

Philippines Early Childhood Education Kindergarten to Grade 4 Longitudinal Research



Summary Report 2021



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List of Acronyms

ACER	Australian Council for Educational Research
ACTRC	Assessment Curriculum and Technology Research Centre
ANOVA	Analysis of variance
BARMM	Bangsamoro Autonomous Region in Muslim Mindanao
DepEd	Department of Education (Philippines)
DFAT	Department of Foreign Affairs (Australia)
ECCD	Early Childhood Care and Development
ECE	Early Childhood Education
EGRA	Early Grade Reading Assessment
EYA	Early Years Act
LGU	Local Government Unit
MT	mother tongue
Phil-IRI	Philippine Informal Reading Inventory
SEAMEO INNOTECH	The Southeast Asian Ministers of Education Organization (SEAMEO) Regional Centre for Educational Innovation and Technology (INNOTECH)
SEA-PLM	Southeast Asia Primary Learning Metrics
SEDS	Social and Emotional Development Survey
SES	socio-economic status
TIMSS	Trends in International Mathematics and Science Study
UN	United Nations
UNICEF	United Nations Children’s Fund

1

Background and objectives of the Study

The Philippines Early Childhood Education (ECE) Longitudinal Study aimed to provide evidence to guide the implementation of Republic Act 101410 or Early Years Act of 2013. The act recognises ages from zero to eight as the first critical stage of educational development. The study, funded by UNICEF and Australia’s Department of Foreign Affairs (DFAT), generated evidence on children’s social, emotional, cognitive, and oral language skills in English and Filipino from six stages: at the start of Kindergarten, at the end of Kindergarten, at the end of Grades 1, 2, 3, and 4. The study measured growth and development in each stage, year on year. The study targeted a range of settings to shed light on how skills develop in diverse contexts.

The ECE Longitudinal Study represented a major research investment into the effects of early childhood education in the Philippines. The education system has undergone extensive and ambitious reforms in recent years, transforming from a 10-year to a 13-year (K–12) system. By institutionalising RA10157 (the Kindergarten Act of 2012), Kindergarten was made compulsory as the first level of schooling. This was reaffirmed under the Enhanced Basic Education Act 2013 as

the Government of the Philippines acknowledged the critical importance of early years of education. This study underpins the need for ensuring that the teaching and learning process, and policy environment under the new curriculum, builds the right foundations for quality learning.

Objectives

The ECE Longitudinal Study aimed to answer four questions:

1. How do cognitive, social, and emotional skills of young children develop in different contexts?
2. How does participation in preschool/day care relate to children’s later cognitive, social and emotional development, learning experiences and performance in school?
3. How do factors related to a child’s home, community, school and classroom, in different contexts, affect cognitive, social and emotional development in children?
4. How do children transition from ECE settings in different contexts, and what part do schools play in supporting this transition?

2

Methodology

This study used a mix of quantitative and qualitative methods to answer the four questions. These included:

- cognitive assessments of literacy and mathematics developed by the Assessment Curriculum and Technology Research Centre (ACTRC);
- a Social and Emotional Development Survey (SEDS)¹;
- contextual questionnaires for parents, teachers, and school heads;
- an oral language assessment (Round 1 only); and
- explanatory case studies with qualitative data to contextualise the quantitative findings.

A key feature of the research design was the purposive sampling of local government units (LGUs) and schools, based on the characteristics that aligned with key variables. This study provided descriptive rather than inferential statistics.

Findings cannot be generalised to the entire Philippine population.

Sample

A cohort of learners was selected in 2015 based on their alignment with variables such as main island group, language, socio-economic status (SES), location, and preschool or day care attendance. [Table 1](#) shows the number of participants for each round since 2015.

In all rounds, no student lived in an area that was classified as both conflict-affected and disaster-prone area. However, there was a large overlap of students who lived in disaster-prone areas that were also classified as urban poor. [Figure 1](#) shows this overlap - the size of the squares reflects the number of students living in each region.

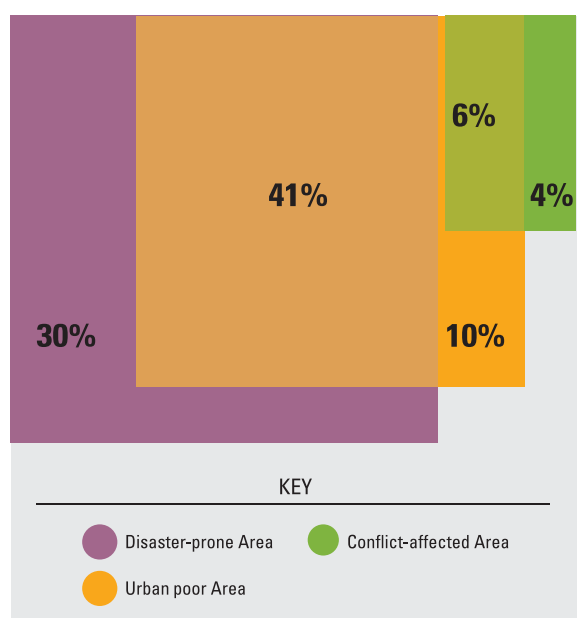
Table 1: Number of participants in each round of the study

	Round 1	Round 2	Round 3	Round 4	Round 5	Round 6
Students	4287	4523	3860	3449	3542	3431
Parents	0	0	3860	0	0	3430
Teachers	0*	174	298	307	401	393
School heads	0	65	62	67	67	66
Schools	65	67	67	67	67	66

* Round 1 teachers were the same in Round 1 and 2. Their data were gathered and included in Round 2.

¹ To capture the advanced social skills that research suggests students should have obtained by Grades 3 and 4, additional questions were included. Bernadette Coles-Janess (Coles-Janess & Griffin, 2009) developed a set of items to measure more advanced social and emotional skills in Australia and the Philippines. ACER and Coles-Janess worked together to identify items based on psychometric analysis, SEDS, development theory and the Philippines curriculum. As a result, the SEDS comprised two parts. The first part was used in all rounds of the study while the second part comprised the new set of items and were used in Rounds 5 and 6.

Figure 1: Proportions of students living in different areas in Round 6*



* Remaining percentage of students is due to missing data.

Language of test administration

Half the students in each school took the literacy and mathematics tests in English. The English versions of the tests were randomly distributed in each school. For mathematics, the other half of the students in each school took the test in their school mother tongue (MT). For literacy, the other half of the students took the test in Filipino. [Table 2](#) shows the languages of the tests that were administered in each region.

Table 2: Language of assessment for the literacy and mathematics tests in each region

Island Group	Languages	
	Literacy test*	Mathematics test*
Mindanao	535 (50%) took the test in English	538 (48%) took the test in English
	564 (50%) took the test in Filipino	376 (33%) ² took the test in Sinugbuanong Binisaya
		184 (16%) took the test in Maguindanaon
Visayas	501 (48%) took the test in English	506 (49%) took the test in English
	497 (48%) took the test in Filipino	495 (48%) took the test in Sinugbuanong Binisaya
Luzon	535 (48%) took the test in English	636 (50%) took the test in English
	564 (50%) took the test in Filipino	627 (49%) took the test in Filipino

² These percentages are proportional – i.e., they reflect the proportion of students in sampled schools in Mindanao whose mother tongue language of instruction is either Sinugbuanong Binisaya or Maguindanaon.

3

Reading literacy results

Summary of findings

Consistent findings

The literacy findings were consistent with other national literacy assessments undertaken in primary schools in the Philippines. This study showed a wide distribution of ability that has persisted since Kindergarten. Students were given four readings – two of them were short, easy ones and the other two were long. Approximately half the Grade 4 students had very limited literacy skills in MT, English or Filipino while the other half understood most of the meaning in short (60 words), simple texts in three languages. High-ability students could also understand simple, mainly literal aspects of long texts in three languages, but demonstrated a limited range of comprehension skills compared with curriculum expectations for Grade 4. Similar findings were evident in the Southeast Asia Primary Learning Metrics (SEA-PLM) 2019 study administered in Grade 5 and also in Early Grade Reading Assessment (EGRA) studies in Grades 1 to 3 conducted in 2015.

