

PISA 2018

Programme for International Student Assessment

PHILIPPINES

Country Report

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Foreword

Launched in 2000, the Programme for International Student Assessment (PISA) is a benchmarking tool used by the Organisation for Economic Co-operation and Development (OECD) to assess achievement and the application of key knowledge and skills of 15-year-olds in reading, math, and science every three years. PISA also collects information on students' attitudes, home background, learning experience and school contexts. In 2018, over half a million 15-year-olds from 79 countries and economies took the PISA test in reading, mathematics and science, with a focus on reading literacy. PISA results allow participating countries to understand what students know and they do not know, benchmark their achievements against other countries, and draw out any policy implications arising from PISA results to strengthen their education systems.

The Philippines participated in PISA for the first time in 2018, and came in last place among 79 participating countries and economies in reading, and second to last place in science and mathematics. The overwhelming majority of students in the Philippines failed to reach minimum levels of proficiency across all three PISA subjects, with a wide gap by socioeconomic status. These results underscore the urgent need to address quality in basic education in the Philippines.

This report provides an in-depth analysis of the Philippines PISA 2018 results and explores the factors influencing the outcomes, in order to drive policy implications to improve its education system. The narrative and additional analysis for this report was developed by the World Bank's East Asia and Pacific education team, consisting of Sachiko Kataoka (Senior Economist) and Anna Alejo (Consultant). The findings do not necessarily represent the views of the World Bank Group, or its member countries and economies.

Abbreviations

DepEd	Department of Education
ECEC	Early Childhood Education and Care
ESCS	Economic, Social, and Cultural Status
EYRS	Expected Years of Schooling
GDP	Gross Domestic Product
ILO	International Labour Organization
ISCO	International Standard Classification of Occupations
MTB-MLE	Mother Tongue-Based Multilingual Education
LAYS	Learning-Adjusted Years of Schooling
LET	Licensure Examination for Teachers
NAT	National Achievement Test
OECD	Organisation for Economic Co-operation and Development
PISA	Programme for International Student Assessment
PPP	purchasing power parities
PSA	Philippine Statistics Authority
PST	Process Skills Test
SDG	Sustainable Development Goals
TEPT	Teachers' English Proficiency Test
TIMSS	Trends in International Mathematics and Science Study
UNESCO	United Nations Educational, Scientific and Cultural Organization
USD	United States dollar

EXECUTIVE SUMMARY

Participating in the Programme for International Student Assessment (PISA) for the first time in 2018, the Philippines ranked last among 79 participating countries and economies in reading and second to last in science and mathematics. PISA assesses achievement and the application of key knowledge and skills of 15-year-olds in reading, math, and science. In 2018, at least 78 percent of students in the Philippines failed to reach minimum levels of proficiency in each of the three PISA subjects, with a wide gap by socioeconomic status. These results underscored the urgent need to address quality in basic education.

This report presents an in-depth discussion on the four prosperity outcomes of educational attainment, namely: educational attainment; academic achievement; student well-being; and attitudes towards school and learning. These four outcomes are then discussed in relation to five foundations for success in the Philippines. Based on these findings, the report proposes how the Philippines can build stronger foundations and improve its educational outcomes.

The majority of 15-year-old students in the Philippines do not reach their maximum potential in terms of the four prosperity outcomes

Poor educational attainment in the Philippines is associated with poor performance, compared to most other PISA-participating countries and economies. While access to basic education (K to 12) has substantially improved in recent years, only 68 percent of 15-year-olds were eligible to participate in PISA 2018, suggesting that a sizable proportion of youth had left school by the age of 15. In addition, there was a noticeable grade-age mismatch due to late entry and grade repetition, particularly among boys and socioeconomically disadvantaged students. Poor educational attainment was associated with poorer academic outcomes: Grades 9 and 10 students who had repeated a grade once scored as much as 94 points lower in reading, as compared to peers who had not repeated a grade.

The overwhelming majority of students in the Philippines failed to reach minimum levels of proficiency across all three PISA subjects, with a wide gap by socioeconomic status. About 81 percent of students scored below minimum proficiency levels in reading and math, and 78 percent in science. These challenges in foundational skills start at early grades: a significant proportion of students do not demonstrate that they understand what they are reading in English by the end of Grade 3 (Education Development Center 2018). This weak proficiency in English severely constrains the learning ability of students in all subjects in later grades. Performance varied by sociodemographic characteristics, such as gender (in favor of girls), school ownership (in favor of students in private independent schools), and socioeconomic status (in favor of socioeconomically advantaged students). The high level of social segregation in the Philippines—a typical disadvantaged student has about a one-in-seven chance of attending the same school as high-achieving peers—seemed to reinforce performance gaps.

The disciplinary climate in classrooms and a sense of belonging at school were strongly associated with life satisfaction, and, in turn, academic performance. However, more than three in five students report feeling sometimes or always scared, afraid or sad, even though most of them report high levels of life satisfaction and emotional well-being. Girls and advantaged

students tended to report greater meaning in life, and more frequent positive feelings than boys and disadvantaged students. Greater life satisfaction, meaning in life, and positive feelings were associated with higher levels of achievement, as well as a higher likelihood of academic resilience and a lower likelihood of truancy. Students were more likely to express these dimensions of well-being when they had a stronger sense of belonging at school, a more positive disciplinary climate in their classrooms, and greater emotional support from their parents.

Positive attitudes towards school and learning—which were significantly associated with reading performance—were particularly weak among boys and disadvantaged students. Girls and advantaged students tended to: (i) have greater motivation to master tasks; (ii) hold more ambitious learning goals; (iii) value school more strongly; (iv) have in a growth mindset; and (v) have high educational and career expectations. About 82 percent of advantaged students, as opposed to only 47 percent of disadvantaged students, expect to complete tertiary education. A misalignment between career expectations and education expectations was observed, particularly among disadvantaged students. Among those expecting to work in high-skilled occupations, more than a quarter of students reported that they do not expect to complete tertiary education.

The five foundations needed to ensure educational success are not strong in the Philippines

Investments in key financial, human, and digital learning resources were low overall, but particularly in disadvantaged schools. The cumulative spending per student in the Philippines (USD 8,474 in PPP) was lowest among all participating countries and economies. Class sizes and student-teacher ratios were largest in disadvantaged schools and public schools. Larger class sizes tended to have more negative disciplinary climates, which was a significant predictor of poor performance. Teacher certification and educational attainment appeared to be unrelated to student performance. Even though most principals perceived their schools and teachers to be adequately equipped with digital learning resources, less than half of all students reported having access to a computer for schoolwork or the Internet at home. Less than one in five disadvantaged students had access to these resources at home.

Students in the Philippines perceived their classroom disciplinary climate—which was strongly associated with performance—to be more negative, on average, than students in all other PISA-participating countries and economies. A significantly worse disciplinary climate was observed in disadvantaged schools rather than in advantaged schools. Improving the classroom management skills of teachers appears to be an important area of focus for professional development, as students in classrooms with a more positive disciplinary climate tended to show better performance. Along with fostering a positive disciplinary climate, teacher enthusiasm emerged as a key dimension of quality instruction, as higher levels of teacher enthusiasm were associated with a stronger motivation for students to master tasks, which, in turn, was related to better reading performance.

Learning time was lost due to high student absenteeism, which was negatively associated with student performance. Teacher absenteeism was perceived to hinder learning to a greater extent in public schools and private government-dependent schools. As class sizes tend to be larger and student-teacher ratios tend to be higher in these schools, teacher absenteeism may bring

additional challenges. Boys, disadvantaged students and students in public schools tended to skip school more frequently. Skipping a day of school once or twice in the two weeks prior to the PISA test was associated with a 27-score point decrease in reading. Students are less likely to skip school when they have a positive disciplinary climate in the classroom, receive more emotional support from parents, have a stronger sense of belonging at school, and value school more strongly.

Students in the Philippines reported the highest levels of bullying of all education systems, as well as a weak sense of belonging at school, both of which were negatively associated with performance. Despite students' claims, most principals felt that bullying had a minor or no effect on education outcomes, which may indicate the limited awareness of educators on the prevalence of bullying occurring in schools. Although bullying was generally prevalent across student characteristics, exposure to bullying was higher among boys, disadvantaged students and low-achieving students. A stronger sense of belonging at school was observed among students in advantaged schools, which tended to translate into higher reading scores, academic resilience, and avoiding having to repeat a grade.

Stronger emotional support from parents plays a protective role against underperformance among disadvantaged students, but not parental involvement at school. Parents' emotional support, which was more frequently observed among advantaged students and students in private independent schools, was positively related to academic performance and positive outcomes in students' well-being and attitudes towards school and learning. In contrast, although high levels of parental involvement at school were observed, particularly in disadvantaged schools and in public and private government-dependent schools, school-based parental involvement did not appear to have an influence on reading performance.

Impact of COVID-19 school closures on schooling and learning

The Philippines faced a learning crisis before the COVID-19 pandemic, which will make it even worse. According to the World Bank's Human Capital Index for 2017 (World Bank 2018), even though the expected years of schooling in the Philippines was 12.8 years, when it is adjusted for the quality of learning, the learning-adjusted years of schooling was only 8.4 years. With school closures for several months and a partial opening in subsequent months, students' learning opportunities are likely to decline, and disparities between students likely to increase. The damage will become even more severe as the deep global recession following the COVID-19 pandemic leads to an economic crisis, which will cause hardships among many disadvantaged families, and lead to children dropping out of school.

A simulation analysis of the impact of COVID-19 school closures on schooling and learning suggests that short-term learning losses caused by COVID-19 can lead to significant negative medium-term and long-term impacts on learning-adjusted years of schooling (LAYS) and its income effects, learning outcomes, and the basic proficiency level. The World Bank has developed a simulation tool to analyze the impact of the COVID-19 school closures on schooling and learning (Azevedo et al. 2020a). Learning losses would range widely depending on the various assumptions, but the general thrust of these assumptions is that the current student cohort from 4-17 years of age is likely to lose between 0.3 (optimistic scenario) and 0.8 (pessimistic scenario) of their learning-adjusted years of schooling (LAYS). Furthermore, the short-term shock could lead

to substantial economic losses in terms of annual earnings between \$182 and \$531 (in 2017 PPP), as well as losses in the present value of lifetime earnings of all students in school today at an aggregate level. The simulation results also suggest that learning will be lost significantly in terms of PISA scores and proficiency levels. For lower secondary students, this shock is likely to result in 14 and 17 score points for top and bottom 20 percent of ESCS, respectively. It is estimated that the share of lower secondary students below Level 2 could increase from 81 percent to up-to 87 percent.

How can the Philippines build stronger foundations for education success?

Given the unprecedented disruptions to education resulting from the COVID-19 pandemic, it is now more urgent than ever to establish the foundations for success, not only as an immediate response to COVID-19, but also as a long-term strategy to strengthen the education system. The first step is to cope successfully with the school closures and prepare for school reopening. This include protecting the health and safety of students and teachers, preventing dropouts, ensuring healthy school conditions, and using new techniques to promote rapid learning recovery in key areas once students are back in school. As school systems stabilize, countries can use the focus and innovativeness of the recovery period to ‘build back better’ to improve education outcomes for all.

Findings from PISA 2018 point to three key policy areas to strengthen the foundations for effective learning, they include: (i) creating safe and welcoming school climates; (ii) fostering the social and emotional skills of students and promoting academic resilience; and (iii) transforming the roles of teachers to support student learning.

Creating a safe and welcoming school climate

By promoting a school climate where students feel safe, welcomed and socially connected, educators can more effectively support learning for all students. Sustaining an environment of inclusion will be especially important in transitioning students back to the classroom once mandatory school closures brought by the COVID-19 crisis have been lifted. Key priority areas for policymaking include:

- **Building school management systems to assess school climates.** Systems must be in place for principals, teachers and students to assess their current school disciplinary climates, and for schools to use data from these measures to address their specific school needs.
- **Providing targeted professional development on classroom management.** Ongoing professional development should strengthen skills in managing classroom discipline. Teachers should be equipped with the proper tools and training to successfully implement learning interventions. Continuous teacher support can be delivered via school-based mentoring and coaching programs.
- **Creating comprehensive bullying prevention programs with key stakeholders.** Programs should teach students, teachers, staff and parents how to recognize early signs and different forms of bullying, respond appropriately to incidents, and access formal avenues of reporting.

- **Encouraging parental engagement through emotional support to children.** Educators must be well-equipped to foster family-school partnerships, which can serve to raise parental awareness on the benefits of emotional support on academic outcomes. Building strong family-school partnerships has become especially critical as students learn from home following school closures.
- **Regulating public school enrollments to better integrate students from different socioeconomic backgrounds, and diversify the composition of students in public and private schools.** Policy options include requiring private government-dependent schools to accept a certain percentage of students from lower socioeconomic groups. Financial assistance programs through public-private partnerships, e.g. the DepEd's current Education Service Contracting for Junior High School, can be further expanded to widen the school choice of students from disadvantaged backgrounds.

Fostering students' social and emotional skills and promoting academic resilience

Improving the education system means addressing the holistic development of students, including their well-being. That life satisfaction, meaning in life, and positive feelings are each associated with performance indicates the importance of well-being to learning. School policies and practices should support not just academic outcomes, but also emotional and psychological well-being. Strong socio-emotional skills such as self-control, stress resistance, curiosity, and persistence are key to not only enhancing their overall employability and earnings, but also coping with the difficulties arising from COVID-19. Policy options to address the holistic development of students include:

- **Promoting system-level integration of social and emotional learning into the curriculum.**
- **Enhancing academic support and inclusion.** Schools must be equipped with adequate human and material resources to provide additional academic support to low performers. Interventions should also consider non-academic factors that promote academic resilience, such as strengthening teachers' abilities to foster positive classroom disciplinary climates and fostering a growth mindset among students.

Transforming the roles of teachers and school leaders to support student learning

Teacher certification through the Licensure Examination for Teachers (LET) appears to make very little difference in student's learning outcomes. The current screening mechanisms for teachers should be reviewed and strengthened to ensure their validity as benchmarks of teacher quality, including:

- **Reviewing and strengthening teacher screening mechanisms.** This could include strengthening enrollment requirements and providing merit-based scholarships for students entering pre-service teacher training institutions. It could also involve reviewing LET test components to ensure their validity and reliability to measure what teachers should know and be able to do, as well as the possible introduction of a mandatory probationary period to evaluate whether the competencies of teaching candidates are suitable for the job.

- **Strengthening the career advancement system to raise the quality of teachers and school leaders.** Scholarships and other financial aid mechanisms, attractive working conditions in schools, and continuous and fair opportunities for career advancement should be considered in order to encourage the most qualified individuals to pursue careers in teaching and school management.

The roles of teachers and school leaders are to respond to individual student needs. Teaching is a profession that requires not only subject knowledge, but also socio-emotional competencies and classroom management skills. As education delivery modalities include remote learning, teachers will also need to have foundational digital literacy, and be able to personalize instruction and support differential learning levels and paths, and foster students' socio-emotional development along with academic skills. The role of school leaders will need to evolve from focusing on administrative duties to fostering an innovative school culture, targeting specific challenges in student learning, and leading and inspiring teachers and parents. Key policy areas for enhancing teacher and school leader quality include:

- **Providing continuous professional development on a wide range of skills and supportive environments, including social and emotional skills training and intervention programs.** Ongoing professional development should promote positive student-teacher relationships, sensitivity to students' needs and emotions, and the clear communication of rules and expectations. This is particularly important today as the shift to multi-modality remote learning requires teachers and school leaders to urgently acquire new skills.
- **Improving the working environment to sustain teacher enthusiasm.** This will entail improving the contexts in which teachers operate, giving teachers channels to raise any concerns they may have, and providing training on effective school management to school principals.

Three policy areas need to be considered to turn the COVID-19 crisis into an opportunity to address systemic education issues in the country; these policy areas can be grouped in three overlapping phases, namely: coping; managing continuity; and improving and accelerating learning (World Bank 2020b), as summarized in Table 1.

