes in curriculum, which grade 3 students have not been exposed to for as long. Despite the higher scores, one explanation for grade 4 students not having higher scores on an assessment for grade 3 is that the COVID-19 closures kept them from advancing as far as they might have, had their schooling been uninterrupted. Coaches and instructors acknowledged that substantial work is needed in grade 4 to bring results to the expected grade level.

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[24] Manahel Distance Learning Brief, p. 7.

Related Recommendation: The program is aware of the benefits of increasing reading time and improve time on task, particularly for grades 3 and 4, to maximise learning time and compensate for the time lost during COVID-19 closure. Increasing learning time is a constant challenge. The programme should try to 'find' more time by:

- Maximising provision at summer clubs' activities, following teaching at the right level-style methodologies to make sure learners are engaging with teaching most relevant to their needs.

- Increasing home-based learning through adult-led activities. For instance, read one page from the Quran every day with your parent and answer specific comprehension related questions. Read a bedtime story and encourage parents to ask simple comprehension questions to promote dialogue. Each grade level would have a specific menu of activities that are introduced in the form of a challenge or game. Teachers follow up through established communication with parents and/or students that was successfully used during school closure.

Key Finding: Adult-led Activities Support Learning

Among the various factors around access to learning that influence student outcomes, student who reported that their parents taught them or that they participated in face-to-face meetings with their teachers received higher mean scores in reading comprehension, missing number identification and word problems. This may indicate that involving adults in learning during school closures can help mitigate learning loss. Similarly, in the Manahel Gender Analysis and Action Plan, parents report that their engagement in distance learning activities is easy to implement and parents have high rates of satisfaction with this activity.[25]

HYPOTHESIS

Students who engaged in adult-led learning activities may have been more comfortable in a one-on-one setting and may have received more targeted support than they would have in classrooms that are frequently overcrowded. In addition, the perceived safety of home compared to school could have an impact on students' stress and thus resulted in more positive learning outcomes.

Related Recommendation: The effectiveness of engaging parents in student distance learning could be applied to informal learning settings in addition to situations where schools are closed. The programme should look to incorporate parent-led learning groups into areas where school closures are more frequent to ensure that structures for parents to support learning are in place. These might take the format of parent support groups via WhatsApp or online engagement to familiarise parents with the remote curriculum and distance learning resources. Teachers should be encouraged to share successful remote learning engagement strategies with one another. The programme will look at engagement patterns of parents in different sub-districts (using WhatsApp records) and use the following to promote parents' interaction with children:

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[25] Manahel Gender Analysis and Action Plan p. 14

- Outreach to parents by teachers and school-based committees to increase enrolment in established social media groups. Use the learning from this research to encourage teachers and other school staff to sustain a strong relationship with the parents.

- Shift from sharing weekly curriculum plans and ready lessons with parents to sharing ideas for interactive activities. Teachers should introduce learning activities that require use of resources available at home and interaction with parents. For instance, in numeracy, students can be asked to calculate and compare the amount of water consumed by different individuals in the household, this helps them to practice measurement, addition, subtraction and prediction.

Key Finding: Gender Continues to be a Factor in Learning Outcomes

Results from all four research questions indicate that gender continues to play a role in reading and mathematics outcomes, as it did in 2019. In all grades and years of assessment, girls outperform boys in reading, but lag them in mathematics in both 2019 and 2020.

HYPOTHESIS

The same differences in reading and mathematics by gender have been seen globally for several years.[26] In the Syrian context, there are several external factors at work behind these results, including societal factors pulling younger boys out of school to work and factors keeping older girls from progressing through their education, as outlined in the Manahel Gender Analysis and Action Plan. Analysts hypothesise that these factors, exacerbated by COVID-19 as outlined in *Additional Findings Related to Girls' Performance*, are contributing to the already existing gender gap in learning outcomes. Manahel has taken considerable efforts to support children of both genders in their learning, but these societal factors have not completely been mitigated, though numeracy results for 2020 grade 3 students indicate that this gender gap may be closing along with these efforts.

We noticed from different assessments that boys spend more time outside the house during COVID-19 and probably engage less in distance learning as compared to girls. We have seen that girls, as reported by parents and teachers, spend more time reading and studying at home as compared to boys. This could be related to gender roles and motivation. Girls' performance at schools offers them opportunities for self-actualisation and appreciation by the parents and extended family. This serves as a motivator for girls. Boys can be under pressure culturally to be more outgoing and socially engaging outside the home. COVID-19 and school closure made these cultural expectations for both genders even more distinct.