Students' mean literacy scores improved in Filipino and English compared with MT in Grade 3

The Grade 4 mean literacy scores of students showed substantial improvement in Filipino (703) and English (682) compared with the previous round when students were assessed in the school MT (652) in Grade 3.

Literacy skills were slightly higher in Filipino than in English

Filipino showed the greatest improvement in mean score, possibly because for Luzon students, this is also their MT. However, the overall mean score for English was not far behind the Filipino mean. This is impressive given that many students come from multilingual backgrounds where English is probably rarely used at home. The relatively minor improvement in the mean scores in MT literacy from Grade 2 to Grade 3 (Rounds 4 and 5) suggests that teachers were more focused on developing literacy skills in English and Filipino than in the MT in Grade 3.

Even as the mean scores improved, the level of difficulty in answering questions in Filipino compared with English varied considerably. The easy questions, which more students could answer correctly, showed the greatest language difference in favour of Filipino. The difficult questions showed almost no language difference.

The Philippine Informal Reading Inventory (Phil-IRI) guidelines for grade-appropriate texts indicate that expectations about what students can read in English in Grade 4 are considerably lower than what they can read in Filipino. The findings in this study showed that for the more able readers, there was little difference in what they could read and understand in English or Filipino in Grade 4.

Visayan students' scores similar to Luzon

The mean literacy score for students in the Visayas (704) was almost identical with that for Luzon (701), in spite of the fact that Visayan students are required to learn literacy in three languages. The mean score for Mindanao (673) was lower, but not far behind.

High-scoring students have a limited range of comprehension skills

High-scoring students in this study were able to answer almost all of the straightforward questions in almost all of the texts in the test, but they could not answer questions that required more careful



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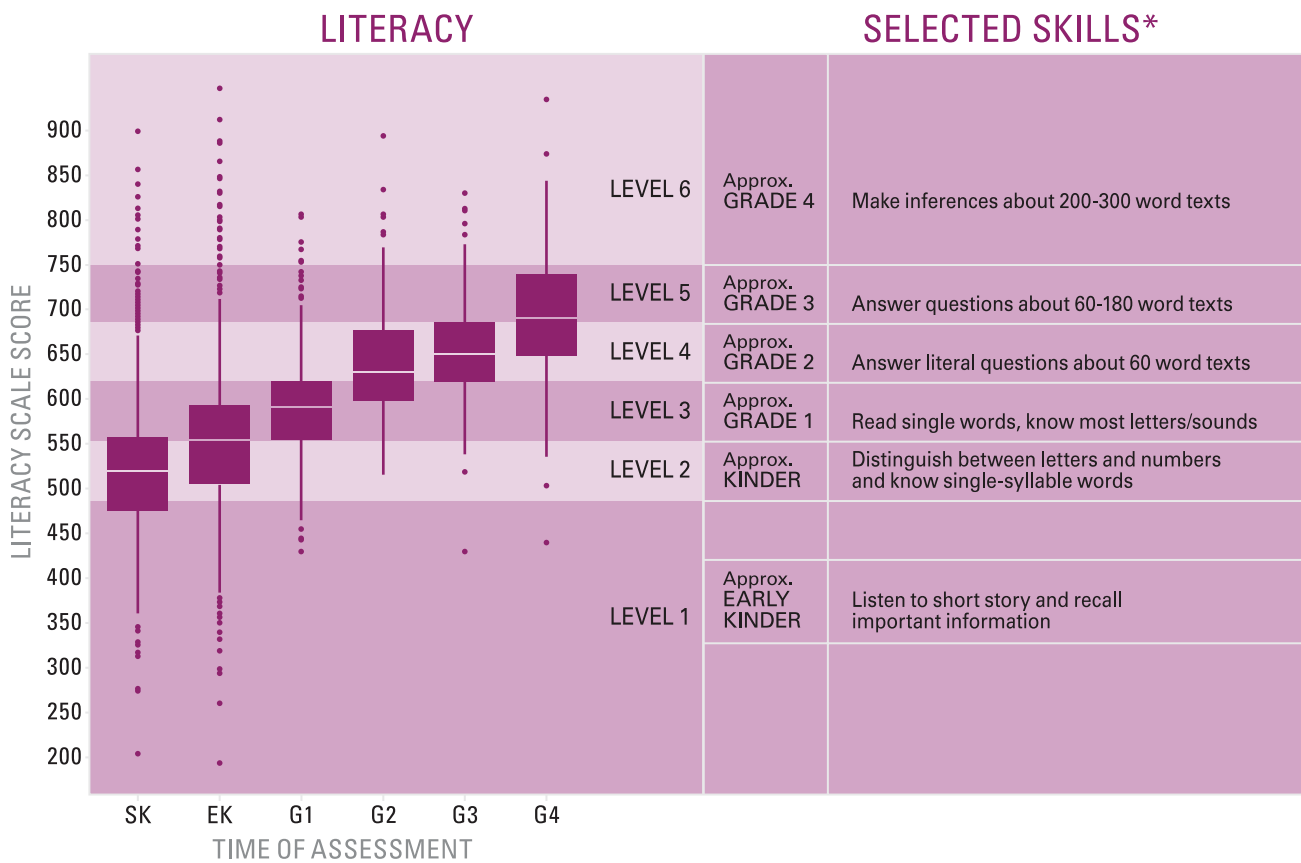
The literacy findings are consistent with other national literacy assessments conducted in primary schools in the Philippines. The study shows a wide distribution of ability that has persisted since Kindergarten.

thought. Eight of the questions in the test had to be deleted because almost all of the high-ability students selected the same incorrect option, or they all randomly guessed. Some of these were the same questions they could not also answer in MT in Grade 3. This showed a widespread inability among high-scorers to interpret text, make inferences, and deal with competing information. It suggested even the most able students in Grade 4 had a low comprehension ceiling which applied across MT, Filipino and English.

A very wide distribution of skills

Figure 2 shows a pattern of consistent growth across the distribution of literacy skills from the beginning of Kindergarten. However, the distribution of skills was very wide with low-achieving students showing very little progress. The levels do not correspond to grades. Students in Level 3 were not reading yet and those in Level 4 were only able to understand literal details in very short, simple texts of up to 60 words.

Figure 2: Longitudinal distributions of literacy achievement in Rounds 1-6



- SK** – Start of Kindergarten (Round 1)
- EK** – End of Kindergarten (Round 2)
- G1** – End of Grade 1 (Round 3)
- G2** – End of Grade 2 (Round 4)
- G3** – End of Grade 3 (Round 5)
- G4** – End of Grade 4 (Round 6)

- Scale Score** – a raw score that has been adjusted and converted to a standardised scale
- *Selected skills** – some of the key skills associated with the level of achievement and grade. A full list can be found in Table 3-1.

Just under 25% of students were in Level 6.

They could answer many of the questions in the test, after the harder questions were deleted. This meant they showed good understanding of the shorter texts and answered most of the questions correctly, but still had limited understanding of the two longer texts, since half the items for each text had been deleted.

Just over 25% of students were in Level 5.

They answered most of the questions for the short, easy texts (up to 60 words), made simple inferences and generalisations, and sequenced three events, but they could only answer one or two straightforward questions for each of the long texts (180 words or more). They understood very little about the four texts.

A further 30% were in Level 4. They could only answer literal questions about very short, simple texts (60 words) or the first paragraph of a straightforward long text.

Approximately 20% of Grade 4 students were in Level 3 or below. They could only read single words at best. These students showed a similar lack of literacy skill in MT in previous rounds.