Table 1. Policy responses to COVID-19 and long-term education reforms

	Phase 1: Coping	Phase 2: Managing Continuity	Phase 3: Improving and Accelerating Learning
	<i>Adapting and responding to the COVID-19 crisis</i>	<i>Creating climates of safety and inclusion in all schools</i>	<i>Addressing systemic issues in Philippine education</i>
Key challenges	<ul style="list-style-type: none"> • Teachers and students do not have skills and devices to adopt distance learning. • Access to digital learning resources is inequitable. • Students, parents, and teachers are concerned about their safety. 	<ul style="list-style-type: none"> • Students' sense of belonging at school is particularly weak among boys and disadvantaged students. • A poor disciplinary climate is associated with poor student learning. • Students' exposure to bullying in the Philippines is higher than in most other countries. 	<ul style="list-style-type: none"> • Over three-quarters of 15-year-old students do not meet the minimum proficiency level in reading, math, and science. Boys and socioeconomically disadvantaged students are more likely to underperform. • Teacher management and professional development ranging from pre-service training, licensing, recruitment, in-service training to performance evaluation, do not ensure a high quality of teaching.
Policy options	<ul style="list-style-type: none"> • Ensure continuity of learning for all students by exploring alternative and offline modes of remote learning. • Provide increased support to teachers to adapt to remote learning approaches and manage students' transition back to the classroom. • Encourage parental engagement through emotional support to children. 	<ul style="list-style-type: none"> • Build school management systems to assess school climates. • Provide continuous professional development on wide-ranging skills and supportive environments, including socio-emotional skills and classroom management. • Create comprehensive bullying prevention programs with key stakeholders. • Foster social and emotional skills for both learners and educators. 	<ul style="list-style-type: none"> • Promote system-level integration of social and emotional learning into the curriculum. • Review and strengthen teacher screening mechanisms. • Strengthen the career advancement system to raise the quality of teachers and school leaders. • Enhance academic support and inclusion. • Improve working environment to sustain teacher enthusiasm. • Regulate public school enrollments to better integrate students from different backgrounds.

Source: Authors.

INTRODUCTION: Programme for International Student Assessment 2018

Overview of PISA

PISA measures not only what students know in subject areas, but also their ability to apply skills and knowledge to meet real-life challenges. Created by the Organisation for Economic Co-operation and Development (OECD), the Programme for International Student Assessment (PISA) measures skills and knowledge of 15-year-old students¹ in reading, mathematics and science. Since the first PISA cycle in 2000, PISA has engaged more than 90 countries and economies, and about three million students around the world. Carried out every three years, results from the PISA offer insights on the quality and equity of learning outcomes, and allow educators and policymakers to examine trends in performance against international benchmarks, and develop effective policies and practice to improve their education systems.

In each PISA cycle, one core subject is tested in detail. Reading was the main subject assessed in 2018, as it was in 2000 and 2009. Mathematics was the major domain in 2003 and 2012, while science was the main subject in 2006 and 2012. This alternating schedule allows an in-depth analysis of each core subject every nine years, and an analysis of trends every three years. One innovative domain is also developed for each new round of PISA to assess other important skills, such as global competence (PISA 2018), collaborative problem-solving (PISA 2015), and creative problem-solving (PISA 2012).

In addition to measuring academic performance, PISA also collects contextual information on students and schools. PISA data allows the linking of learning outcomes with information on students' family backgrounds and attitudes towards learning. Information on school life, including human and material resources, the context of instruction, and teacher professional development, are likewise collected and can be used to shed light on public policy issues.

Key features of PISA 2018

In 2018, 79 countries and economies participated in PISA, which focused on reading. In the 2018 cycle, math and science were minor areas of assessment, along with global competence as the innovative domain. PISA 2018 also included an optional assessment of young people's financial literacy. About 600,000 students completed the assessment in 2018, representing about 32 million 15-year-olds enrolled in schools of participating countries and economies.

Computer-based assessments were used in most countries, allowing a multi-stage adaptive approach. The reading assessment adopted a multi-stage adaptive approach, such that students were assigned a block of test items of either greater or lesser difficulty, depending on their performance in preceding blocks. Students spent an hour on the reading assessment and an hour on one or two other subjects (i.e. math, science, or global competence). Test items were a combination of multiple-choice questions and open-ended questions requiring students to construct their own response.

¹ At the time of assessment, PISA students are aged between 15 years 3 months and 16 years 2 months, and have completed at least six years of formal schooling.

PISA test scores fall along specific scales developed for each subject area. These scales are divided into proficiency levels representing the range of difficulty of tasks, beginning at Level 1 with questions that require the simplest tasks to complete, and increasing in difficulty with each level up to Level 6 (see Annex 1 for a description of these levels). Thus, estimates of a student’s proficiency are based on the kinds of tasks he or she is expected to perform successfully.

PISA also administers mandatory questionnaires to students and school principals, and optional ones to students, teachers and parents. In PISA 2018, students answered a background questionnaire on their attitudes, homes, and school and learning experience. School principals completed a questionnaire on their schools, e.g. the availability of human and material resources, school management, and the learning environment. In addition, five optional questionnaires were offered: (a) computer familiarity questionnaire; (b) well-being questionnaire; (c) educational career questionnaire; (d) parent questionnaire; and (e) teacher questionnaire.² Scale indices were derived from these questionnaires to summarize responses from students, parents, teachers, and principals to a series of related questions. These indices were standardized across all participating OECD countries with a mean of zero and a standardized deviation of one.

Framework for the current report

This report uses the educational prosperity model developed by Willms (2018) as an overarching analytical framework. The same framework has been adapted by PISA for Development, an OECD PISA assessment that focuses on making PISA more accessible and relevant to low- to middle-income countries (OECD 2018b).

The educational prosperity framework is based on a life-course approach, with key outcomes for each stage of development from conception to adolescence. Each stage includes a core set of outcomes called ‘prosperity outcomes’, and a set of family, institutional and community factors, called ‘foundations for success’, that drive these outcomes. In the context of PISA, the relevant stage in the educational prosperity framework corresponds to the late primary and lower secondary stage (ages 10 to 15). The four prosperity outcomes that will be referred to in this analysis are: educational attainment; academic achievement; student well-being; and attitudes towards school and learning. Five foundations for success are likewise recognized and include: material resources; quality instruction; learning time; inclusive environments; and family support (Willms, 2018).

Applied to the Philippine context, this report looks at the following four education outcomes. Educational attainment examines the proportion of 15-year-olds in the Philippines covered by PISA 2018 and their distribution across grade levels, which will give an indication of how many of them are currently enrolled in school and any issues they may be facing attaining educational outcomes. Academic achievement examines performance in the three core subjects of PISA, as well as equity in student performance across gender, socioeconomic status, community type and demographic subgroups. Student well-being examines students’ life satisfaction, positive feelings and meaning in life. Lastly, attitudes towards school and learning describe students’ learning goals, motivations, expectations and mindsets.

² The Philippines only participated in the student and school principal questionnaires, but not in any of the optional questionnaires in 2018.

The four outcomes are examined in relation to the five foundations for success. Resources include financial, human and digital learning resources invested in education. Quality instruction looks at specific teacher factors that make a difference in learning. Learning time examines whether teacher absenteeism is perceived to hinder student learning and how often student absenteeism occurs. Inclusive environments focus on the feelings of belonging and safety in school as reported by students. Lastly, family support looks at parents’ emotional support, as reported by students, and parental involvement at school, as reported by principals.

Structure of the report

This report is organized according to the educational prosperity framework. Based on the findings from PISA 2018, this report is structured as follows:

- Chapter 1 discusses educational attainment and student achievement outcomes at age 15 in the Philippines, and addresses equity issues as they relate to student performance among demographic subgroups, including gender, socioeconomic status and language.
- Chapter 2 discusses the remaining two outcomes for students’ emotional well-being—life satisfaction and positive feelings—and attitudes towards school and learning, e.g. learning goals and educational expectations.
- Chapter 3 examines which key aspects of the five foundations for success which are the most beneficial to the four outcomes, and the extent to which these are present in the country and among various demographic subgroups.
- Chapter 4 summarizes the findings from PISA 2018 and relates these to policy options for establishing foundations for success and improving education outcomes in the Philippines, with attention to current pressing issues in education.
- Annex 1 presents the summary descriptions of proficiency levels in reading, math, and science in PISA 2018.
- Annex 2 presents one of the two reading test units that had been developed and used for the PISA 2018 field trial.
- Annex 3 provides additional findings on reading-related outcomes, including attitudes towards reading, motivation to read, and reading strategies, as reported by students.
- Annex 4 summarizes additional findings on school governance and policies, such as the utilization of assessment and achievement data, quality assurance, and provision of study help in schools, as reported by principals.
- Annex 5 presents the parameter settings for simulating the potential impacts of COVID-19 school closures on schooling and learning outcomes.

CHAPTER 1: Attainment and achievement outcomes at age 15 in the Philippines

This chapter examines what the PISA results reveal about educational attainment and student achievement outcomes in the Philippines. Issues in attainment, such as grade repetition and late entry to schooling, are discussed. Performance in reading, math, and science is examined in terms of mean performance and proficiency levels, and makes a comparison with other countries. Lastly, equity in outcomes is discussed by examining variations across demographic subgroups.

1.1. The Philippines' participation in PISA 2018

The Philippines took part in PISA for the first time in 2018, marking its return to participation in international large-scale assessments.³ In 2013, the country embarked on a comprehensive set of reforms under Republic Act No. 10533, known as the Enhanced Basic Education Act of 2013 and commonly referred to as the 'K to 12 program'. In support of this program and to address the target on quality education in Sustainable Development Goal (SDG) 4, the Philippine Department of Education (DepEd) has concentrated its efforts on not just widening access to education but also improving the quality of education. With increasing emphasis placed on education quality, the DepEd has implemented efforts to strengthen system assessment through national and international large-scale assessments.⁴

Why the Philippines participated in PISA 2018

The Philippines aims to improve student performance through international benchmarking and achievement data. In an official statement, the DepEd Secretary outlined reasons for the country's decision to participate in PISA (DepEd, 2019b). One of the main reasons the Philippines participated in PISA was to understand how the country's students perform in relation to international benchmarks, and to improve the Philippine's basic education in alignment with the global education standards. PISA presents added value to current education reforms and interventions, as a result of the wealth of information it collects. Aside from internationally comparable data on student performance, PISA also provides additional non-cognitive and contextual data beyond what is captured in the national assessment. Such data can provide valuable insights into the key factors influencing student learning outcomes.

Test administration in the Philippines

A two-stage stratified random sampling design was used to select sample schools and students. The first stage randomly selected 188 schools from 17 administrative regions.⁵ Schools

³ Along with participating in PISA 2018, the Philippines also took part in the Trends in International Mathematics and Science Study (TIMSS) in 2019, following a 16-year break since TIMSS 2003.

⁴ More information on system assessment in the 'K to 12' program is found in the "Policy Guidelines on the System Assessment in the K to 12 Basic Education Program" (DepEd Order No. 29, s. 2017).

⁵ The 17 administrative regions include Negros Island Region (NIR), an administrative region created in 2015. The NIR consisted of two provinces, Negros Occidental and Negros Oriental. It was dissolved in 2017, reverting Negros Occidental to Region 6 and Negros Oriental to Region 17. PISA 2018 excludes the autonomous region of Muslim

were sampled systematically with probabilities proportional to the estimated size of their PISA-eligible population, i.e. 15-year-olds enrolled in school. In total, 95 percent of Philippines' students were represented in PISA 2018. Schools excluded from the sampling frame included: schools situated in hinterlands, islets and coastal areas; exclusive schools for students with educational needs; and schools in an administrative region with political instability. One school was excluded from the final sample as it did not have any PISA-eligible students. The second stage sampled 42 students from each sampled school (DepEd 2019a).

The computer-based version of the PISA test was administered in English in the Philippines. PISA 2018 technical standards required participating countries to use their language of instruction as the language of testing. Even though Filipino is often used in classrooms along with English, students did not have an option to take the test in Filipino as it is not an official language of instruction after Grade 4. PISA was administered.

1.2. Enrollment and attainment at age 15

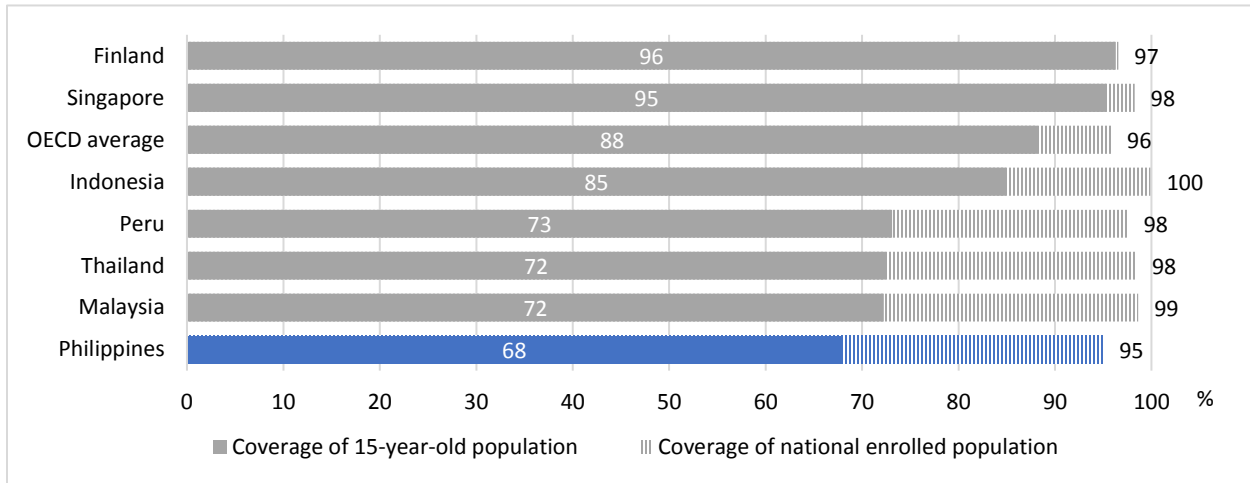
PISA only reflects results for 15-year-olds enrolled in school. To be eligible for participation in PISA, test-takers must be currently enrolled in school, aged between 15 years 3 months and 16 years 2 months at the time of assessment, and have completed at least six years of formal schooling. Students participating in PISA in the Philippines were born in 2002, and enrolled in secondary schools in the 2017-18 school year.

Proportion of 15-year-olds in the Philippines represented in PISA 2018

The low share of 15-year-olds represented in PISA reflects a large proportion of school leavers and out-of-school youth in the country. Figure 1 shows the coverage of the 15-year-old population in the Philippines, in comparison with that of other PISA-participating countries and economies and the OECD average. The proportion of the 15-year-old population represented in the PISA sample (68 percent) is considerably lower than that of the OECD average (88 percent), and is the lowest proportion among Southeast Asian countries. This low participation rate is due to high dropout rates, beginning at the elementary level. From 2010 to 2014, overall dropout rates at the elementary level stood at between 3 to 6 percent. Transition rates from elementary to secondary school have not fallen below 95 percent since 2011. In the 2017-18 school year, the dropout rate at the junior secondary level (Grades 7-10) was 5 percent, with the dropout rate of boys (7 percent) almost twice that of girls (4 percent). From 2015 to 2017, during which PISA students were most likely to have been in junior high school, overall dropout rates ranged between 5 to 7 percent, with higher dropout rates observed among boys. The Philippine Statistics Authority's (PSA) Annual Poverty Indicators Survey (APIS) indicates that about 4 percent of 15-year-old girls were not in school, as compared to 16 percent of 15-year-old boys (PSA 2018).

Mindanao (now known as the Bangsamoro Autonomous Region in Muslim Mindanao) due to security issues at the time of testing.

Figure 1. Coverage of the 15-year-old population in the Philippines and comparator countries



Source: OECD PISA 2018 database.

The government has implemented efforts to increase access to education, but relatively low secondary enrollments persist. Recent programs to increase access to education include the introduction of voucher programs, and the expansion of conditional cash transfer programs to cover children between 15- and 18-years-old. While these efforts have contributed to a steady upward trend in secondary-level enrollment rates (net enrollment rates stood at 81 percent for junior secondary and 51 percent for senior secondary in 2018),⁶ the Philippines continues to face a persistent problem with school leavers, out-of-school children and grade-age mismatch.

Distribution of PISA students across grades

In the Philippines, about 17 percent of 15-year-old students were behind track. The minimum cut-off age to enter Grade 1 in June—the beginning of school year in the Philippines—is 6 years-old, implies that 15-years-old students are on track when they are in Grades 9 or 10. A large proportion of students at these grades indicates efficiency in the basic education system, as it suggests that more students are in school, that they are not falling behind, or are not repeating grades. In the Philippines, about half of PISA students (51 percent) were in Grade 9, while a sizeable portion (31 percent) were in Grade 10. Table 2 summarizes the PISA student sample in the Philippines by grade, gender, community type and school ownership type.

⁶ PSA (2019).

Table 2. PISA student sample in the Philippines

Student characteristics		Unweighted number of students	Weighted number of students ⁷	Percentage of students
Grade				
Junior high school	Grade 7	316	63,716	4.5
	Grade 8	913	179,600	12.8
	Grade 9	3,693	715,085	51.1
	Grade 10	2,278	432,588	30.9
Senior high school	Grade 11	30	8,973	0.6
	Grade 12	3	622	0.0
Gender				
Male		3,365	742,873	47.0
Female		3,868	657,711	53.0
School community type*				
Urban		3,218	641,682	45.8
Rural		4,015	758,902	54.2
School ownership**				
Private independent		537	120,551	8.6
Private government-dependent		628	127,355	9.1
Public		6,068	1,152,678	82.3

Source: OECD PISA 2018 database.

Notes: *School community type is categorized as urban if the school is in a city with more than 100,000 people.