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26 Gijsbert Stoet and David C. Geary, Sex Differences in Mathematics and Reading Achievement Are Inversely Related: Within- and Across-Nation Assessment of 10 Years of PISA Data. 2013. https://doi.org/10.1371/journal.pone.0057988

Related Recommendation: Manahel should provide more support to girls in grade 4 who did not benefit from play-based learning activities to strengthen their foundation in numeracy, focusing on addition, subtraction and word problems through new numeracy modules and supplemental lessons specifically for girls in grade 4.

The programme will offer professional development opportunities for teachers on how COVID-19 has exacerbated existing differences in learning and motivation amongst boys and girls. This will be followed by looking at opportunities for boys to engage more with distance learning at home, focus additional literacy support at school to target boys and build on the relatively higher engagement of girls in distance learning to focus on numeracy. The need for these gender-based adaptations will be first verified by Manahel's continuous assessment data and consultations with teachers following professional development sessions. Teachers will be encouraged to use the right dosage and focus of activities for their own students while equipped with a clear understanding of how gender is a factor for learning outcomes.

Key Finding: Students with High Mobility Have Higher Scores in Literacy and Numeracy

One of the most surprising findings was that students with higher mobility — those that had moved more than three times in the past academic year — generally had higher mean scores in reading comprehension, missing number identification and addition one. Descriptive analysis of this group of students did not lead to any further explanation of why these students had higher learning outcomes. Results seemed to indicate that there were other factors at play outside of what this study captured. Manahel staff hypothesised that students in this group may be coming from previously stable areas of Syria and had better access to education before moving. Beyond this, it is important to remember that the number of times a student moved in the last academic year are self-reported by young children, who do not necessarily have accurate recall.

HYPOTHESIS

While this 2020 study improved on the 2019 study's efforts to capture displacement, it is a complex factor to assess and goes far beyond the number of times a student has moved in the past year. Better understanding of student mobility is needed to understand how this relates to learning outcomes.

Related Recommendation: Recent research highlights challenges around reporting on displacement.[27] Moving forward, the Manahel team should try to track where new IDP students and teachers are coming from to assess what access to education they may have had to capture a more nuanced picture of this group of students.

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[27] USAID, Mapping the Ecosystem of Education Data for Internally Displaced Persons in the Middle East and Beyond: Issues, Challenges, and Recommendations. Washington, DC: United States Agency for International Development, 2021.Retrieved from https://www.eccnetwork.net/sites/default/files/media/file/Mapping%20the%20Ecosystem%20of%20Education%20Data%20for%20IDPs.pdf

The programme recommends using actual ongoing learning assessment findings to determine students in need for additional support. Along with that, the team will consider factors that result from displacement in identifying the most vulnerable children. This includes if children ended up, because of displacement, in an informal camp setting in a rural area. Prioritisation of which schools to include for summer club and other interventions to improve learning time (additional support by lead teachers, and after school support) will consider specific subdistricts and students'/teachers' mobility.

Key Finding: 2020 Students in Both Grades in District 2 are Falling Behind

Results from *Research Question 3: Comparison between Grade 3 and Grade 4 Students* showed that 2020 students who are falling behind their peers are frequently from District 2. Non-readers in third and fourth grades were more likely to be from District 2, and students from this district had the lowest mean scores in numeracy subtasks. Evidence suggests that being from District 2 was a significant factor linked to lower numeracy scores in missing number identification, addition one and word problems when taking into account other significant factors affecting learning outcomes.

HYPOTHESIS

Manahel staff identified this district as experiencing high rates of conflict and with a flux in population, a clear contributor to lower reading and mathematics outcomes. Additional anecdotal feedback from coaches and enumerators indicated that historically there has been lower parental engagement in learning among students in District 2. This lower level of support for learning — in addition to the high levels of disruption in schooling — could be another reason for the low performance of students in this district.

Related Recommendation: The programme will review the current engagement of parents (using WhatsApp enrolment and engagement time data) from this sub-district and investigate the drivers behind parents engagement to explore the following:

- Outreach to parents via teachers and school committees to improve engagement of parents with established channels of communication.

- Offer specific and user-friendly guidance for parents on how to engage with distant learning opportunities.

- Use end of year celebration events for parents to celebrate their childrens' work

- Mobilise resources to increase opportunities for parents to engage in MHPSS parents' support groups.

- Review Strength and Difficulties Questionnaire results of this particular district to identify any particular psychosocial trends that might require adapting the PSS intervention for children or a group of children in this area.

- Prioritise this area in offering home-based fun learning activities to increase interaction between children and parents at home.

Disclaimer

This document has been redacted to protect the individuals involved in the Syria Education Programme. All names of people and locations have either been altered or removed, as has any information that may identify people or locations.