The distribution of students across Level 6 was also misleading. Most of these students were probably bunched up at the beginning of this level. The deletion of eight of the hardest items from the test, meant there were almost no items in Level 6 to accurately locate students at this level. The probability model used in the longitudinal analysis assumed the more able students would be able to answer the hard questions correctly, but these students did not meet this assumption. Hence, the model's inflation of their ability was misleading.

The effect of context and preschool on literacy performance

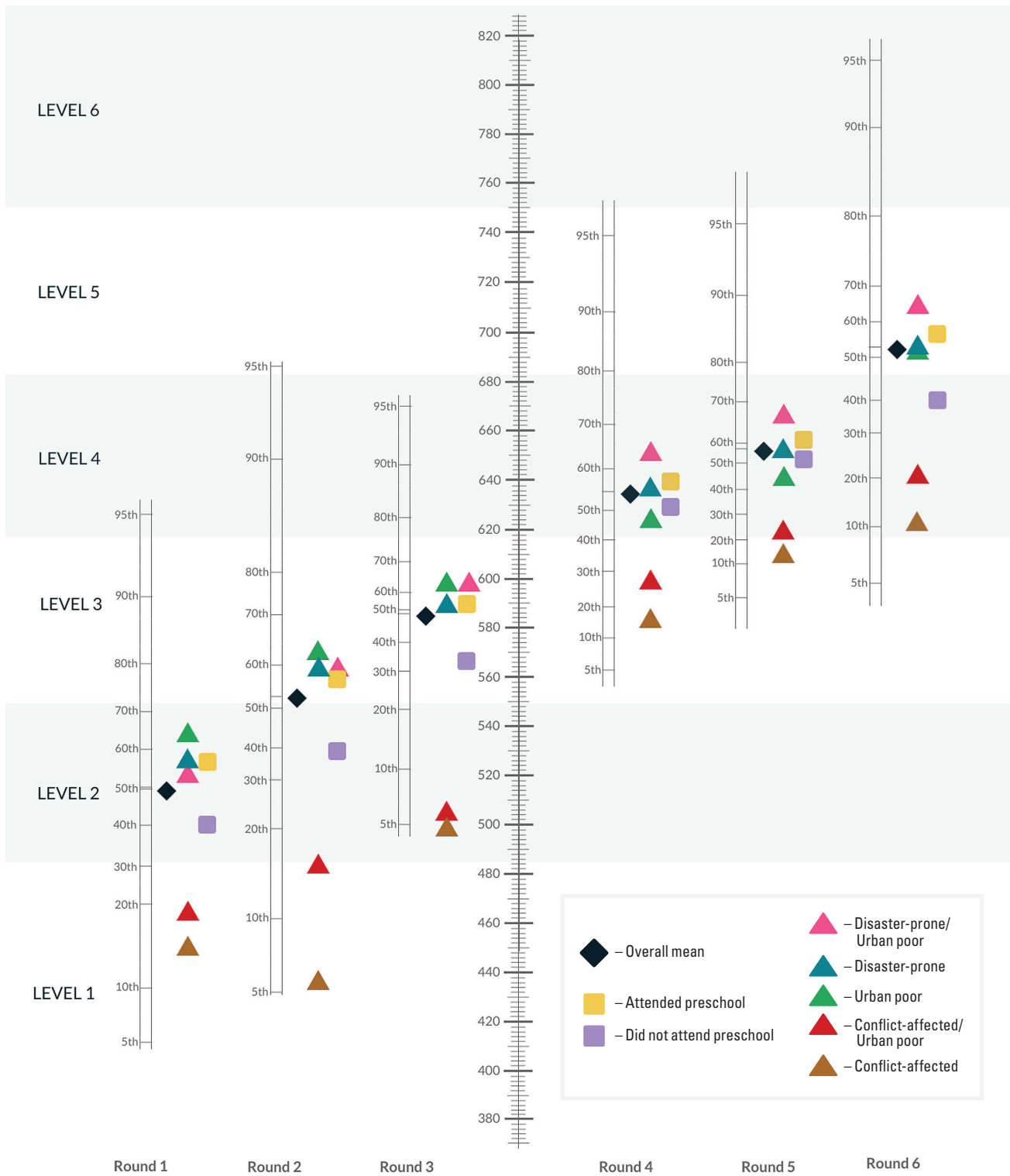
Figure 3 shows the literacy achievement of students in each round. The diagram highlighted the average achievement of students in each context (e.g. disaster-prone, urban poor), as well as the achievement of students who attended preschool or not, compared with the average of participating students in each round.

Students in conflict-affected areas were the lowest performers in the three domains. The rate of growth of students in conflict-affected and conflict-affected/urban poor regions slowed between Rounds 5 and 6 compared with students in disaster-prone, disaster-prone/urban poor, and urban poor regions.

As the students in conflict-affected and conflict-affected/urban poor areas had the fastest rate of growth in the rounds for literacy, it was expected that the gap in achievement between the groups would decrease further by Round 6. Instead, the difference increased. The difference between students in the disaster-prone/urban poor areas and the conflict-affected areas was 64 points in Round 1. By Round 6, it reached 88 points.

Students who attended preschool or day care had higher scores in literacy in every round. Students who did not attend preschool had higher average growth rates from Rounds 1 to 4 but slowed thereafter. For literacy, the difference between students in Round 1 was 24 points; in Round 4, 11 points; and by Round 6, it was 25 points. Therefore, there was a learning gap in Round 6 between those who attended preschool and those who did not.

Figure 3: Students' literacy achievement in each round highlighting differences in context and preschool attendance



4

Mathematics literacy results

Consistent findings

The mathematics findings were consistent with other national literacy assessments undertaken in primary schools in the Philippines. This study showed a wide distribution of ability that has persisted since Kindergarten. Approximately half of the Grade 4 students could demonstrate only some of the skills described in the Grades 1 and 2 curriculums. The other half were still consolidating their Grade 3 skills with the most able students demonstrating serious conceptual gaps in mathematical understanding. None appeared to have the foundational skills required for the Grade 4 curriculum. Similar findings were evident in Grade 4 mathematics results in the Trends in International Mathematics and Science Study (TIMSS) for 2019 and the Southeast Asia Primary Learning Metrics (SEA-PLM) 2019 study administered for Grade 5.

Students' mean literacy scores improved more in two MTs than in English

On average, students demonstrated similar levels of improvement in their mathematical skill in Filipino and Sinugbuanong Binisaya with English not far behind. The overall mean for the previous round was 664. By Round 6, the overall mean for Filipino increased to 723; for Sinugbuanong Binisaya, 707; and for English, 690. This is impressive for English, since many students come from multilingual backgrounds where English is probably rarely used at home.

However, the Round 6 mean score was low for the small number of students (5% of

study population) who took the test in their Maguindanaon MT. Their mean score of 628 was below the overall mean in the previous round.

Mathematics skills were highest in Filipino

Filipino showed a slightly better improvement in the mean score compared with Sinugbuanong Binisaya, but the difference was small. The difference was bigger compared with English.

The level of difficulty in answering questions in languages other than Filipino varied across questions. The percentage of correct answers in Sinugbuanong Binisaya was typically 5% to 10% lower than in Filipino, but some questions showed differences of 20% and one question, 40%. The percentage of correct items in English was generally 10% to 30% lower than Filipino responses for the same item, but there were occasional differences of up to 45%. Many of the Maguindanaon responses were 20% to 40% lower than the percentage of correct answers in Filipino.

Visayan students' scores similar to Luzon

The mean mathematics score of students in Visayas (714) who did the test in Sinugbuanong Binisaya or English was similar to the score of Luzon (707) students who did the test in Filipino and English. Visayas yielded a marginally higher mean score in spite of the fact that Visayan students are required to learn in three languages from Grades 1 to 3. The mean score for Mindanao (669) was lower. Most of the

Mindanao students did the test in Sinugbuanong Binisaya or English, but 360 students did the test in Maguindanaon or English. The low scores for Maguindanaon MT schools lowered the mean for Mindanao.