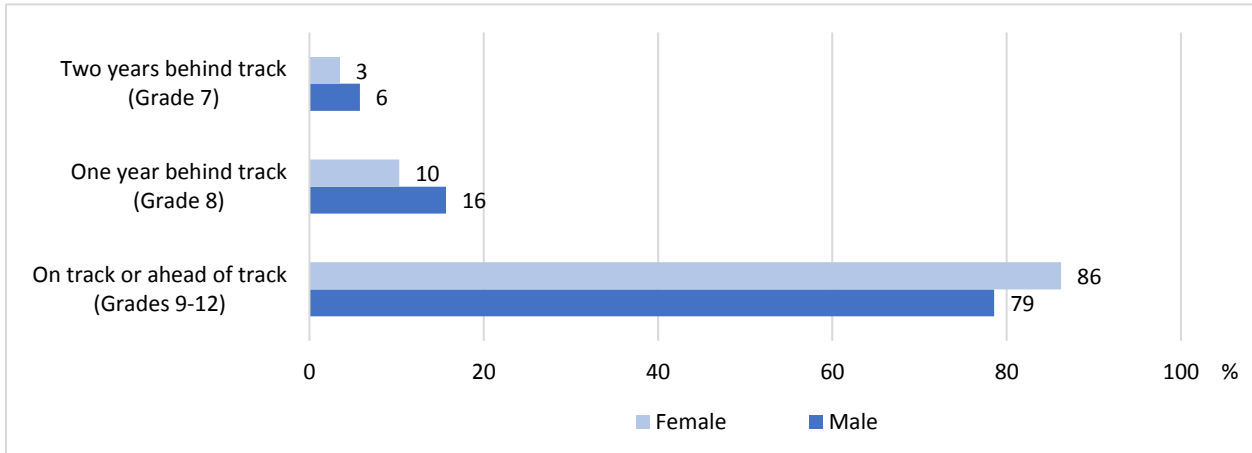
** School ownership is categorized as private independent if the school receives less than 50 percent of core funding from government agencies, and private government-dependent if the school receives funding of more than 50 percent.

When examined by school ownership type, most junior high school students (83 percent) were enrolled in public schools, while most senior high school students (80 percent) were in private independent schools. About 8 percent of junior high school students were found in private independent schools, and about 9 percent in private government-dependent schools. Among senior high school students, 18 percent were in public schools, while only 2 percent were in private government-dependent schools.

A higher rate of grade-age mismatch among male students indicates that school dropout and late entry, as well as grade repetition, are particularly critical issues among boys in the Philippines. Figure 2, which presents the distribution across grade by gender, shows that more girls tend to be on, or ahead, of track than boys. This difference is due to the larger proportion of 15-year-old boys that fall behind the right grade for their age. About 21 percent of boys, as compared to 14 percent of girls, are one or two years behind track.

⁷ Sampling weights control the proportional contribution of each participating unit to the overall population estimate. Students selected to participate in PISA received sampling weights to ensure that each participating student appropriately represents the correct number of students in the full PISA population. Further details on survey weighting are found in the PISA 2018 Technical Report: <http://www.oecd.org/pisa/data/pisa2018technicalreport/>.

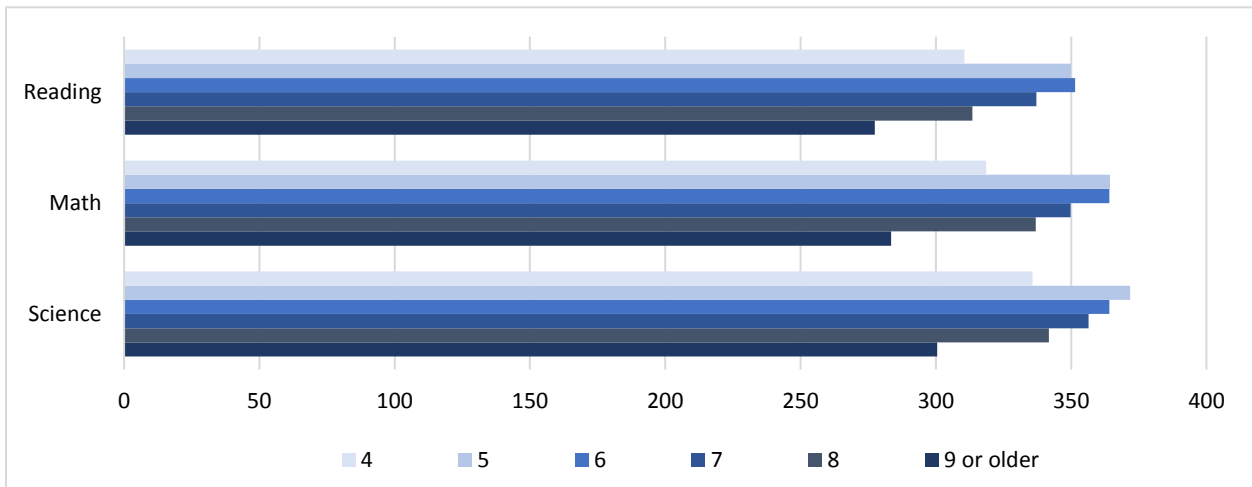
Figure 2. Educational attainment at age 15, by gender



Source: OECD PISA 2018 database.

Students entering primary school late tended to perform less well than those who entered at the right age. Late entry into primary school might explain why some students are behind track. Most 15-year-olds who were in Grades 7 or 8 when they sat for PISA entered the elementary level late at ages 7 or older. Figure 3 shows that, on average, these students also tended to perform less well than those who began elementary schooling at the age of 6. The later students entered elementary school, the more likely they were to score less on reading, math, and science, when compared students entering at the right age. This makes sense as those late starters have been in school for a shorter period, and hence, have had shorter learning hours.

Figure 3. Mean performance in reading, math, and science, by age of entry into elementary level



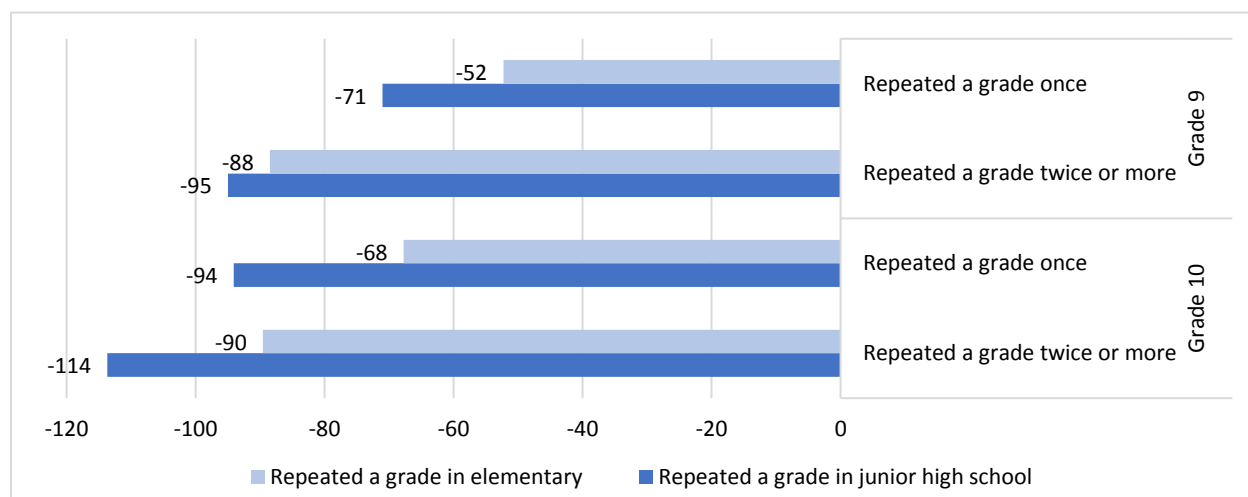
Source: OECD PISA 2018 database.

Repetition is prevalent, regardless of socio-economic status, although more so among students from disadvantaged backgrounds. About 21 percent of students in the Philippines reported having repeated a grade at least once in elementary or junior high school, a proportion nearly 11 percentage points higher than the OECD average. Students who repeated a grade at least once tended to come from a more disadvantaged background, scoring lower on PISA's economic,

social, and cultural status (ESCS) index.⁸ Within the bottom ESCS quartile, about 31 percent of students repeated a grade at least once. However, 12 percent of those in the top quartile also repeated. Repetition was also more prevalent among those attending schools in rural areas than in urban areas. Sixty percent of grade repeaters were students in schools located in rural communities.

Repeaters tended to perform worse than those who did not repeat. Students in Grades 9 and 10 who repeated a grade at least once tended to score lower than those peers who had not repeated a grade (Figure 4). Those who repeated a grade at least once at the elementary level scored at least 52 points less in reading than non-repeaters, while those who repeated a grade at least once in the junior high school level scored at least 71 points less in reading than non-repeaters. The largest difference in scores, a gap of over one standard deviation (114 score points), was observed among Grade 10 students who repeated a junior high school grade two or more times.

Figure 4. Difference in mean reading performance, by occurrence of repetition and grade level



Source: OECD PISA 2018 database.

Note: Bars represent the difference in average reading scores, relative to those who never repeated a grade.

While grade repetition, in theory, provides students with an opportunity to master the necessary skills and knowledge before moving on to more advanced lessons, it is often a costly practice and is associated with negative effects. With the spiral progression approach as a key feature of the Philippines’ ‘K to 12’ program, it is crucial that students gain proficiency at each stage, as concepts are built upon and deepened in succeeding grade levels. However, grade repetition can be a costly policy as it requires additional education expenditure, and delays students’ entry into the labor market (UNESCO UIS 2012). Studies have also noted the negative effects of grade repetition on student outcomes, e.g. academic achievement (e.g. Ikeda and Garcia 2014) and the likelihood of dropout (e.g. Jacob and Lefgren 2009; UNESCO UIS 2012).

Early detection and prevention, rather than grade repetition, are cost-effective policies that should be prioritized. Rather than retaining students who fail to reach learning standards, schools

⁸ In PISA, a student’s socioeconomic status is estimated by the PISA index of economic, social, and cultural status (ESCS), a composite measure that combines into a single score the financial, social, cultural and human capital resources available to students. A student’s ESCS is derived from three variables related to family background: parents’ highest level of education, parents’ occupational status, and home possessions (OECD 2019b).

can instead provide early support to struggling learners through interventions before these students fall too far behind. Preventive measures include: early detection of students at risk of failing a grade, and the provision of remedial programs and additional learning time for these students.

1.3. Student achievement in the Philippines

In PISA 2018, the Philippines scored lowest in reading and received the second lowest score in math and science. This section looks at the reading, math, and science achievement of students in the Philippines, in comparison with the OECD average, high-performing countries and neighboring regional countries. Peru is also included as a comparator, as it is a developing country that ranked at the bottom of PISA 2012, but that has since implemented education reforms in response to these results, and achieved significant improvements in mean performance across all three subjects (OECD 2019a) (see Box 1 for Peru’s four pillars for systemic change and reform areas).

Box 1. Peru’s systemic reforms after PISA 2012

In PISA 2012, Peru ranked last across all three PISA subjects. The majority of students in Peru failed to reach the basic proficiency levels in reading, math, and science. Peru’s experience of ‘PISA shock’—a term used when a country’s PISA results are alarmingly poor—signaled the need for systemic change in the country. Rather than prioritizing and isolating issues, Peru decided to undertake education reform through four pillars:

- *Teachers*: Raising the social value of the teaching career;
- *Learning*: Improving the quality of learning for all;
- *Management*: Ensuring effective management of the education system; and
- *Infrastructure*: Closing the education infrastructure gaps.

Peru also identified three critical factors to the success of education reforms:

- *Decent technical design*: Using international experience, running pilots, and readjusting the design;
- *Implementation capacity*: Engaging people with enough public management knowledge to implement programs; and
- *Political alignment*: Ensuring continuous support and raising awareness that education reform takes time and often involves working across different administrations.

With these four reform pillars and three key factors, Peru implemented a range of education reforms towards systemic change. These reforms included: (i) introducing meritocracy in the selection and promotion of teachers; (ii) implementing the full-day secondary school model to bring all schools to a single-shift system; and (iii) significantly increasing the education budget and improving spending efficiency. Following these system-wide reforms, Peru showed significant improvements in PISA 2015, achieving the fastest levels of improvement in Latin America, and the fourth-fastest improvement across all PISA-participating countries and economies. Between 2015 and 2018, the country saw significant increases in math scores but smaller gains in reading and science.

Source: Presentation by Jaime Saavedra in Manila in September 2017.

<https://www.youtube.com/watch?v=w9Oriu-UQfc&t=51s>

Nearly three-quarters of PISA students (72 percent) in the Philippines failed to reach basic proficiency levels in all three subjects, and very few reached the highest levels. Table 3 presents the shares of top-performing (i.e. those who reached Levels 5 or 6) and low-achieving

(i.e. those falling below Level 2) students in the Philippines, in comparison with the OECD average and selected countries. Only a very small proportion of students in the Philippines attained Levels 5 or 6 in at least one subject, while the country's proportion of low performers is significantly higher than that of the OECD average.

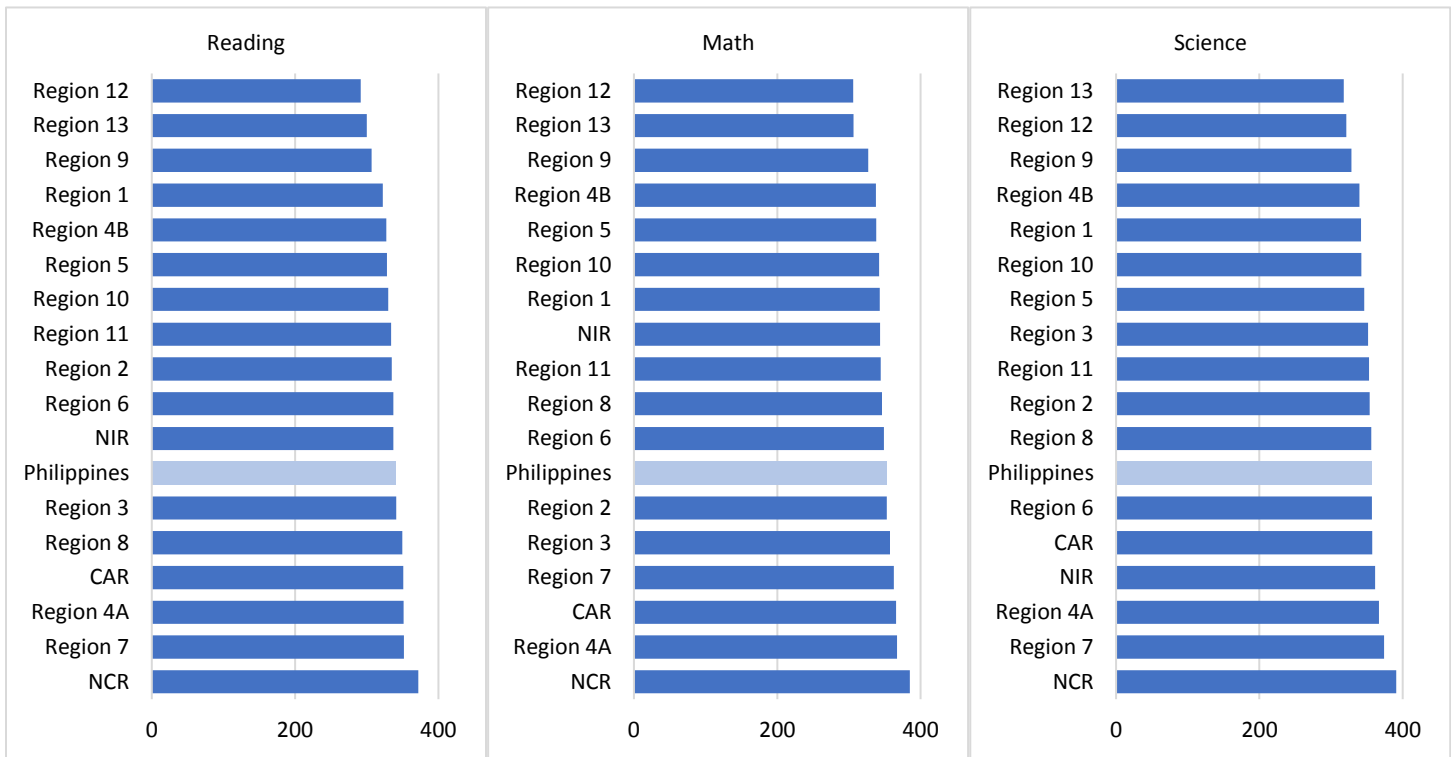
Table 3. Shares of top-performing and low-achieving students

	Mean score in PISA 2018			Top-performing and low-achieving students	
	Reading	Mathematics	Science	Share of top performers in at least one subject (Levels 5 or 6)	Share of low achievers in all three subjects (below Level 2)
	Mean	Mean	Mean	Percentage	Percentage
Singapore	549	569	551	43.3	4.1
Finland	520	507	522	21.0	7.0
OECD average	487	489	489	15.7	13.4
Malaysia	415	440	438	2.7	27.8
Peru	401	400	404	1.4	42.8
Thailand	393	419	426	2.7	34.6
Indonesia	371	379	396	0.6	51.7
Philippines	340	353	357	0.2	71.8

Source: OECD PISA 2018 database.