MT and English scores varied by region

Students in Luzon had considerably higher scores in Filipino (723) compared with English (691). However, students in the Visayas had almost identical scores for Sinugbuanong Binisaya (716) and English (711). Half the 360 students in the Maguindanaon MT schools had

a low mean score for Maguindanaon (628) and English (624), indicating the students' limited mathematical skills in MT or English.

Highly able students have large conceptual gaps

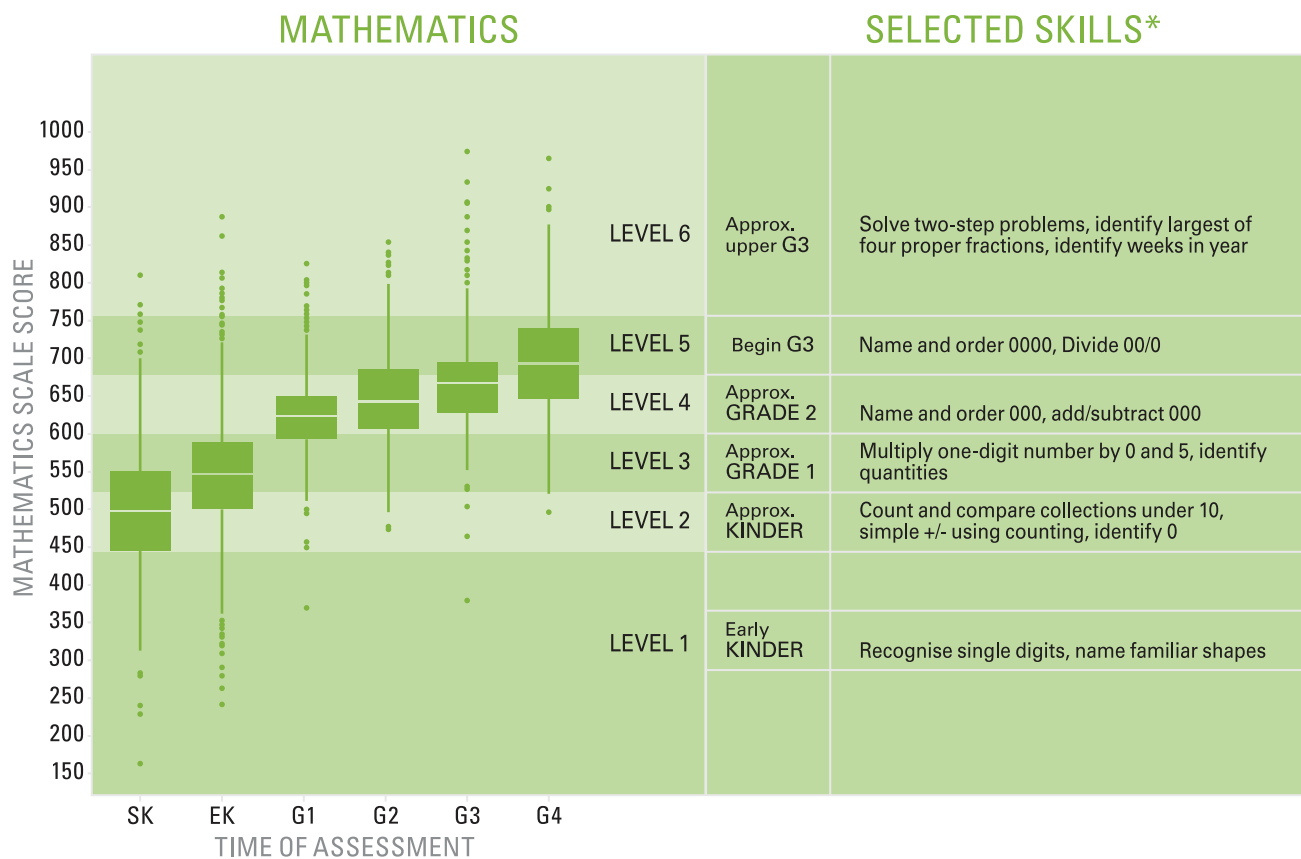
Sixteen items had to be deleted from the assessment because even the most able students could not answer them. These items assessed substantive conceptual skills that are in the Grade 3 and Grade 2 curriculums. The inability to answer these items indicated large conceptual gaps in the most able students' understanding of mathematics.



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Many students come from multilingual backgrounds where English is probably rarely used at home. But students' scores show similar levels of improvement in their mathematical skill in English along with Filipino and Sinugbuanong Binisaya.

Figure 4: Longitudinal distributions of mathematics achievement in Round 6



- SK** – Start of Kindergarten (Round 1)
- EK** – End of Kindergarten (Round 2)
- G1** – End of Grade 1 (Round 3)
- G2** – End of Grade 2 (Round 4)
- G3** – End of Grade 3 (Round 5)
- G4** – End of Grade 4 (Round 6)

- Scale Score** – a raw score that has been adjusted and converted to a standardised scale
- *Selected skills** – some of the key skills associated with the level of achievement and grade. A full list can be found in Table 3-1.

A very wide distribution of skills

Figure 4 shows a pattern of consistent growth across the distribution of mathematics skills from the beginning of Kindergarten. However, the distribution of skills is very wide with the low-achieving students showing very little progress. In Figure 4, the levels do not correspond to grades. Level 5 describes some of the easy skills in the Grade 3 curriculum while Level 6 describes some of the difficult skills in the Grade 3 curriculum. Level 4 describes skills that are mainly in the Grade 2 mathematics curriculum.

Approximately 20% of the students were in Level 6, most likely located towards the start. The skills they demonstrated appeared to meet many of the curriculum standards for Grade 3, but they fell short of most of the standards for Grade 4.

Approximately 30% of the students were in Level 5. The skills they demonstrated met some of the curriculum standards for Grade 3. The students fell short in terms of understanding and performing operations with five-digit numbers, improper fractions and measurement conversion.

Approximately 30% of the students were in Level 4. The skills they demonstrated appeared to mainly correspond with some of the curriculum standards for Grade 2.

Approximately 20% of students were in Level 3 or lower. A few of the skills they demonstrated were within Grade 2 standards, but their skills appeared to correspond with the curriculum standards for Grade 1.

The distribution of students across Level 6 was also misleading. Most of these students were probably bunched up at the beginning of this level. The deletion of 16 of the hardest items from the test meant there were almost no items in Level 6 to accurately locate students at this level. The probability model used in the longitudinal analysis assumed the more able students would be able to answer the difficult questions correctly, but these students did not meet this assumption. Hence, the model's assessment of their ability was misleading.

All students behind curriculum expectations

No student in the study appeared to have the necessary foundational skills required to understand the Grade 4 mathematics curriculum which they had just been taught.

The gap between the average students' mathematical learning needs and curriculum expectations for Grade 5 (the students' next grade) is likely to prevail for at least two years, and even longer for the least able students. This gap is likely to widen over time.