Within the Philippines, variations were also observed in reading, math, and science performance across regions (Figure 5). The average student performance in all three subjects in Regions 9, 12 and CARAGA were the lowest among all of the Philippine's 17 administrative regions, while students in National Capital Region (NCR), on average, scored highest. In Regions 12 and 13, about 93-95 percent of students failed to reach Level 2 proficiency in reading, math, and science.

Figure 5. Mean performance in reading, math, and science, by region



Source: OECD PISA 2018 database.

Notes: CAR – Cordillera Administrative Region; NIR – Negros Island Region; NCR – National Capital Region.

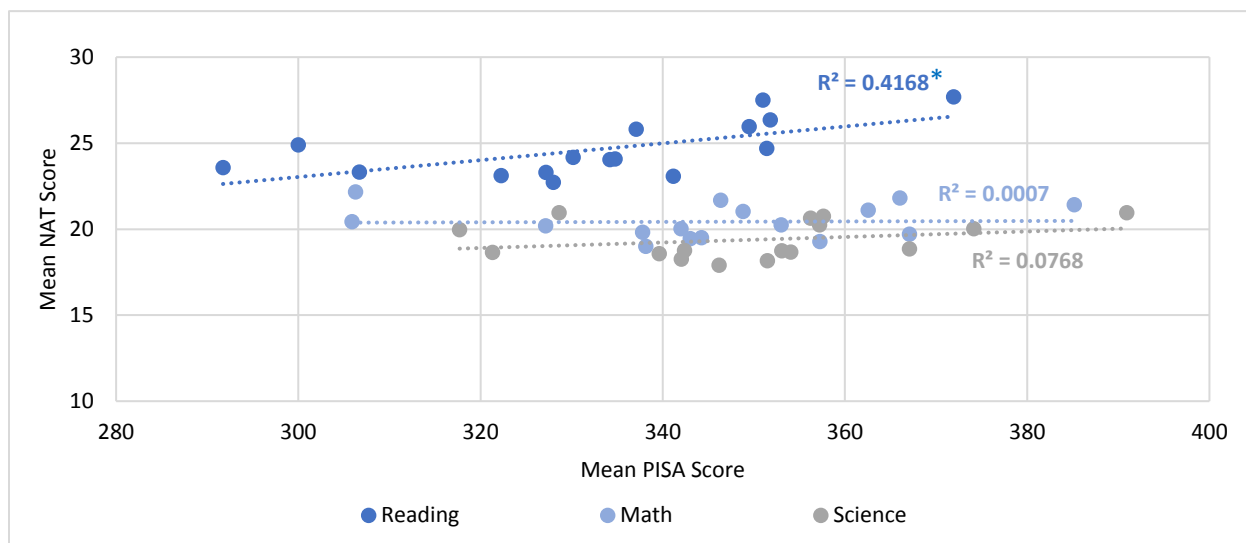
A significant positive correlation is observed between regional PISA reading scores and NAT English scores, but only weak correlations are found for math and science. About one-third of PISA students in the Philippines were enrolled in Grade 10, which is the same grade in which the DepEd’s National Achievement Test (NAT) is given. The NAT assesses achievement in English, Filipino, math, science and social studies. Student performance on the Grade 10 NAT has remained low, with mean percentage scores falling below 50 percent. A comparison between the average regional performance on PISA 2018 and Grade 10 NAT in 2017⁹ shows that PISA scores in math and science were only very weakly associated with NAT scores in the same subject areas. For math scores, in particular, almost no correlation was found. Figure 6 summarizes the relationships between the PISA 2018 and Grade 10 NAT scores by region for each of the subject areas.

No correlation between NAT and PISA outcomes may suggest a need for a thorough review of NAT to ensure its validity and reliability. It is important to note that while the PISA and NAT examine similar subject areas, they might not converge on the same constructs of student achievement. While there is no correlation between the two assessments, this does not necessarily mean that the NAT is not accurately assessing competencies according to the Grade 10 curriculum. However, to ensure the validity and reliability of the NAT, a review of what the NAT aims to

⁹ Furthermore, due to data availability, the datasets used differ in the year of administration, with the PISA administered in 2018 and the NAT in 2017. Additionally, because of the difference in timing of the two assessments, the Negros Island Region (NIR) is represented in the PISA sample, but not in the NAT.

measure and what it is actually measuring is needed in order to design effective interventions for specific subject areas.

Figure 6. PISA 2018 and Grade 10 NAT performance, by region



Source: OECD PISA 2018 database; DepEd Enhanced Basic Education Information System.

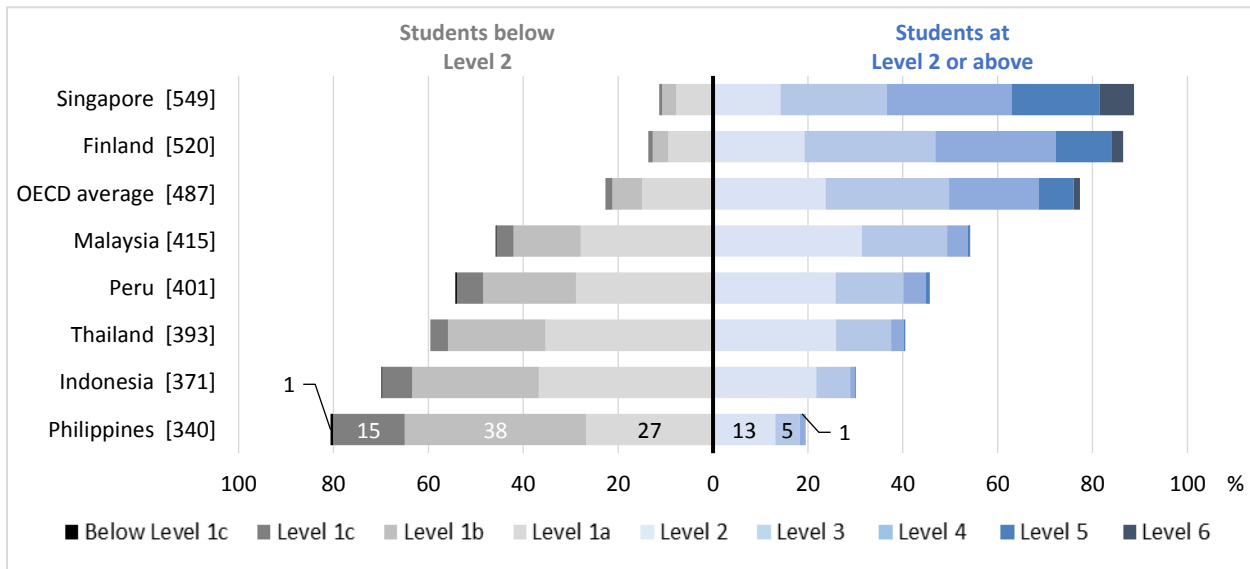
Note: *Correlation is significant at the 0.05 level.

The next subsections provide an in-depth discussion of the Philippines’ performance in PISA by subject area. For each PISA subject, student achievement in the Philippines is examined in terms of mean performance score, what it tells about student proficiency, and how this compares against other countries.

Reading performance

The overwhelming majority of students (81 percent) in the Philippines performed below the minimum proficiency level of Level 2—the largest share of low-performing students among all PISA-participating countries and economies. Error! Not a valid bookmark self-reference. shows the distribution of students across the eight levels of reading proficiency, in comparison with that of selected countries and the OECD average. In the Philippines, the average student performance in reading (340 score points) was significantly lower than the OECD average (487 score points). The mean reading score for the Philippines was two standard deviations lower than that of high-performing countries, e.g. Singapore (549 score points), and about one-third of a standard deviation lower than that of neighboring low-performing countries, e.g. Indonesia (371 score points).

Figure 7. Students' proficiency in reading



Source: OECD PISA 2018 database.

Note: Mean reading scores for each country are indicated within brackets [].

Low-performing students, i.e. those at Level 1a or below, often encounter difficulties when engaging with material that is unfamiliar to them, is of moderate length and complexity, or does not include explicit cues or instructions. In reading, 27 percent of students performed tasks at Level 1a; 38 percent at Level 1b; 15 percent at Level 1c; and 1 percent below Level 1c. At Level 1a, students can understand the literal meaning of sentences or short passages, retrieve one or more independent pieces of information within short texts, and can identify the main theme or author's intent in a familiar topic. At Level 1b, students can comprehend the literal meaning of simple sentences and engage with texts only with explicit cues and prompts. At Level 1c, students can comprehend the simplest tasks included in PISA, while those below Level 1c cannot (see Box 2 for sample test items for reading proficiency and Annex 2 for one of the two reading test units that was developed and used in the PISA 2018 field trial). While neighboring low-performing countries saw a small share of students (6 percent or less) at Level 1c, a considerable proportion of students in the Philippines were found at this level, with some students failing to display even Level 1c proficiency.

At the top end, only a very small share (less than 0.1 percent) of the country's students were high performers, or at Levels 5 or 6. In contrast, across OECD countries, an average of 9 percent of students were high performers. Proficiency at Levels 5 or 6 indicates students are able to perform more difficult tasks, such as dealing with abstract or counterintuitive concepts, comprehending lengthy texts, and generating inferences.

Box 2. What does it mean to be “below basic proficiency in reading”?

Definitions of reading and reading literacy have changed over time to reflect changes in society, economy, culture and technology. In PISA 2018, reading literacy is defined as “understanding, using, evaluating, reflecting on and engaging with texts in order to achieve one’s goals, to develop one’s knowledge and potential and to participate in society” (OECD 2018b, p. 28). Successful reading requires an individual to perform various cognitive processes that span a range of difficulty (OECD 2019d). Level 2 is defined as the basic proficiency level. In PISA 2018, only 19 percent of 15-year-old students in the Philippines achieved Level 2 or above in reading, compared to the OECD average of 75 percent. In real life, what does it mean to be “below basic proficiency in reading”? Sample test items below can give us a concrete sense of reading fluency (see Annex 2 for a reading test unit that was used for the field trial).

Reading fluency test

In the reading fluency test, students read simple sentences and are asked to click **YES** if the sentence makes sense, or **NO** if it does not. Students are first given examples, followed by dynamic practice, before taking the real test. Below are the actual questions used during the field trial.

If a student can correctly identify the following sentences as meaningful, then they are at Level 1c; if they are also able to correctly identify the following sentences as meaningless, then they are at Level 1b (i.e. slightly higher literacy score).

Examples. Students are shown example items and correct answers.

The red car had a flat tire.

YES	NO
YES	NO
YES	NO

Airplanes are made of dogs.

The student read the book last night.

Dynamic practice. Students complete three dynamic practice items prior to receiving the first fluency item.

Six birds flew over the trees.

YES	NO
YES	NO
YES	NO

The window sang the song loudly.

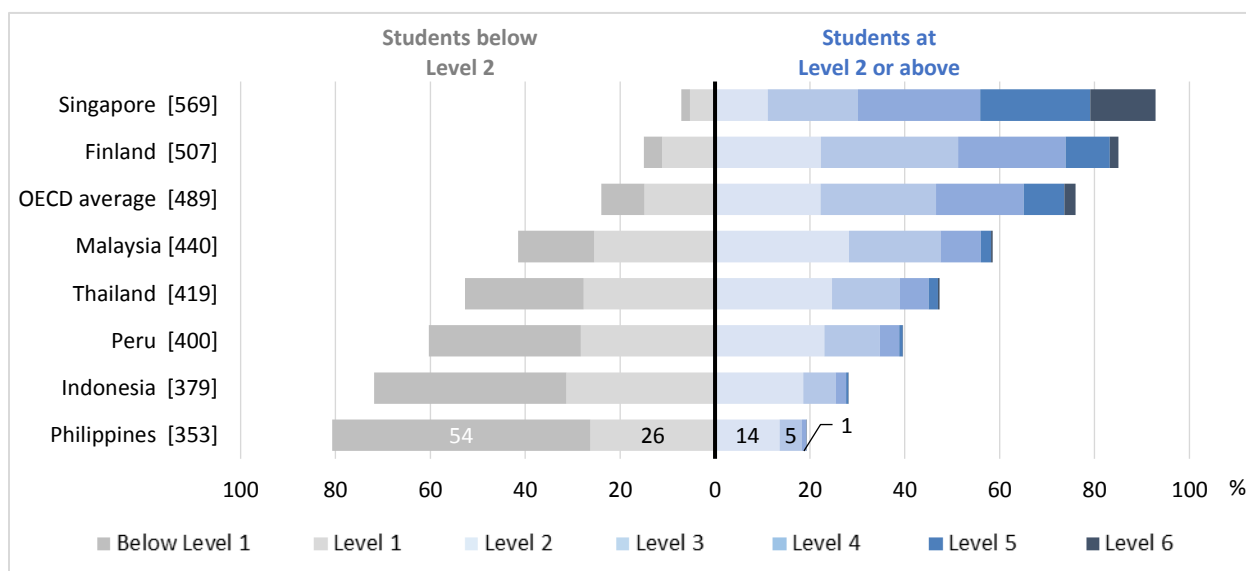
The man drove the car to the store.

Real test. Students have three minutes to read and respond to as many sentences like above as they can up to a maximum of 21 or 22 questions.

Math performance

On average, about 81 percent of students in the Philippines, as compared to 24 percent of students across OECD countries, failed to reach the minimum proficiency level in math (Error! Not a valid bookmark self-reference.). The share of students in the Philippines attaining minimum proficiency was twice as large in Peru, which has seen its math scores continuing to rise over each PISA cycle since 2009. In high-performing countries, e.g. Singapore, the vast majority of students (over 90 percent) achieved this benchmark. The Philippines’ mean student performance in math (353 score points) was significantly lower than that of the OECD average (489 score points), and over two standard deviations lower than that of Singapore (569 score points).

Figure 8. Students' proficiency in math



Source: OECD PISA 2018 database.

Note: Mean reading scores for each country are indicated within brackets [].

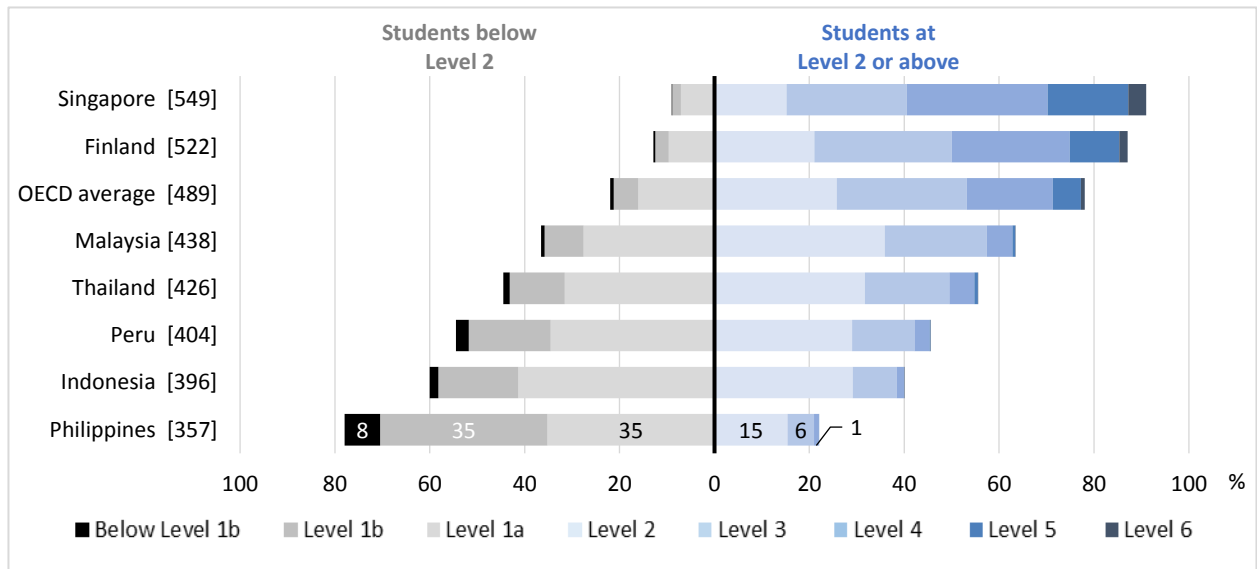
The Philippines is only one of three PISA-participating countries and economies where country-level mean math scores fell below Level 1 proficiency. A quarter of students in the Philippines (26 percent) scored at Level 1, while more than half (54 percent) scored below Level 1. At Level 1, students are only able to answer math questions when tasks involve familiar contexts, or when all relevant information is available, or when direct instructions are provided. Below Level 1, students are only able to perform direct and straightforward mathematical tasks, such as locating a single value from a chart or table with explicit labels.

Only a very small share (0.1 percent) of students in the Philippines were able to display Levels 5 or 6 proficiency in math. In comparison, this proportion of high performers was about 2-3 percent in neighboring countries, e.g. Malaysia and Thailand, and about 11 percent on average across OECD countries. Students reaching Levels 5 and 6 proficiency are able to select, compare and evaluate appropriate problem-solving strategies for dealing with complex situations.

Science performance

The Philippines' performance in science (357 score points) was the second lowest among all PISA-participating countries and economies. It was significantly lower than that of the OECD average (489 score points), and nearly two standard deviations lower than that of high-performing countries, e.g. Singapore (549 score points). The proportion of students below Level 2 in the Philippines (78 percent) was more than twice that of its neighboring country, Malaysia (37 percent).

Figure 9. Students' proficiency in science



Source: OECD PISA 2018 database.

Note: Mean reading scores for each country are indicated within brackets [].

The Philippines has the second largest share (78 percent) of students who failed to reach the minimum proficiency level in science among all PISA-participating countries and economies (Figure 9). More than a third (35 percent) of students in the Philippines reached Level 1a, another 35 percent reached Level 1b, and 8 percent failed to reach Level 1b. At Level 1a, students can only do simple tasks, such as undertaking structured scientific inquiries with no more than two variables, and identifying simple causal or correlational relationships. At Level 1b, students can identify simple data patterns, recognize basic scientific terms, and carry out scientific procedures when given explicit instructions. Below Level 1b, students are unlikely to be able to solve, other than by guessing, any of the PISA science tasks.

A very small share (0.1 percent) of students in the Philippines reached Level 5, and no students reached Level 6. This share of high-performing students is comparable to that of Indonesia. On average across OECD countries, about 7 percent of students were top performers in science. At this level, students can apply scientific ideas and concepts to a wide variety of contexts, including unfamiliar and complex ones.

1.4. Equity in education outcomes

In discussing equity in Philippines' education, this section examines variations in education outcomes and whether these are related to aspects of students' background. Performance will be examined across gender, socioeconomic status, school community type, and other demographic subgroups. As performance patterns are similar for each of the three domains, and that the math and science assessments included too few tasks to describe additional levels of proficiency among low achievers, the discussion on proficiency levels focus more on reading performance.

Gender

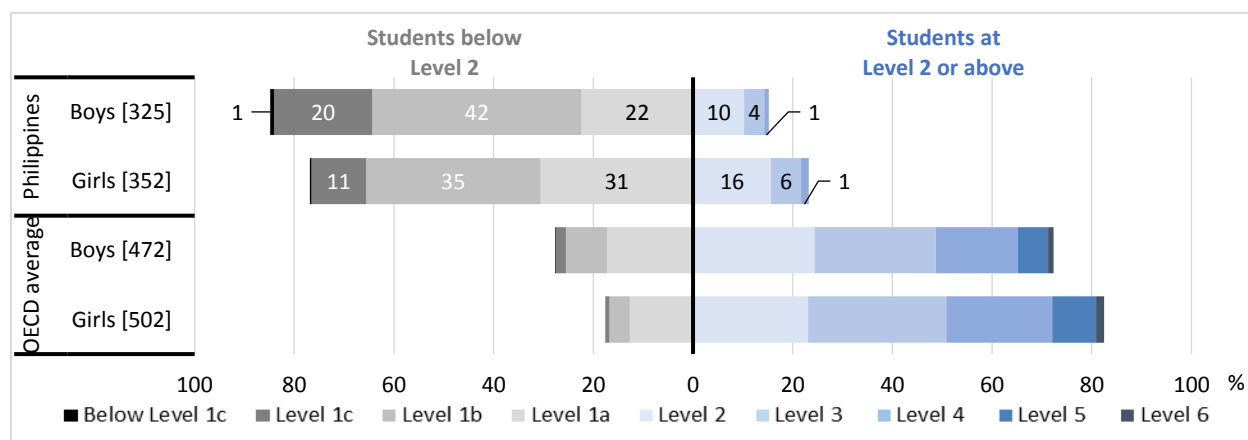
In the Philippines, the mean reading performance among girls (352 score points) was about 27 score points higher than that of boys. Across all PISA-participating countries and economies, girls significantly outperformed boys in reading. The gender gap observed in the Philippines was similar to that seen across OECD countries, where girls scored 30 points more, on average, than boys. Gender gaps in favor of girls were also observed in countries across the region, including high-performing countries, such as Singapore where the gap was significant at 23 score points.

The Philippines is one of only 14 PISA-participating countries and economies in which girls significantly outperformed boys in math. Across OECD countries, boys on average slightly outperformed girls in math by only five score points. In the Philippines, however, average math performance among girls (358 score points) was significantly higher than that of boys by 12 score points. The gender gap in math was larger than that seen in neighboring countries, such as Indonesia and Malaysia, but smaller than that observed in Thailand.

The gender gap in science performance was narrower than in reading and math. In the Philippines, the mean science score among girls (359 score points) was only three score points higher than that of boys. This narrow gender gap is similar to that observed across OECD countries, where girls outperformed boys in science by two score points, on average. In contrast, in neighboring countries, e.g. Indonesia, Malaysia and Thailand, the gender gap in favor of girls was significant: in Thailand, this gap was as large as 20 score points.

A larger proportion of girls than boys reached at least minimum proficiency levels in the three subjects. For both math and science, the share of boys reaching at least Level 2 proficiency was about 2 percentage points lower than that of girls. The widest gender gaps (8 percentage points) were observed in reading. As shown in Figure 10, the largest shares of boys (42 percent) and girls (35 percent) were found in Level 1b on the reading scale. In comparison, on average across the OECD, the largest share of girls was found in Level 3, while the largest share of boys was evenly split between Levels 2 and 3. In the Philippines, among low achievers in reading, the proportion of boys (20 percent) at Level 1c, or lower, was nearly twice that of girls (11 percent).

Figure 10. Students' proficiency in reading, by gender



Source: OECD PISA 2018 database.

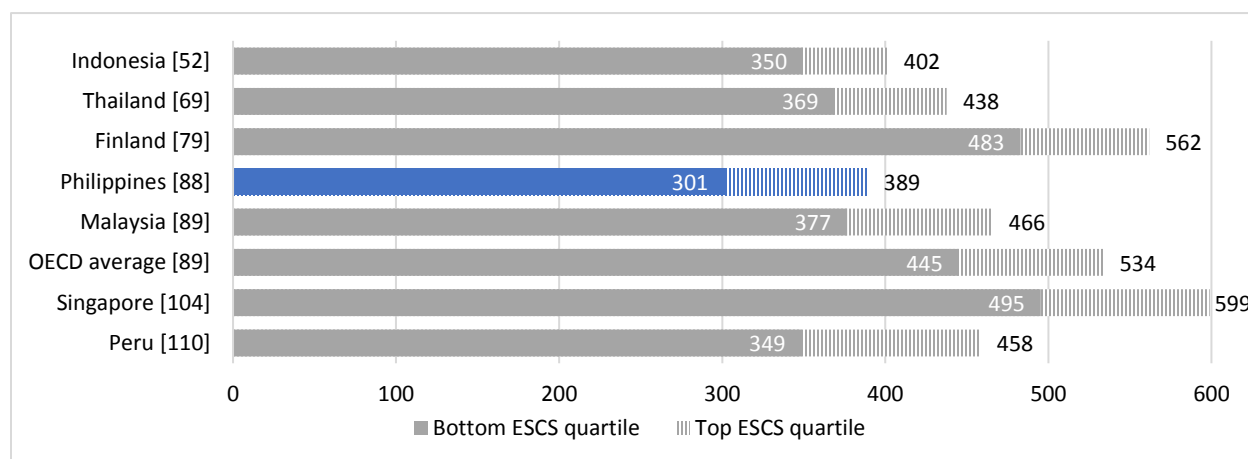
Note: Mean scores are indicated within brackets [].

Socioeconomic status

PISA estimates a student's socioeconomic status according to the economic, social and cultural status (ESCS) index. The ESCS index is a composite measure that combines into a single score the financial, social, cultural and human capital resources available to students. A student's ESCS is derived from three variables related to family background, i.e.: parents' highest level of education, parents' occupational status and home possessions. Students are considered socioeconomically disadvantaged if they find themselves in the bottom quartile of the ESCS index, and socioeconomically advantaged if they are within the top quartile (OECD 2019b).

In the Philippines, advantaged students significantly outperformed disadvantaged students by 88 score points in reading. This socioeconomic disparity is similar to the average across OECD countries (**Error! Not a valid bookmark self-reference.**). Comparing students at the bottom ESCS quartiles in their respective countries, disadvantaged students in the Philippines scored at least half a standard deviation less than their counterparts in neighboring countries. Furthermore, the Philippines' most advantaged students scored over half a standard deviation less than the least advantaged students, on average, across OECD countries.

Figure 11. Difference in mean reading scores between top and bottom ESCS quartiles

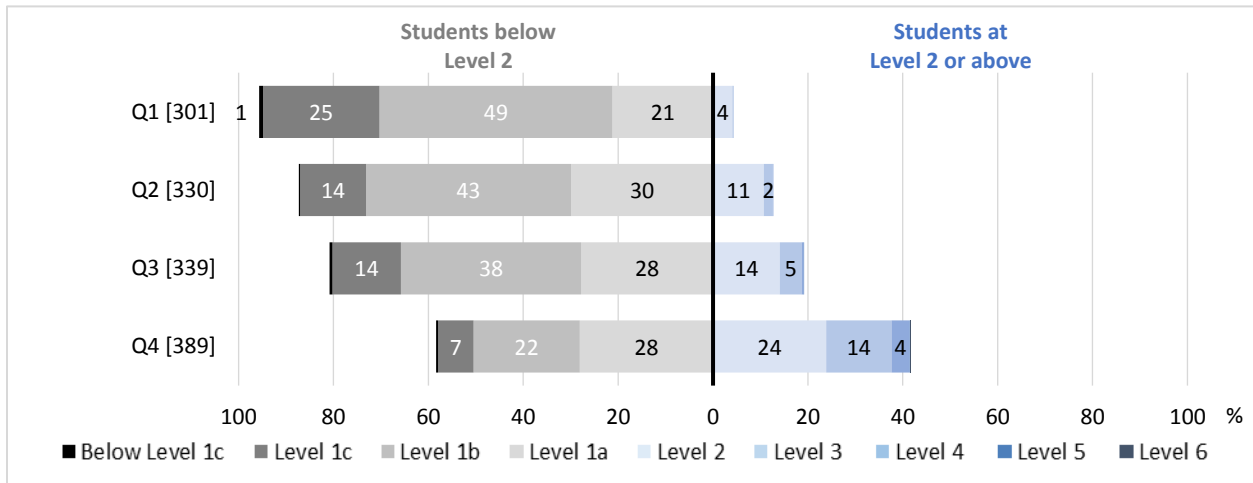


Source: OECD PISA 2018 database.

Note: Achievement gap between top and bottom ESCS quartiles in each country are indicated within brackets [].

Across the three subjects, the proportion of students failing to reach Level 2 proficiency increases as ESCS goes down. The vast majority (96 percent) of students in the bottom ESCS quartile scored below Level 2 in reading (Figure 12). This share of low-achieving disadvantaged students was the largest among all PISA-participating countries and economies. Within the bottom ESCS quartile, half of students (49 percent) could only perform at Level 1b, while a few students (1 percent) fell below Level 1c. While there was little difference between ESCS quartiles in the proportion of students who scored below Level 1c in reading fluency, only a quarter of students at the bottom quartile scored at Level 1a and Level 2, as opposed to half of students at the top quartile (Figure 13).

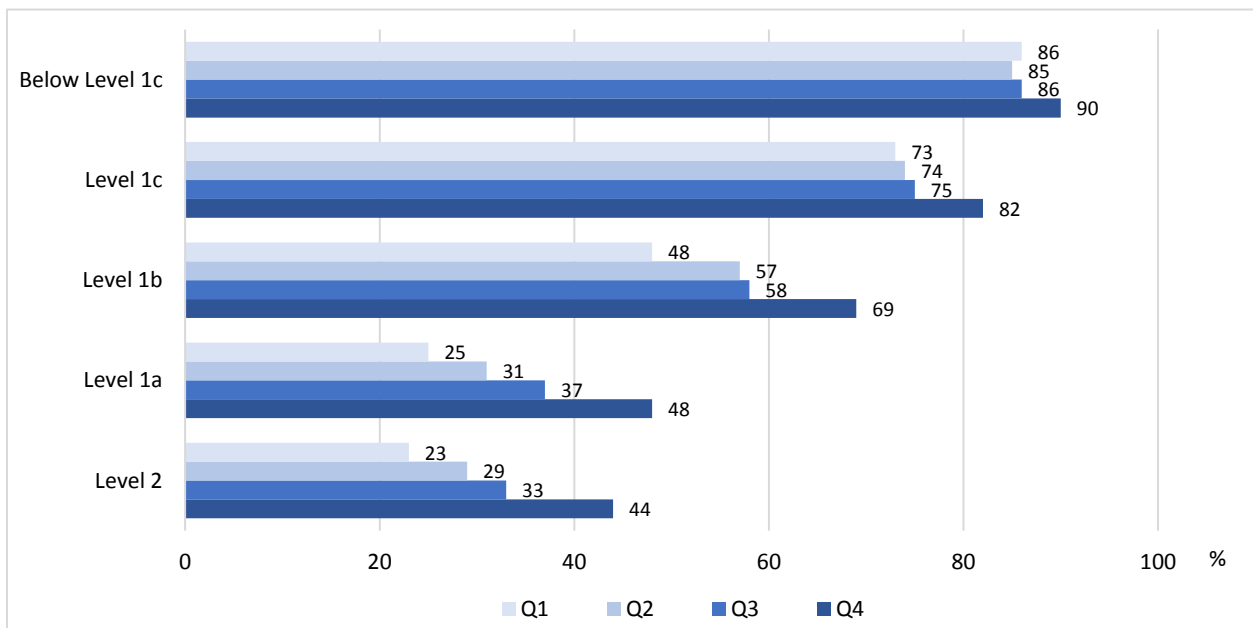
Figure 12. Students' proficiency in reading, by ESCS quartile



Source: OECD PISA 2018 database.

Note: Mean scores are indicated within brackets [].

Figure 13. Performance on reading proficiency items, by ESCS quartile



Source: OECD PISA 2018 database.

In the Philippines, the association between performance—particularly for science and reading—and socioeconomic status was one of the strongest among all PISA-participating countries and economies. Next to Peru, the Philippines showed the strongest association between student ESCS and reading performance. The strength of the relationship, equivalent to the percentage of variance in reading explained by ESCS, reveals how well socioeconomic status predicts performance. In the Philippines, students' ESCS predicted 14 percent of performance in science and 18 percent of performance in reading. Differently put, the most disadvantaged students (i.e. at the bottom ESCS quartile) were 7.2 times more likely than non-disadvantaged students (i.e.

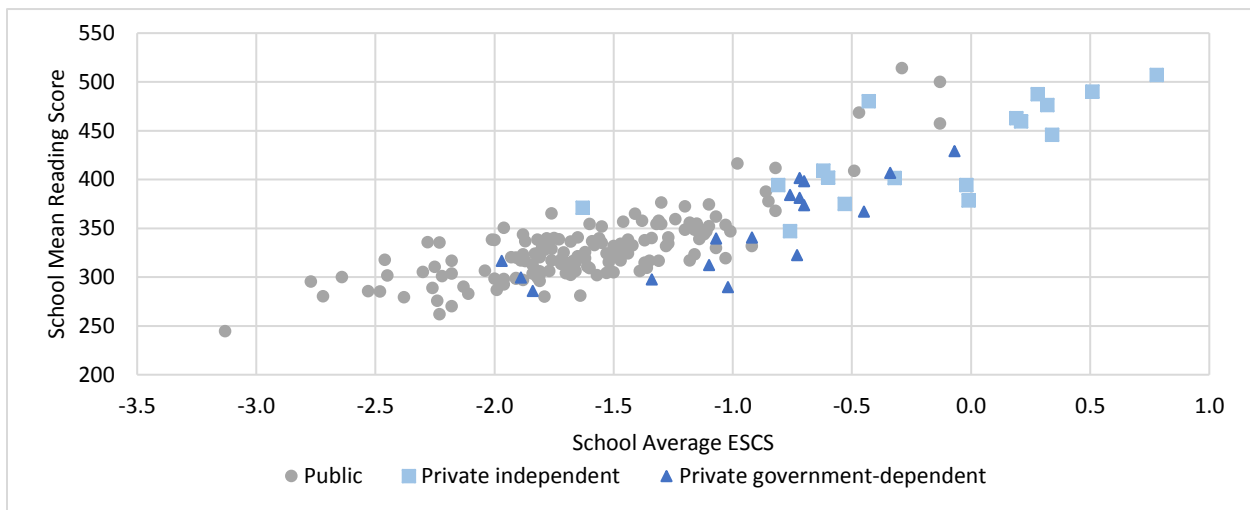
in the three other ESCS quartiles), and 15.8 times more likely than the top quintile students to fall below the minimum proficiency level in reading.