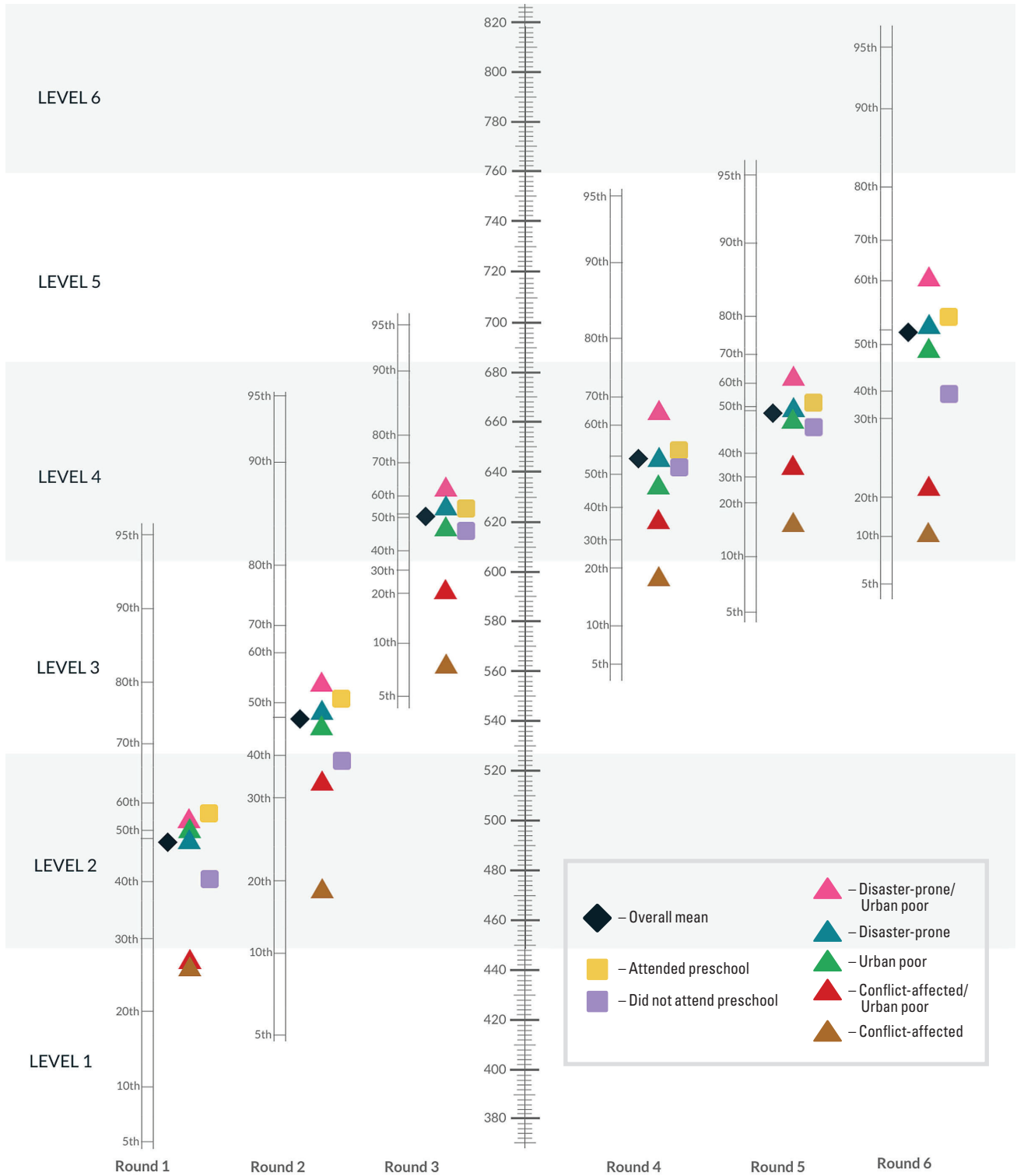
The effect of context and preschool on mathematics performance

Figure 5 shows the mathematics achievement of students in each round of the study. The diagram highlights the average achievement of students in each context (e.g. disaster, urban poor), as well as the achievement of students who attended preschool or not.

Students in conflict-affected, conflict-affected/urban, disaster-prone, and urban poor groups performed poorly over time compared with students in the disaster-prone/urban poor communities. Students in conflict-affected communities initially had the lowest scores compared with students from all groups across all rounds. Similar to the literacy results, the rate of growth of students in conflict-affected and conflict-affected/urban poor regions slowed between Rounds 5 and 6 compared with students in disaster-prone, disaster-prone/urban poor, and urban poor regions. The students' performance in mathematics in conflict-affected communities even dropped between Rounds 5 and 6, increasing the gap between conflict-affected communities and disaster-prone/urban poor communities from 58 to 107 points.

Students who attended preschool or day care had higher performance scores in literacy, mathematics, and social-emotional skills at each round. Students who did not attend preschool had higher average growth rates in all domains from Rounds 1 to 4. Although it was expected that students who did not attend preschool would catch up with their peers by Round 6, the growth rate after Round 4 had slowed. The learning gap in mathematics in Round 6 (31 points) was approximately the same as the gap in Round 1 (35 points).

Figure 5: Students' mathematics achievement in each round highlighting differences in context and preschool attendance



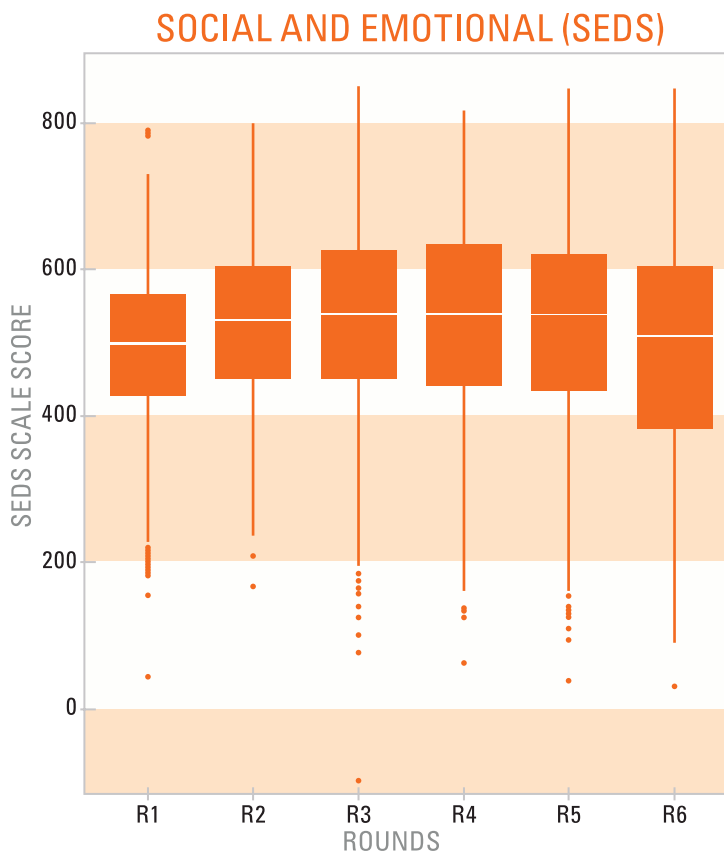
5

Social-emotional skills results

There was a wide distribution of social and emotional skills within each grade from Kindergarten to Grade 4. A slight growth in social and emotional skills was evident from the start to the end of Kindergarten (Rounds 1 and 2), but after that, the distribution of students' skills was

relatively stable from Grades 1 to 3 and later showed a slight decline in Grade 4, teachers reported. Teachers used the highest ratings for some students from Kindergarten, which left little room for improvement for these students. This is shown in [Figure 6](#).

Figure 6: SEDS Part 1 Rounds 1–6



Key insights from the SEDS are as follows:

- Teachers used many of the highest ratings for the most able students.
- For SEDS part 1, the most common ratings selected by teachers were: students sometimes (38%) or often (38%) demonstrated the behaviour being assessed. The questionnaire defined “sometimes” as half of the time at school and “often” as almost every day.
- Teachers said most students possessed mid to high levels of social and emotional skills.
- Teachers’ judgments were perhaps constrained by opportunity. It is possible there was a limited range of social–emotional skills that students were able to demonstrate in a typical classroom context.
- Teachers may have raised their expectations of students’ social-emotional behaviour as students progressed from Kindergarten to Grade 4.
- Teachers may have limited understanding of students’ social–emotional skills in tightly managed classrooms.

The effect of context and preschool on social-emotional skills

Figures 7 and 8 show the social-emotional skills of students in each round of the study for SEDS part 1 and SEDS part 2 respectively. The diagrams highlight the average achievement of students in each context (e.g. disaster-prone, urban poor), as well as the achievement of students who attended preschool or not.