Social segregation

Disadvantaged students in the Philippines were more often concentrated in schools with only a small proportion of high achievers. With greater social segregation, disadvantaged students are more likely to be enrolled in schools with disproportionately higher concentrations of low achievers, which can then negatively affect their own performance (Lavy, Silva, and Weinhardt 2012; Burke and Sass 2013). The level of social segregation in the Philippines is higher than on average across OECD countries, with an isolation index value of 0.72, compared to the OECD average of 0.67. A typical disadvantaged student in the Philippines has about a one-in-seven chance of being enrolled in the same school as high-achieving peers.

At the school level, the average ESCS of students and mean reading scores were significantly positively correlated. The socioeconomic composition of a school may affect education outcomes through the availability of critical resources (see Chapter 3) and peer effects in performance. As can be seen in Figure 14, this relationship can be further examined by school ownership (i.e. public schools, private independent schools, private government-dependent schools). Public schools tended to have higher concentrations of disadvantaged students, and were more likely to have lower mean reading scores than private schools. In contrast, private independent schools tended to have larger proportions of advantaged students and better mean scores than both public and private government-dependent schools.

Figure 14. School average ESCS and mean reading score, by school ownership type



Source: OECD PISA 2018 database.

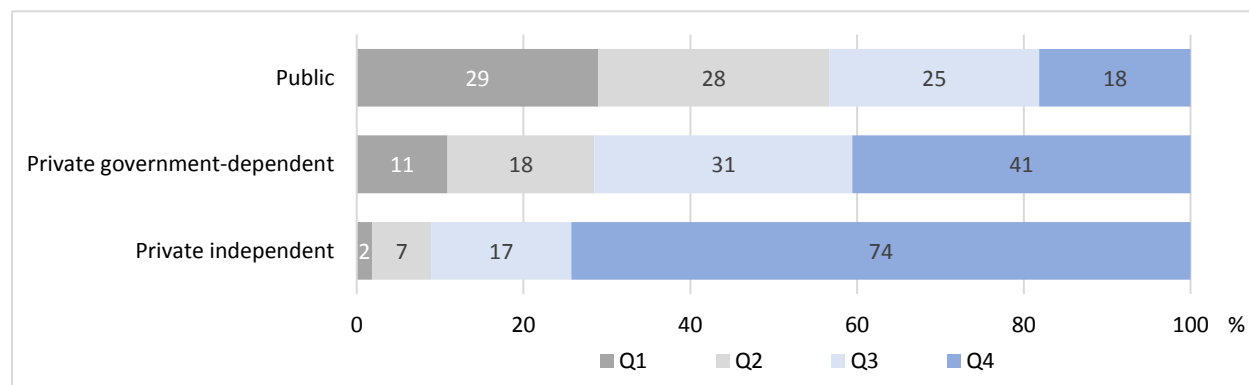
Notes: Private independent schools are those that receive less than 50 percent of core funding from government agencies. Private government-dependent schools are those that receive funding of more than 50 percent.

School ownership

Among the different school ownership types, public schools tended to have higher concentrations of socioeconomically disadvantaged students (Figure 15). In the Philippines,

private schools were more likely than public schools to consider a student’s academic record, including placement tests, as a basis for admission. In private independent schools, only 2 percent of students belonged to the bottom ESCS quartile, while nearly three-quarters (74 percent) belonged to the top quartile. In contrast, public schools were more likely than private schools to consider a student’s residence as a criterion for admission; residential segregation may, in turn, contribute to social segregation in schools. About 29 percent of students in public schools belonged to the bottom ESCS quartile, while about 18 percent belonged to the top ESCS quartile.

Figure 15. Distribution of students across school ownership types, by ESCS quartile

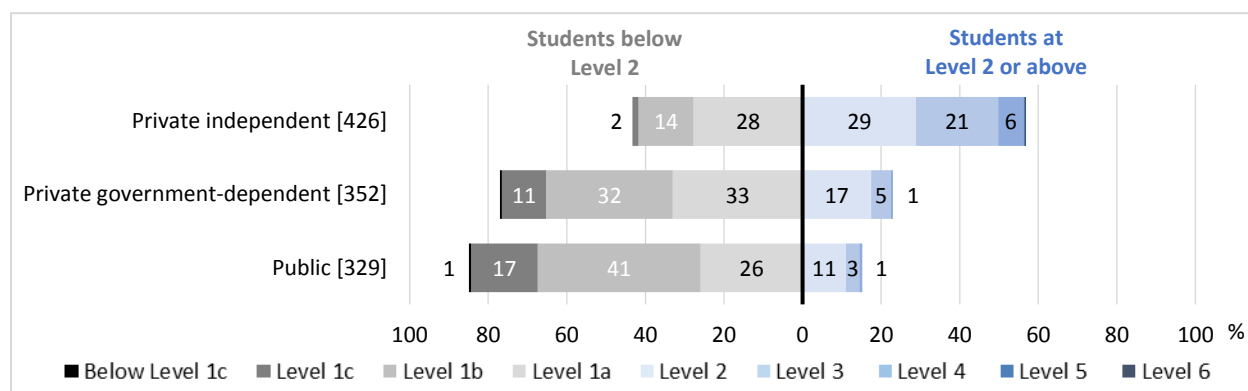


Source: OECD PISA 2018 database.

Students in private schools tended to score higher than those in public schools across all subjects, with the largest performance gaps found in reading. In reading, average student performance in public schools (329 score points) was about one-fifth of a standard deviation lower than that of private government-dependent schools (352 score points), and about one standard deviation lower than that of private independent schools (426 score points). Students in private independent schools scored significantly higher, on average, than their counterparts in both private government-dependent schools and public schools. Students in private government-dependent schools scored significantly better, on average, than public schools.

More than three-quarters of students in public and private-government dependent schools, as compared to less than half of students in private independent schools, failed to reach minimum proficiency levels. About 41-47 percent of students in private independent schools fell below the minimum proficiency level in each PISA subject. The proportion of low achievers was much larger in private government-dependent schools (75-80 percent) and public schools (82-85 percent). About 18 and 12 percent of students in public schools and private government-dependent schools, respectively, could only perform at Level 1c, or lower, in reading (Figure 16). In contrast, the share of these lowest-achieving students was less than 2 percent in private independent schools.

Figure 16. Students' proficiency in reading, by school ownership type



Source: OECD PISA 2018 database.

Notes: Mean scores are indicated within brackets [].

Private independent schools are those that receive less than 50 percent of core funding from government agencies. Private government-dependent schools are those that receive more than 50 percent of the same.

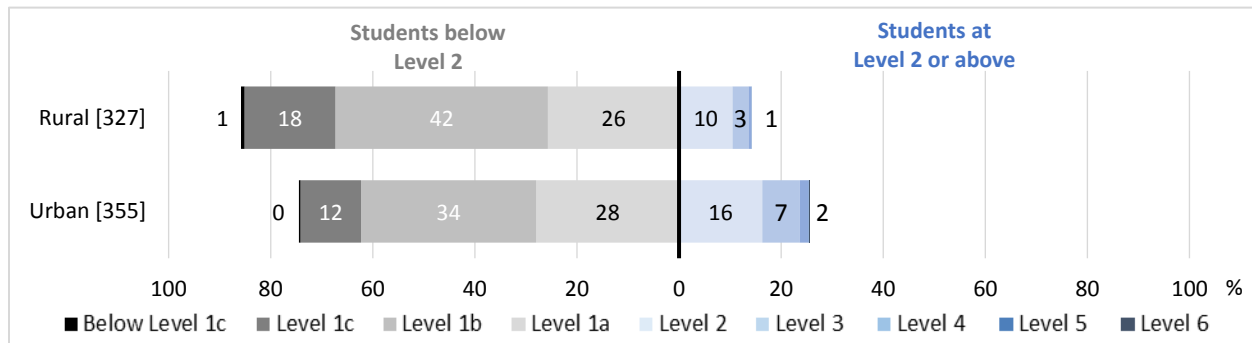
After controlling for socioeconomic status, achievement gaps remain wide between students in public schools and those in private independent schools, but the gap narrows between public schools and private dependent schools. After accounting for ESCS, the advantage of students in private government-dependent schools over those in public schools narrowed to only 6 score points in reading, 3 score points in math, and 1 score point in science. However, the performance gap remained large between students in private independent schools and those in public schools, with the former outperforming the latter by 60 score points in reading, 52 score points in math, and 54 score points in science.

School community type

Students in urban school communities outperformed those in rural school communities across all three PISA subjects. In reading, math, and science, students in rural school communities scored about one-fourth of a standard deviation lower (25-27 score points) than those in urban schools. After controlling for ESCS, the performance gap narrowed, but remained about 16-17 score points in favor of students in urban schools.

Across all three subjects, only about 14 percent of students in rural schools and 26 percent of students in urban schools attained at least Level 2 proficiency in reading. About 19 and 12 percent of students in rural school communities and urban schools, respectively, reached only Level 1c or lower (Figure 17). Although the overall proficiency level is higher among urban students than rural students, the variations within each group is similarly wide.

Figure 17. Students' proficiency in reading, by school community type



Source: OECD PISA 2018 database.

Notes: Mean scores are indicated within brackets [].

School community type is categorized as 'urban' if located in a city with more than 100,000 people.

Language

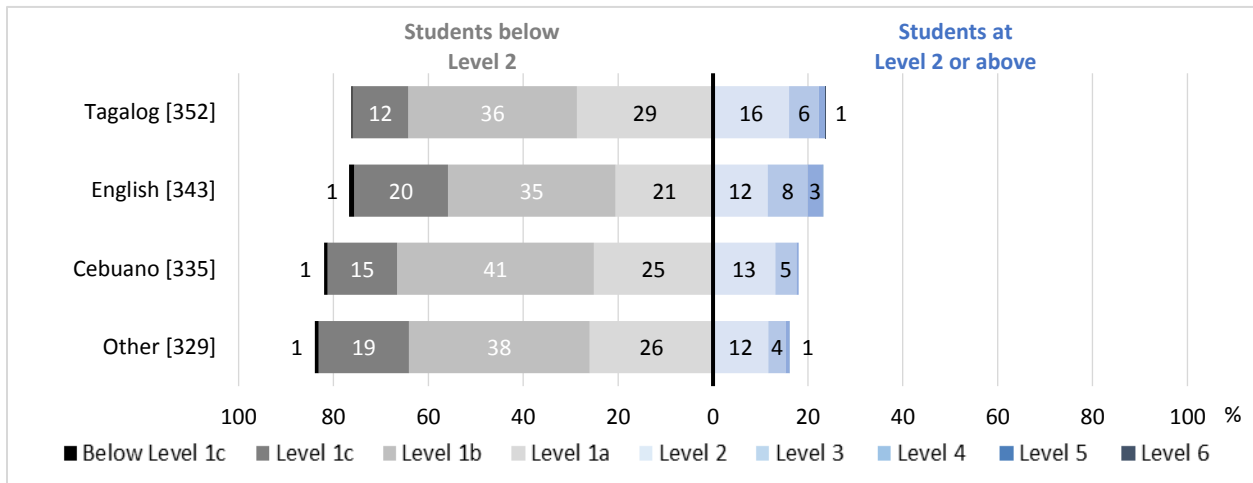
In an effort to build proficiency through language, one of the key features of DepEd's 'K to 12' program is the mother tongue-based multilingual education (MTB-MLE) for early graders. The MTB-MLE is implemented in two modes: (i) as a subject area focusing on the development of beginning reading and fluency from Grades 1 to 3; and (ii) as a medium of instruction in all learning areas, except English and Filipino, from Kindergarten to Grade 3. The DepEd has identified 19 local languages that are used in schools (DepEd 2012, 2013).

Next to Lebanon, the Philippines had the largest proportion of students (94 percent) who speak a language other than the PISA test language (i.e. English) at home most of the time. In the Philippines, a majority of PISA students (44 percent) identified Tagalog as the language they speak at home, and about 13 percent reported Cebuano as their language at home. Only 6 percent of students spoke English at home.

Students who speak Tagalog and English at home tended to do better than those who speak a different language at home. Across all subjects, students who speak Akeanon at home scored highest, though these students only accounted for 1 percent of the Philippines' sample. Next to those who speak Akeanon, students who speak Tagalog at home scored highest across all subjects. In reading, Tagalog-speakers scored, on average, about 9 points more than those who speak English, 17 points higher than those who speak Cebuano, and about 23 points higher than those who speak other languages at home.

Yet, about three-fourths of students who speak Tagalog and English at home fell below Level 2 proficiency. As presented in Figure 18, across the four groups of languages, the largest proportion of students were at Level 1b in reading. Interestingly, among the four language groups, students who speak the language of assessment (i.e. English) at home had the largest proportion of students falling at or below Level 1c (21 percent).

Figure 18. Students' proficiency in reading, by language spoken at home



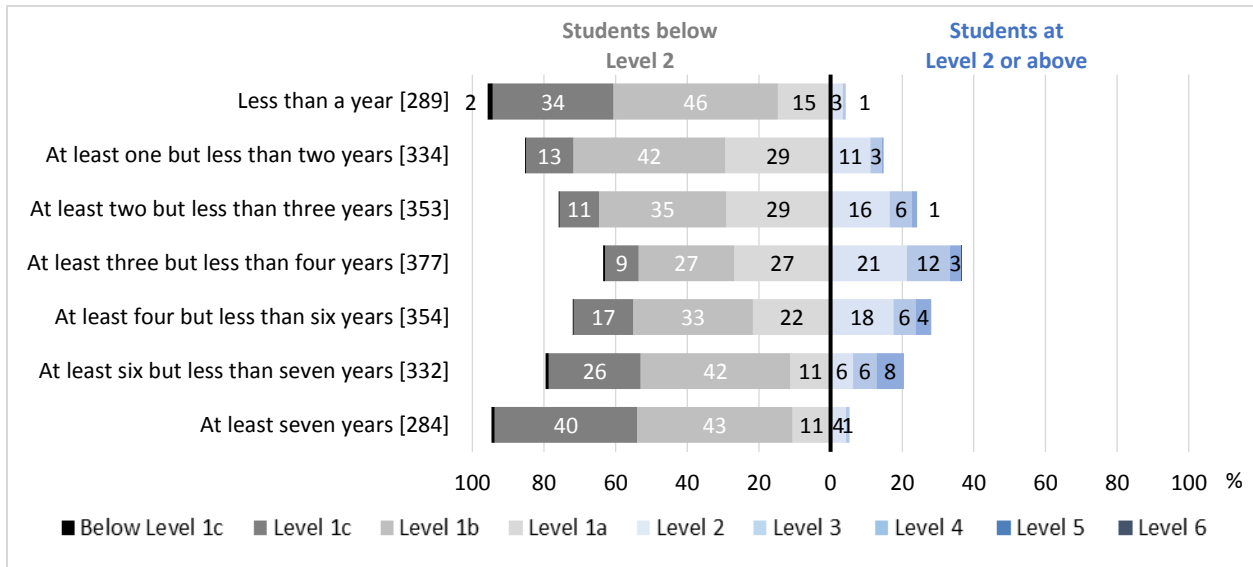
Source: OECD PISA 2018 database.

Note: Mean scores are indicated within brackets [].

Early childhood education and care

Across all subjects, mean scores increase with the duration of early childhood education and care (ECEC), but only until three years in ECEC. In the Philippines, the majority (90 percent) of students had attended ECEC programs for at least one but less than four years. About 4 percent of students reported attending ECEC for less than a year, while about 6 percent of students attended ECEC for more than four years. The largest share of students attaining minimum proficiency was found among those who spent at least three but less than four years in ECEC (Figure 19). More than a third of students (37 percent) who spent only three years in ECEC attained at least Level 2 proficiency in reading. In comparison, the vast majority (96 percent) of those who spent less than a year in ECEC fell below Level 2, and a similar pattern is seen for those who spent more than six years in ECEC.

Figure 19. Students' proficiency in reading, by duration in early childhood education and care



Source: OECD PISA 2018 database.

Note: Mean scores are indicated within brackets [].

A possible consequence of longer duration spent in ECEC is later entry into elementary schooling. The mean age of entry into the elementary level increased with the duration spent in ECEC. The differences in mean age of entry into elementary schooling were significant between those who had at least three, but less than four years of ECEC, and those who had four or more years of ECEC. The relationship between ECEC duration and PISA performance appears to reflect the relationship between late entry and PISA performance: the later students entered elementary school, the more likely they were to score lower on reading, math, and science, as compared to those who entered at the right age.

CHAPTER 2: Students' well-being and attitudes towards school and learning at age 15

This chapter discusses PISA findings on the psychological and emotional well-being of 15-year-olds in the Philippines. Results are based on students' self-reports on their thoughts and feelings on life, school, and their expectations for the future. Associations with outcomes, such as academic achievement and variations across demographic subgroups are also discussed.