The results of social-emotional skills were less clear than those of literacy and mathematics. However, it was plain that students in conflict-affected or conflict-affected/urban poor communities scored significantly lower in all rounds compared with students in other contexts. For social-emotional skills, living in an urban environment may have had a mitigating effect on the

disadvantages of also living in a disaster-prone or conflict-affected region.

The data suggest that children who attended preschool/ day care possessed better emotional skills and potentially had better interactions with teachers and classmates, compared with children who did not have preschool/day care experience. There was a significant drop in SEDS (part 1) scores from Round 5 to Round 6 for students who did not attend preschool compared with those who did. The difference in Round 5 was 10 points and in Round 6 it increased to 29 points. Average scale scores can be found in Table 3.

Table 3: Average scale scores of students who did/did not attend preschool/day care

Parent-reported preschool/day care attendance	Literacy	Mathematics	SEDS part 1	SEDS part 2
Yes	697	702	515	484
No	672	671	486	473



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Children who attended preschool/day care show well-adjusted emotional skills and potentially have better interactions with teachers and classmates compared with children who did not attend preschool/day care.

Figure 7: Students' social-emotional skills achievement in each round (part 1) highlighting differences in context and preschool attendance

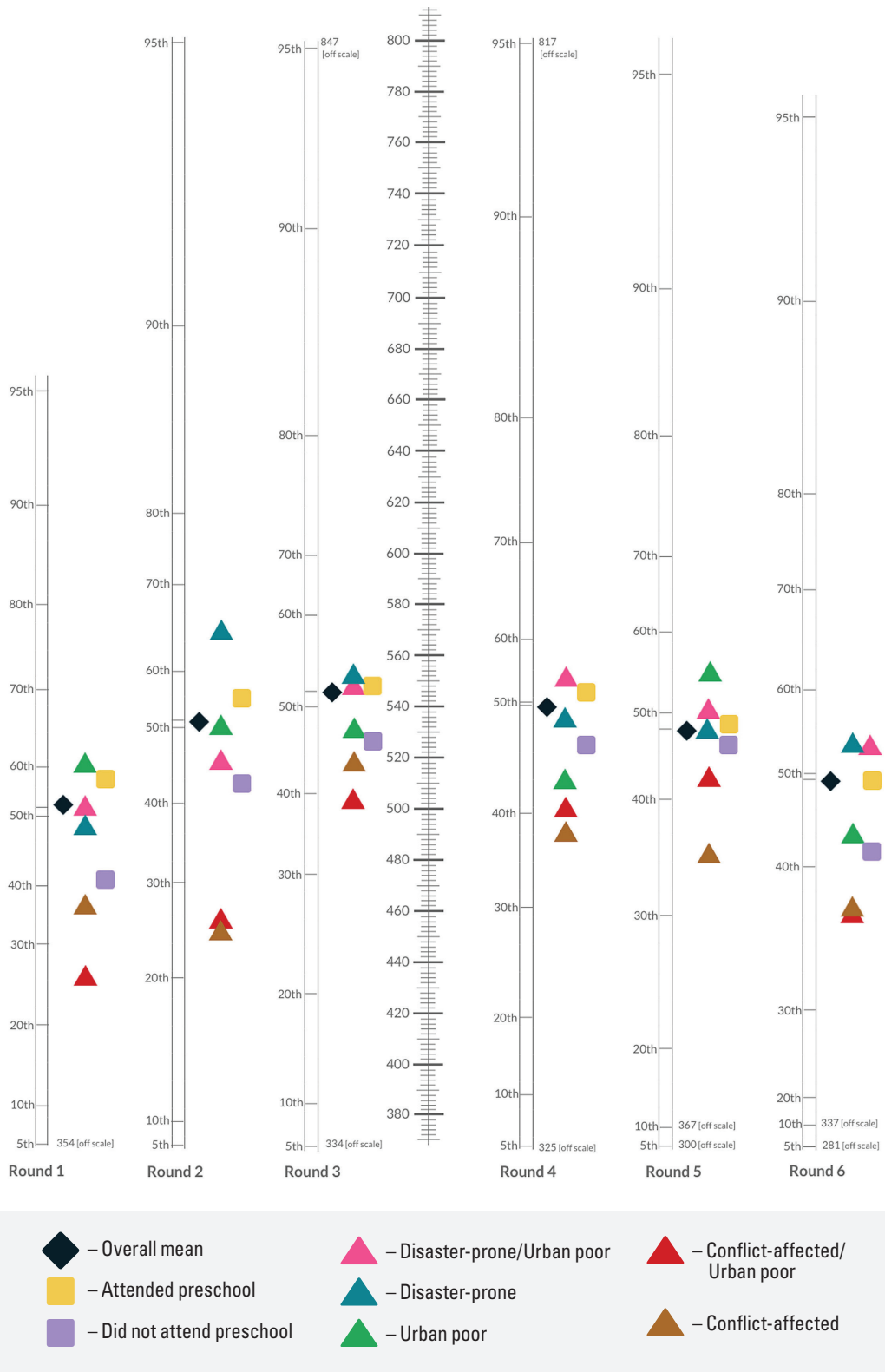
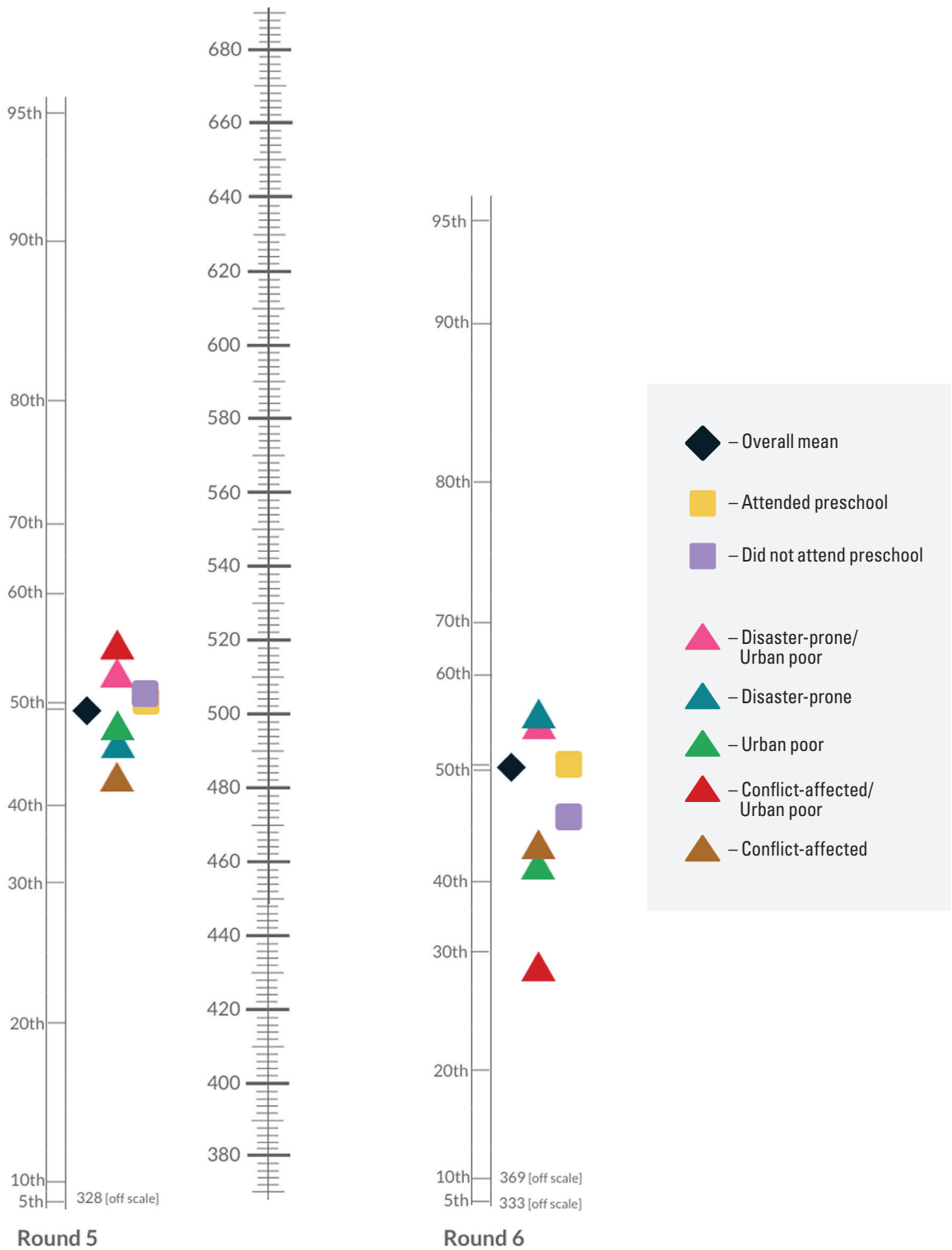