2.1. Life satisfaction and emotional well-being

Student well-being is assessed through three indicators: life satisfaction, meaning in life and positive feelings. PISA 2018 defines subjective well-being as “the extent to which individuals believe (cognitive element) and feel (affective element) that their lives are desirable, fulfilling, and rewarding” (OECD 2019c, 154). PISA examines the cognitive element of subjective well-being through students' evaluation of their life satisfaction and sense of meaning in life, and the affective element of subjective well-being through students' experiences of certain emotions and moods.

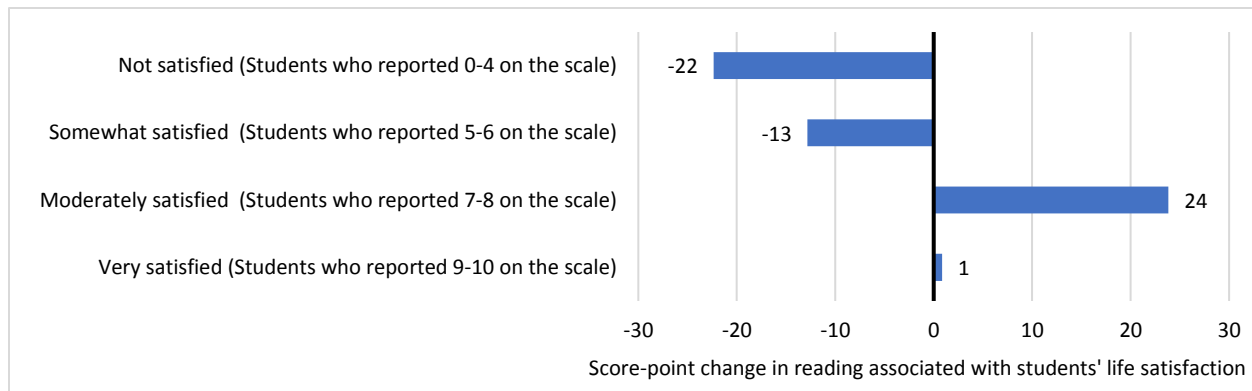
Life satisfaction

Most students in the Philippines reported feeling satisfied with their lives. PISA asks students to rate their life satisfaction on a scale from zero (not at all satisfied) to ten (completely satisfied). PISA classifies students as “satisfied” when they report between seven and ten on the life satisfaction index. Students' level of life satisfaction in the Philippines (7.21 on the scale, on average) was slightly higher than the OECD average (7.04 on the scale). About 39 percent of students in the Philippines reported feeling very satisfied (nine or ten on the scale) with their lives, while about 14 percent of students were not satisfied (between zero and four on the scale) with their lives.

Girls and advantaged students tended to express greater life satisfaction. The Philippines is only one of four participating countries and economies where girls (69 percent) were more likely than boys (62 percent) to be satisfied with their lives. Advantaged students (68 percent) were also more likely than disadvantaged students (61 percent) to report feeling satisfied with life. The strong relationship between students' socioeconomic status and life satisfaction is observed in a majority of PISA-participating countries and economies. Although the relationship should not be interpreted as causal, a potential reason for this association is that students from advantaged families have better access to material and emotional support than their disadvantaged peers.

Reading scores generally tended to increase as students reported more life satisfaction. Students who were not satisfied with their lives scored 22 points less in reading than those who were more satisfied with their lives (Figure 20). This gap was more than four times larger than that observed on average across OECD countries. Students who were moderately satisfied with their lives scored 24 points higher, on average, than their peers. However, a much smaller gain of a single score point was observed for those who reported feeling very satisfied with their lives.

Figure 20. Students' life satisfaction and reading performance



Source: OECD PISA 2018 database.

Note: Bars represent the score-point change in reading associated with students' life satisfaction, after accounting for the socioeconomic profiles of students and schools.

Students' life satisfaction was significantly associated with teacher-related factors, including the classroom disciplinary climate, teacher support, teacher feedback and teacher enthusiasm. After accounting for ESCS and gender, a one-unit increase in any of these teacher-related indices was associated with an increase of at least 0.40 points on the life satisfaction scale. A particularly strong relationship was observed for teacher enthusiasm, where a one-unit increase in the index was associated with a 0.61-point increase on the life satisfaction scale.

Students' sense of belonging at school was positively associated with their life satisfaction. A one-unit increase in the sense of belonging index was associated with a 0.71-point increase on the life satisfaction scale. Significant differences in life satisfaction are observed among those with the weakest and strongest sense of belonging. Students reporting the weakest sense of belonging at school (i.e. at the bottom quartile of the sense of belonging index) reported an average of 6.30 on the life satisfaction scale, while those with the strongest sense of belonging (i.e. at the top quartile of the sense of belonging index) reported an average of 8.05 points on the life satisfaction scale.

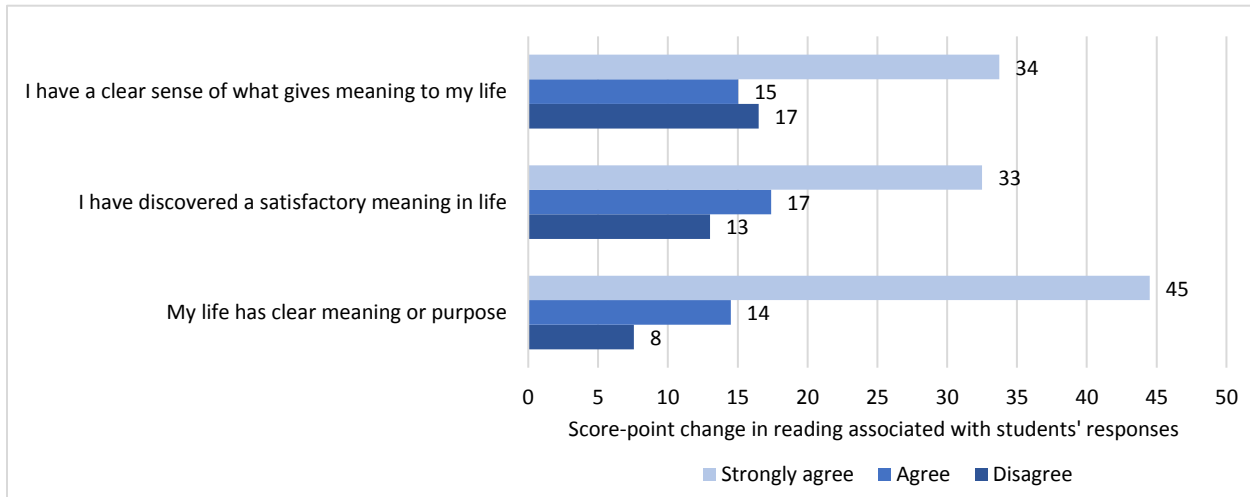
Meaning in life

Students in the Philippines tended to report a greater sense of meaning in life than the average student across OECD countries. PISA asks students the extent to which they agree with the following statements: (i) "My life has clear meaning or purpose"; (ii) "I have discovered a satisfactory meaning in life"; and (iii) "It is clear to me what gives meaning to my life". These statements were combined to create the index of meaning in life. About 83-85 percent of students in the Philippines agreed with each of the statements on the meaning in life index, as compared to 62-66 percent of students on average across OECD countries.

Girls and advantaged students were more likely to report a stronger sense of meaning in life. While boys across OECD countries, on average, tended to report a greater sense of meaning in life than girls, the reverse was seen in the Philippines. However, as observed across the OECD, advantaged students in the Philippines, on average, tended to report a stronger sense of meaning in life than their disadvantaged peers.

Students with a greater sense of meaning in life tended to have better reading performance. After accounting for the socioeconomic profiles of students and schools, a one-unit increase in the sense of meaning in life index was associated with a significant increase of 13 score points in reading. Among the individual components of the index, the increase in reading performance was largest when students believed their lives had clear meaning or purpose. Students who strongly agreed with this statement, on average, scored 45 score points more than those who strongly disagreed. The more strongly students agreed with each statement on the sense of meaning in life index, the better they tended to perform in reading (Figure 21).

Figure 21. Students' sense of meaning in life and reading performance



Source: OECD PISA 2018 database.

Note: Bars represent the score-point change in reading associated with students' responses, relative to those who responded "strongly disagree", after accounting for the socioeconomic profiles of students and schools.

Students with a stronger sense of meaning in life were also less likely to engage in truancy, and more likely to be academically resilient. PISA defines academically resilient students as those who belong to the bottom ESCS quartile in their country yet score at the top quartile of reading performance in their country (OECD 2019b). Academically resilient students were more likely to report a stronger sense of meaning in life than their peers who were not academically resilient. Students who had not skipped some classes in the two weeks prior to the PISA test tended to report a significantly greater sense of meaning in life than those who had skipped some classes at least once during the same period.

Factors in the school environment, such as sense of belonging and teacher support, were linked with a greater sense of meaning in life among students. After accounting for student and school characteristics, such as ESCS and gender, a one-unit increase in the sense of meaning in life index was associated with a 0.28-point increase on the sense of belonging index, and a 0.18-point increase on the teacher support index. These findings point to key aspects of the school environment, such as teacher qualities and school inclusion, which have important implications not just for academic achievement, but also for students' overall well-being.

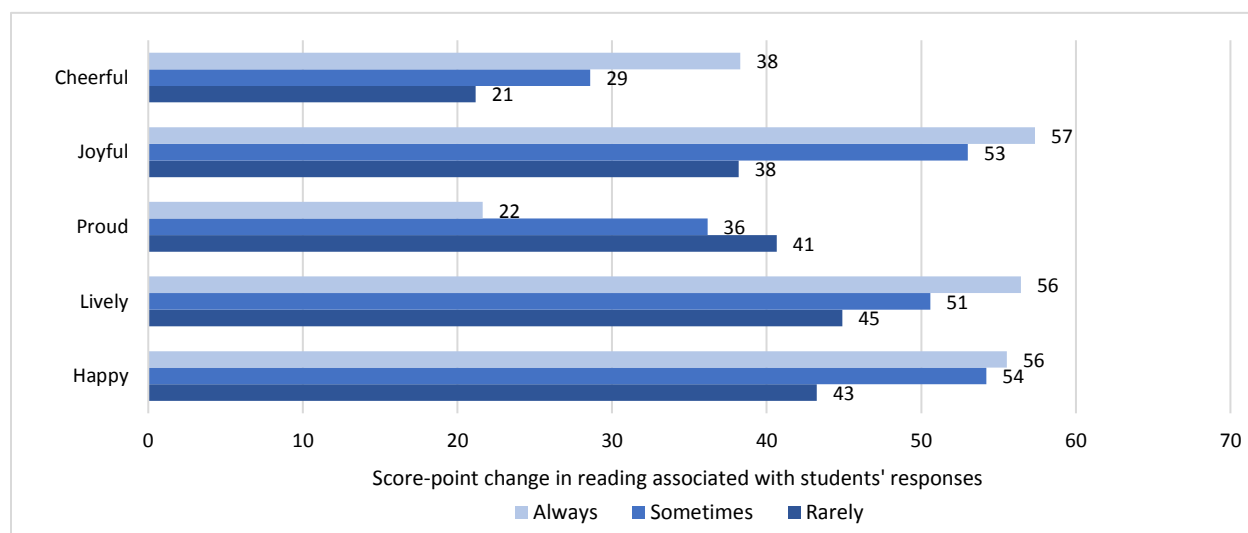
Positive feelings

While most students in the Philippines reported sometimes or always feeling happy or joyful, a large proportion of students also reported frequently feeling scared or sad. PISA asks students how frequently they feel certain emotions. At least 88 percent of students in the Philippines reported sometimes or always feeling happy, cheerful, joyful and lively. More than three in every five students reported sometimes or always feeling scared, afraid, and sad. The proportion of students stating that they frequently felt these negative emotions are larger than those observed on average across OECD countries.

Positive feelings were more frequently reported among girls and advantaged students. Students' responses to three positive emotions—happy, cheerful, and joyful—were combined to create a positive feelings' index. Girls expressed more frequent positive feelings than boys; however, girls were also significantly more likely to report sometimes or always felt sad. Socioeconomically advantaged students were more likely than their disadvantaged peers to report positive feelings. There were no significant differences between advantaged and disadvantaged students in the frequency with which they reported feeling sad.

The more frequently students reported feeling positive emotions, the better they tended to perform in reading. After accounting for the socioeconomic profiles of students and schools, a one-unit increase in the positive feelings' index was associated with an 8-score point increase in reading. When the positive emotions are analyzed individually, reading scores increased with the frequency with which students reported feeling each emotion, with the exception of feeling proud (Figure 22). Relative to students who reported never feeling joyful, students who reported sometimes or always feeling joyful scored at least 53 points higher in reading.

Figure 22. Students' positive feelings and reading performance



Source: OECD PISA 2018 database.

Note: Bars represent the score-point change in reading associated with students' responses, relative to those who responded "never", after accounting for the socioeconomic profiles of students and schools.

School inclusion and emotional support from parents were strong predictors of students' positive feelings. Students were more likely to express feeling happy, joyful and cheerful when they had a stronger sense of belonging at school and perceived greater emotional support from their parents. In contrast, feelings of sadness among students were associated with weaker levels of inclusion in school. In particular, students who reported a higher exposure to bullying, or a weaker sense of belonging at school, were more likely to always or sometimes feel sad.

Improving the education system means addressing the holistic development of students, including their well-being. That life satisfaction, meaning in life and positive feelings are each associated with performance highlights the importance of well-being to learning. School policies and practices should support not just academic outcomes, but also the emotional and psychological well-being of students. Several education systems take a holistic approach to student development. In Finland, for instance, schools are expected to maintain a strong system of support to students, and provide, among others, health services, psychological counseling and student guidance (OECD 2014).

2.2. Students' attitudes and beliefs

PISA 2018 includes a range of indices that reflect the attitudes and beliefs students hold about school, learning and intelligence. This section examines how these attitudes and beliefs relate to various student outcomes, and how they vary by demographic subgroups. Students' expectations for their future education and work are also discussed, with particular attention to the differences across students' socioeconomic profiles.

Motivation to master tasks

The average student in the Philippines expressed only slightly higher levels of motivation to master tasks than the average student across OECD countries. PISA asks students the extent to which they agree with the statements: (i) "I find satisfaction in working as hard as I can"; (ii) "Once I start a task, I persist until it is finished"; and (iii) "Part of the enjoyment I get from doing things is when I improve on my past performance". These statements were combined to create the motivation to master tasks index.

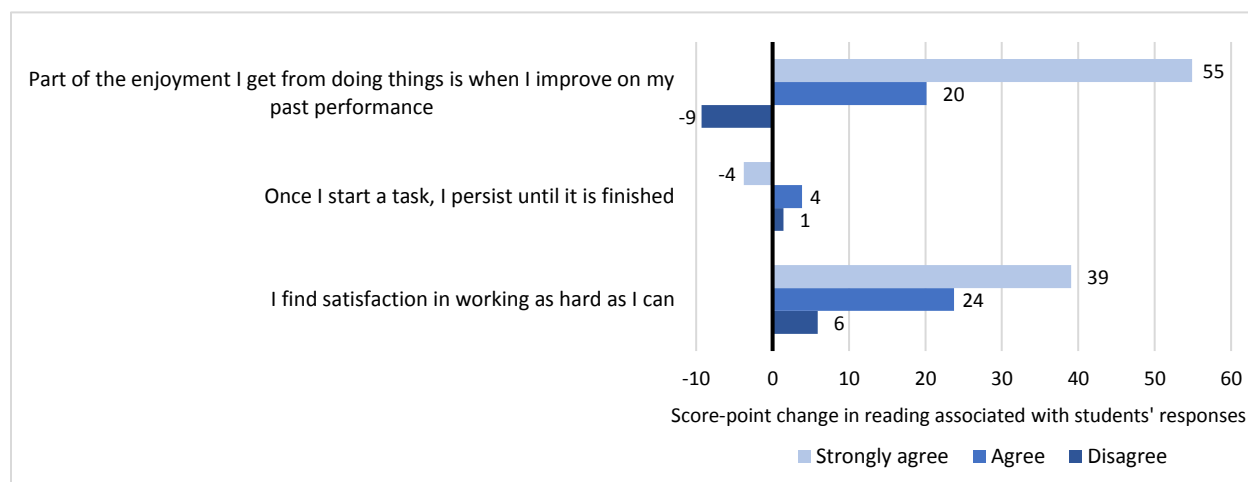
Girls, advantaged students, private school students and students in urban schools tended to express a stronger motivation to master tasks. Girls reported a stronger motivation to master tasks than did boys. The average index score for boys was -0.04, indicating that the average male student in the Philippines tended to report a lower motivation to master tasks than the average male student across OECD countries. Motivation to master tasks increased with each ESCS quartile, and the difference between advantaged students and their disadvantaged peers was significant. The motivation to master tasks was also stronger among students in private schools and urban school communities rather than in public schools and rural school communities.