Figure 8: Students' social-emotional skills achievement in each round (part 2) highlighting differences in context and preschool attendance



6

Impact of student, home, classroom, school factors

The study explored how factors related to a child, his/her home, classroom and school affected his cognitive and social-emotional development. These factors were measured using the parent, teacher, and school questionnaires. The effect of these factors on students' achievement in literacy, mathematics, and social-emotional skills were determined by Analysis of Variance (ANOVA) tests.

A latent growth model was presented at the end of this study to estimate growth trajectories of a student's achievement over six years. The model incorporated different factors and was built sequentially, adding a new factor to the model each time to examine its impact and the relative impact of each factor. By including predictor variables into one model, it could be seen which variables had the most effect on students' achievement and progress over the six rounds, while controlling the effects of the other variables.

Student and home factors

Students' gender

Results revealed that girls performed significantly better than boys in literacy, mathematics, and social-emotional skills ($p < 0.05$). Although the difference between them was statistically significant, the difference was very small in mathematics.

Student SES

Students from low SES backgrounds had the lowest scores in the literacy and mathematics assessments. They also got the lowest scores in both parts of the SEDS, although the difference between students from low and mid-SES backgrounds was not significant in the second part of SEDS. Students from high SES backgrounds achieved the highest scores in all three domains.

Language at home

Students who spoke the same language at home as the language in mathematics and literacy tests scored significantly higher than those who did not.

Classroom factors

The classroom factors which had a significant effect on students' achievement in literacy, mathematics and social-emotional skill scores were:

- teachers' ages;
- teachers' experience in teaching at the school and their total years of experience; and
- teachers' highest education level.

Teachers' ages

Analyses showed that there were significant differences between the achievement of students who were taught by teachers from different age

groups ($p < 0.05$), but results were not consistent. For example, students whose teachers were aged over 24 years scored significantly higher in literacy and mathematics compared with students whose teachers were 20 to 24 years. Teachers who were 55 years or older tended to give students a lower rating in social-emotional skills than those given by their young colleagues.

Teachers' experience

There appeared to be an ideal length of time for teachers to be teaching. Students of teachers who have been teaching at the school for 21 to 30 years obtained significantly higher scores in literacy and mathematics than students of teachers who had taught at the school for a few years.



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The scores consistently show significant differences in literacy, mathematics and social-emotional skills between children from low-, middle- and high-SES backgrounds.

This result was likely related to the total number of years that a teacher has taught. Teachers who have been teaching for 11 to 30 years generally had students who scored significantly higher in literacy and mathematics. Teachers who have been teaching for more than 31 years tended to score their students significantly lower in social-emotional skills (part 1) compared with teachers who have taught for a few years. Teachers who have been teaching for 11 to 20 years scored their students significantly lower in social-emotional skills (part 2) compared with ratings from teachers who have been teaching for 2 to 10 years or 21 to 30 years.

Teachers' highest education level

Approximately a quarter of the teachers in Round 6 have a Bachelor's degree (23%), two-thirds have a Master's degree or units leading to a Master's degree (67%), and 4% have a Doctoral degree or units leading to a Doctoral degree. (The remaining percentage of responses was missing.)

Results showed that students of teachers with a Bachelor's or a college undergraduate degree had significantly higher scores in literacy and mathematics than students of teachers with a Doctoral degree. There were no differences between groups in SEDS part 1, but students of teachers with a Master's degree scored significantly higher in SEDS part 2 compared with students of teachers with a Doctoral or a Bachelor's degree. This was the same finding in Round 5.

Teacher-reported factors that impede effective teaching

The teacher questionnaire listed 19 possible problems that could impede effective teaching. Teachers were asked to rate each item as any of the following: a serious problem, a moderate

problem, a minor problem, or not a problem. Common factors listed as serious problems were "poor student discipline" (28%); "poverty" (21%); and "students lacking the required knowledge and skills" (19%). The first two were also listed by teachers in Round 5. "Lack of parental engagement" was the third common factor in Round 5 (19%) and was featured in Round 6 as the fourth common problem (18%).

Teachers were also given a list of 16 possible strengths that enabled effective teaching and were asked to rate whether they were a major strength, moderate strength, minor strength, or not a strength at all. The common strengths marked as major enablers of effective teaching were the good location of the school (42%); students' attendance in a day care or preschool (38%); and strong school leadership (36%). Teachers in Round 5 also listed "good location of the school", but 40% of teachers here also cited "teachers sharing of resources and approaches" as a major strength which enabled effective teaching.

School factors

School head's gender

The gender of the school head did not pose any significant differences in students' literacy, mathematics, or social-emotional scores.

School head's age

Students whose school head was aged 45 to 54 years scored significantly higher in literacy, mathematics and in the first part of the social-emotional skills assessment ($p < 0.05$) than students with school heads who were either younger or older than 45 to 54 years. The ages of the school heads did not yield any statistically significant results in the second part of the SEDS.

School head's highest education level

In Round 6, 31% of school heads have a Doctoral degree or units leading to a Doctoral degree, 63% have a Master's degree or units leading to a Master's degree, and 3% have a Bachelor's degree. (The remaining percentage of responses was missing.)

The school head's highest education level yielded significant differences in students' literacy, mathematics, and social-emotional skills. Students of school heads with Doctoral degrees (or units leading to a Doctoral degree) scored significantly higher ($p < 0.05$) in literacy and mathematics compared with students of school heads with Master's degrees (or units leading to a Master's degree) or Bachelor's degrees. Students of school heads with Doctoral degrees (or units leading to a Doctoral degree) also scored significantly higher ($p < 0.05$) in social-emotional skills in SEDS parts 1 and 2.

Number of years as a school head

The number of years as a school head regardless of school also had an effect on the students' scores. The more experienced the school head, the better the students performed in mathematics and literacy ($p < 0.05$).

Latent growth model

The selection of variables in the model was based on earlier findings in this report. Those with significant differences between groups were included. Some variables were not included because they had a high correlation with other variables. For example, the number of years the school head has with the school was not

included in the list of factors because it had a high correlation with the school head's highest qualification. Several new school heads also have Doctoral degrees or units leading to a Doctoral degree. Similarly, the school head's age highly correlated with the length of time he or she has been in that position.

In summary, each of the student, home, classroom, and school factors appeared to have had a significant effect on a student's achievement and growth over time. Including all the factors in a single model demonstrated their relative importance. For example, the length of time that a teacher has been teaching could have a significant impact on students' literacy achievement. But when considered with other factors that influence students' achievement, a teacher's qualification is not a significant factor. Consistent with other literature (e.g. Lee & Bryk, 1989; Ma & Klinger, 2000), most of the variance in students' achievement is attributable at the student level. As the sphere of influence becomes more distant, for example, the teacher, and further, the school head, the effect on students decreases.

7

Policy and practice implications

This chapter collates the overall results of the study and the implications for policy and practice.

Literacy skills

While students' literacy skills improved in Round 6, these were below curriculum expectations in all languages. Students did not also demonstrate the skills required to read at Grade 4 level. It would be useful to understand the impact of sustained single language literacy learning through action research. Effective means for developing the literacy skills of the large percentage of low-achieving students with little or no literacy skill in any language should be investigated. Further research in the form of experimental education action projects would be an important contribution to understanding this issue. This research would need school communities to support sustained literacy learning in one core language for low achievers as well as match the pace of learning with their needs until they are ready to transition.

Mother tongue-based multilingual education (MTB-MLE) policies do not appear supportive of the development of comprehension skills of even the high achievers in the sample. Teachers require a wide range of comprehension skills across multiple languages to help students gain these skills. This is a deep-seated and far-reaching issue, with implications for the curriculum, teacher education, teacher education and training (both pre- and in-service) as well as school community education.

Reading skills at the end of Grade 3 are a critical predictor of future performance and

achievement. In general terms, students at Grade 3 transition from fostering and refining their literacy skills to using these skills for continued learning of new concepts and ideas. The results indicate that the current language curriculum may not provide sufficient opportunity, or time, for learners to consolidate their reading comprehension skills in one language before reaching Grade 3.

Mathematics skills

Similar to students' literacy skills, all the students sampled in Round 6, performed below the mathematics curriculum expectations for Grade 4. It should be noted though, that students who took the Grade 4 mathematics test in Filipino and Sinugbuanong Binisaya fared better than those who took the test in English.

The findings suggest that the **Grade 4 curriculum was far too advanced for the Grade 4 students** sampled in this study and would unlikely support their continued learning. Curriculum reform is required to better match expectations with student learning needs.

As with literacy, the conceptual gaps in Grade 4 students' mathematics skills suggest that the **MT language was not sustained long enough.** Instructional leaders and teachers must also possess conceptual understanding of mathematics in order to teach these skills. Reforms to the curriculum, teacher education and training (pre- and in-service) and school community education are required.

Social-emotional skills

Students from conflict-affected school communities continued to perform the lowest in Round 6 across three domains, including social-emotional skills. The strong negative relationship between conflict and learning suggests the need to **investigate the implementation and impact of policies and programmes which provide post-trauma socio-psychological support to school communities.**

Further investigation is required to understand the strategies that teachers use to foster social-emotional skills in both preschool and school grades up to Grade 4, especially for boys since their performance scores were lower than the girls. It is important to understand the opportunities for social-emotional skills development in classrooms in Grades 1 to 4. This could be done through comparative case studies and classroom observations³ combined with teacher interviews.



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Given the difference in the performance of girls and boys, increased monitoring of boys' attendance, performance and growth can lend support to gender-sensitive teaching practices.

³ Note that classroom observations were outside the scope of this study.

The findings of this study are a critical source of evidence to inform the current Department of Education reviews of the curricula and K-12 instruction. The study revealed that very high curriculum standards do not lead to high student outcomes. The Global Proficiency Framework: Reading and Mathematics⁴ is highly recommended as a useful reference on curriculum revision, the development of more effective early years' teacher professional development programmes and improvements in teacher education programmes.

Effect of context

Students in conflict-affected areas continued to be the lowest performers in all three domains, a consistent trend across all rounds in this study. **Low achievers, including learners living in conflict-affected regions should be monitored closely to ensure they do not fall behind and drop out of primary education altogether.** This finding is supported by evidence from previous rounds where students who dropped out of the study because of absence, illness, migration, and school dropout, performed lower than those who were tested at each round. Interventions should be implemented as soon as possible as the achievement gap between students learning in different contexts has widened in Round 6.

Effect of preschool

The Government of the Philippines and key ECE stakeholders are encouraged to convey these results to communities where preschool attendance is lower than desired. The benefits of preschool attendance persist through the duration of primary school. Access to preschool, frequency, and length of attendance made

a positive difference. Those who attended preschool outperformed those who did not at each round from Kindergarten to Grade 4.

Preschool prepares students for school in a specific and narrow sense by imparting lower-level constrained skills through participation. However, it is unclear how day care/child development centres develop children's thinking and speaking skills. These skills form the foundation of future learning and are unconstrained, meaning they can develop into very sophisticated knowledge skills and abilities beyond the minimum skills required to be ready to learn.

ECE stakeholders might consider examining the quality of pedagogy and outcomes at preschool and the extent to which they align with ECE stakeholders' curriculum and policy expectations regarding holistic skills development, namely, social, emotional, cognitive, and physical skills development.

School resources and teaching staff

Intervention is urgently required to support teachers and learners in conflict-affected school communities. Support for and deployment of qualified teachers fluent in Maguindanaon is needed to address the significant issue of low MT language fluency among teachers. Results from this study pertaining to conflict-affected school communities should be shared with the appropriate Bangsamoro Autonomous Region in Muslim Mindanao (BARMM) representatives. Given the complex challenges involved in implementing MTB-MLE policies, it is important that all teachers have access to high quality and ongoing professional learning support.

⁴ GAML6-REF-16-GLOBAL-PROFICIENCY-FRAMEWORK.pdf

The results underline the value of highly qualified, competent and caring school leaders in the Philippines. Of the teacher-reported enablers to effective teaching, only **preschool attendance and strong school leadership** aligned with the other measures and results of this study. Highly qualified, motivated and experienced teachers are a valuable resource in schools and communities. Teachers' experience and skills can be leveraged for the benefit of others through mentoring, teacher working groups and school cluster-based arrangements to foster a culture of sharing experiences and learning from each other's practice.

The positive relationship between hours of instruction and student scale scores is consistent with previous rounds and reinforces the importance of schools' compliance with the DepEd's policies on minimum hours of instruction⁵.

The positive correlation between school facilities and resources and student performance has been consistent in every round. However, it appears that resourcing in some schools has declined. Fewer schools have access to safe drinking water and facilities for students with disabilities, according to school head reports. It is important that DepEd and other relevant stakeholders acknowledge the positive relationship between resourcing and maintaining school facilities with student performance.

Home and community factors

Family SES is a significant and persistent predictor of performance of students sampled in the study, as seen across all rounds. DepEd and other stakeholders must consider that **without specific programmes within schools to counter SES-related disadvantages, achievement gaps are likely to persist and grow wider over time.** Addressing an SES-related disadvantage requires a holistic approach to child development, with interventions that go beyond instructional measures. These include conditional cash transfers, school feeding, access to clean water and sanitation facilities, scholarships and bursaries, free transportation and livelihood opportunities for parents.

In light of the consistent difference in the performance of girls and boys, we recommend **increased monitoring of boys' attendance, performance and growth**, as evidence to inform gender-sensitive pedagogical practices. Stronger partnerships also need to be established with parents of the boys.

⁵ DepEd Order No. 21, s. 2019 (Policy Guidelines on the K to 12 Basic Education Program)—Annex 1, Table 1.3: Time Allotment for Grades 1 to 3, p 30 (Requiring 6 hrs of contact time for Gr 3).

Summary

In previous rounds, it was found that students who performed poorly at first, had a faster rate of growth relative to their high-achieving peers. For example, students who did not attend preschool achieved lower scores, but had a faster rate of growth than those who attended preschool. In another case, students who came from a low socio-economic background had a faster rate of growth compared with those from an upper socio-economic background.

However, the latent growth model at the end of six rounds suggests that **this is no longer the case.**

Students who have a low achievement score to start with also have a relatively slower rate of

growth compared with their peers. If this trend continues, the achievement gap between low-performing and high-performing students will increase over time.

There is a clear need to strengthen school-level and grade-level numeracy and literacy formative and summative assessment policies and practices to identify and support learners who are not able to keep pace with curriculum expectations.

It is recommended that these policies and practices are reviewed in light of the findings from this study to provide students in the Philippines the best possible opportunities to reach their full potential.

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