Students' motivation to master tasks was associated with reading performance. After accounting for students' and schools' socioeconomic profiles, a one-unit increase in the motivation to master index was associated with an increase of 24 score points in reading. Particularly large score-point differences were observed across school ownership types, e.g. a one-unit increase in

the motivation to master tasks index was associated with an increase of 32 score points for students in public schools, 27 score points for students in private government-dependent schools, and 11 points for students in private independent schools.

When examined by index item, the increase in reading performance was largest when students expressed enjoyment from improving on their past performance. After accounting for students’ and schools’ socioeconomic profiles, students who agreed with this statement scored 55 points more in reading than those who strongly disagreed (Figure 23). A clear pattern emerged of the extent to which students agreed that they find satisfaction in working as hard as they can: The more that students agreed with this statement, the higher they tended to score in reading. Unlike the other two index items, students who strongly agreed that they persist until a task is finished scored 4 points less than those who strongly disagreed; however, associations for this index component were not significant.

Figure 23. Students’ motivation to master tasks and reading performance



Source: OECD PISA 2018 database.

Note: Bars represent the score-point change in reading associated with students’ responses, relative to those who said they “strongly disagree”, after accounting for the socioeconomic profiles of students and schools.

Among various teacher qualities, teacher enthusiasm was most strongly associated with students’ motivation to master tasks. After accounting for students’ and schools’ socioeconomic profiles, a one-unit increase in the teacher enthusiasm index was associated with a 0.42-point increase in the motivation to master tasks index. In the Philippines, the relationship between teacher enthusiasm and student motivation to master tasks was among the strongest in all PISA-participating countries and economies.

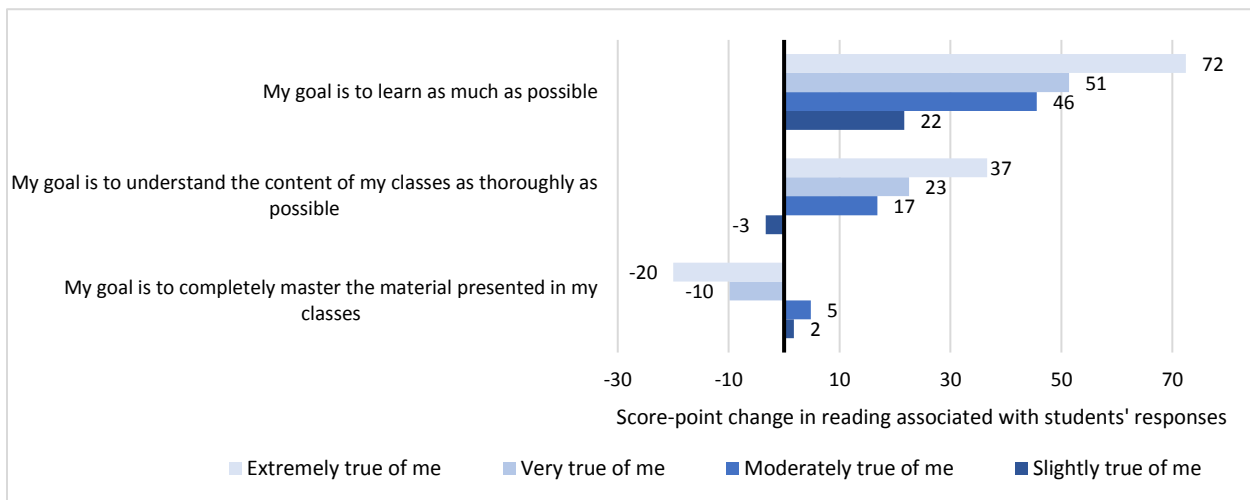
Learning goals

Students in the Philippines tended to report more ambitious learning goals than the average student across OECD countries. To examine students’ learning goals, PISA asks students how true certain statements are for them, including: “My goal is to learn as much as possible”, and “My goal is to completely master the material presented in my classes”. These statements were combined to create the learning goals index.

Girls, students in urban schools, and advantaged students are more likely to express strong learning goals. In particular, large differences were seen across socioeconomic status. Mean scores on the learning goals index increased with each ESCS quartile, with significant differences observed between the most and least advantaged students.

More ambitious learning goals were associated with better reading performance. After accounting for students’ and schools’ socioeconomic profiles, a one-unit increase in the learning goals index was associated with an increase of 17 score points in reading. When examined by index component, gains in reading were largest (72 score points) when students expressed that “my goal is to learn as much as possible” was “extremely true of them” (Figure 24). Aiming to understand class content thoroughly was associated with an increase of as much as 37 score points in reading.

Figure 24. Learning goals and reading performance



Source: OECD PISA 2018 database.

Note: Bars represent the score-point change in reading associated with students’ responses, relative to those who responded “not at all true of me”, after accounting for students’ and schools’ socioeconomic profiles.

Value of school

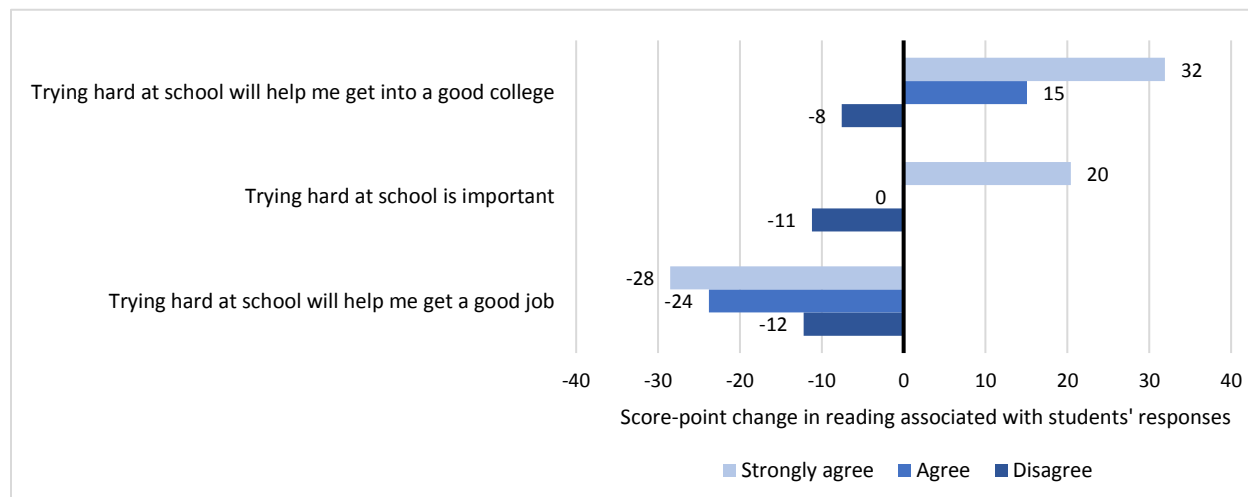
On average, students in the Philippines valued schooling to about the same extent as the average student across OECD countries. PISA asks students the extent to which they agree with the following statements: (i) “Trying hard at school will help me get a good job”; (ii) “Trying hard at school will help me get into a good college”; and (iii) “Trying hard at school is important”. These statements were combined to construct the value of school index.

Girls, advantaged students, and students in private independent schools tended to value school more strongly. As with the indices of motivation to master tasks and learning goals, significant differences in the value of school index appeared across student and school characteristics. Across school ownership types, students in private independent schools tended to value school more strongly than students in both private government-dependent schools and public schools.

Valuing school more strongly was associated with better reading performance. After accounting for students’ and schools’ socioeconomic profiles, a one-unit increase in the value of school index was associated with an increase of 14 points in reading. The relationship between the value of school index and reading performance appeared stronger for certain groups of students. Across ESCS quartiles, the increase in scores associated with a one-unit change in the index was greater for disadvantaged students (18 score points) than that of advantaged peers (12 score points). While nearly no increase in scores was observed among students in private independent schools, students in private government-dependent schools and public schools saw an increase of 14 score points and 19 score points, respectively, with each one-unit increase in the value of school index.

Students who strongly agreed that trying hard at school is important, or can get them into a good college, tended to score higher in reading than those who strongly disagree with the same. When examined by index component, students who strongly agreed that trying hard at school will help them get into a good college scored about one-third of a standard deviation (32 score points) more than those who strongly disagreed (Figure 25). Students who strongly agreed that trying hard at school is important scored about one-fifth of a standard deviation (20 score points) more than those who strongly disagreed. Contrary to expectations, a negative association emerged for the statement “Trying hard at school will help me get a good job”. The more that students agreed with this statement, the worse they tended to score in reading.

Figure 25. Value of school and reading performance



Source: OECD PISA 2018 database.

Note: Bars represent the score-point change in reading associated with students’ responses, relative to those who responded “strongly disagree”, after accounting for the socioeconomic profiles of students and schools.

Fear of failure and self-efficacy

The majority of students in the Philippines expressed a fear of failure. The PISA fear of failure index was constructed using students’ responses to statements, such as “When I am failing, I worry about what others think of me” (OECD 2019c). More than 60 percent agreed, or strongly agreed, that they worry about what others think of them when they fail, and that they are afraid that they do not have enough plans about their future, or doubt their own plans for the future. A substantial proportion of students —about one in five students—strongly agreed that they worry about, what

others think of them when they fail. When students fear failure, they tend to avoid mistakes as these could be regarded as shameful or could cast doubt on their abilities.

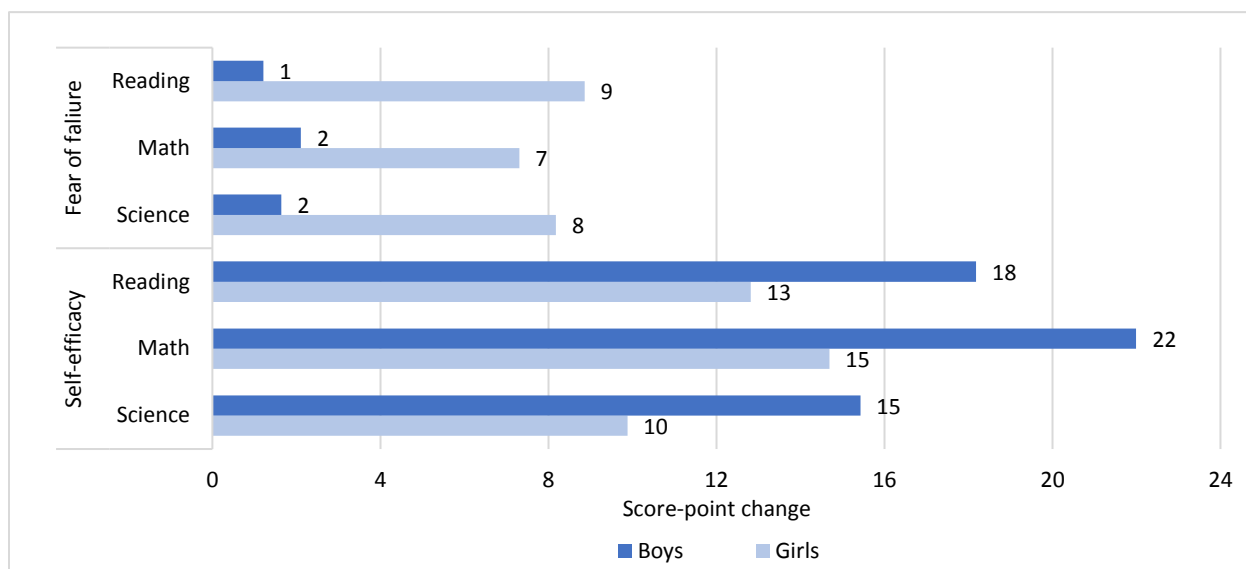
However, a majority of students also expressed confidence in their abilities. The self-efficacy index was constructed using students' responses to statements, such as "I usually manage one way or another". At least three in every four students agreed, or strongly agreed, that they feel they can handle many things at the same time. More than 80 percent agreed, or strongly agreed, that their belief in themselves got them through hard times, that they can usually find their way out of a difficult situation, and that they usually manage one way or another. About four in five students agreed, or strongly agreed, that they felt proud after having accomplished things.

Girls, advantaged students, and students in private independent schools tended to have both a greater fear of failure and stronger self-efficacy. As observed in nearly all PISA-participating countries and economies, fear of failure was greater among advantaged students than disadvantaged students, and among girls than boys. Students in private independent schools also reported a stronger fear of failure than did their peers in both private government-dependent schools and public schools. However, students who expressed a greater fear of failure also tended to report higher levels of self-efficacy.

Although fear of failure and self-efficacy were positively associated with reading scores, self-efficacy appears to have a stronger relationship with performance. After accounting for students' and schools' socioeconomic profiles, a one-unit increase on the fear of failure index was associated with an 8-point rise in reading, while a one-unit increase on the self-efficacy index was associated with a 16-point rise in reading. The score-point difference in reading performance associated with the self-efficacy index was among the largest in all PISA-participating countries and economies.

Fear of failure was a stronger predictor of academic performance among girls, while self-efficacy was a stronger predictor among boys. Girls scored 9 points higher in reading performance for every one-unit increase in the index of fear of failure, whereas boys only scored 1 point higher. In contrast, self-efficacy appeared to be a stronger predictor of performance among boys than girls. These patterns in gender differences held across all three PISA subjects (Figure 26).

Figure 26. *Fear of failure, self-efficacy, and academic performance, by gender*



Source: OECD PISA 2018 database.

Note: Bars represent the score-point change in reading, math, and science, after accounting for the socioeconomic profiles of students.

Growth mindset

A growth mindset is the belief that one’s abilities and intelligence is malleable. Students who adopt a growth mindset believe that their intelligence can be developed over time. Conversely, a fixed mindset is the belief that intelligence is an unchangeable trait. Students who hold a fixed mindset believe people are born with a certain level of intelligence that cannot be altered through experience (Dweck and Molden 2005).

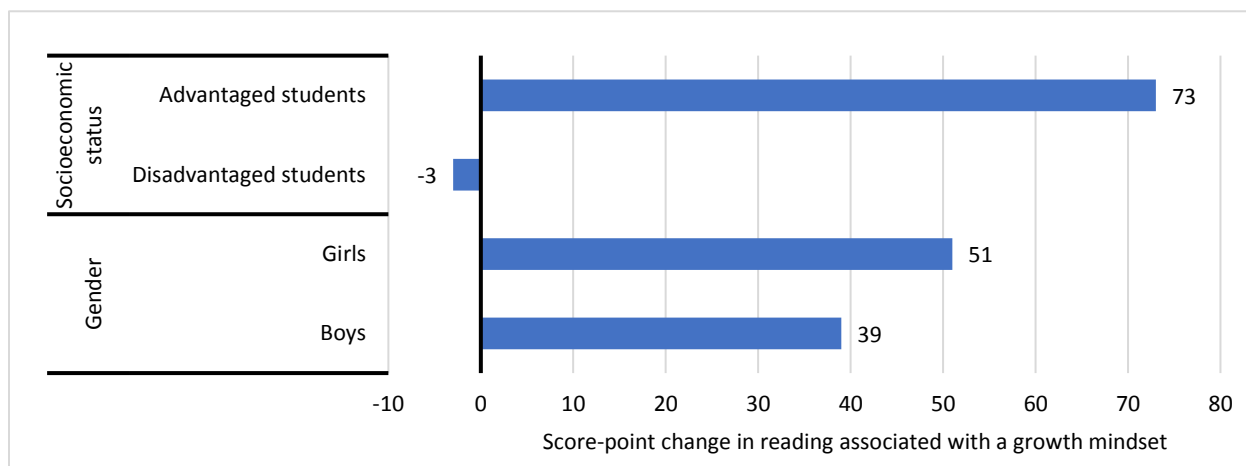
Students’ beliefs about intelligence have been linked to goal orientation and academic achievement. Students with a growth mindset are more likely to hold mastery learning goals and seek learning as a way to develop their intelligence. In contrast, students with a fixed mindset are less likely to adopt mastery learning goals, and instead focus on validating their intelligence through their performance (Blackwell, Trzesniewski, and Dweck 2007). The type of mindset held by students is also associated with academic achievement. Studies have found that the belief in a growth mindset predicts an upward trajectory in grades, while the belief in a fixed mindset predicts a flat trajectory in grades (Romero et al. 2014; Blackwell, Trzesniewski, and Dweck 2007).

Only 31 percent of students in the Philippines, as opposed to the OECD average of 63 percent, held a growth mindset, one of the lowest proportions among all participating countries and economies. PISA asks students how much they agreed with the statement: “Your intelligence is something you can’t change much.” Students who disagreed with the statement were considered to have a stronger growth mindset than those who agreed with the statement. In the Philippines, a majority of students agreed (51 percent), or strongly agreed (18 percent), with the fixed mindset statement that intelligence is something that cannot be changed very much.

Belief in a growth mindset was more prevalent among advantaged students, students in private independent schools, and students in urban schools. In the Philippines, wide variations were found across socioeconomic status, school ownership types and school community types. The proportions of students’ in the Philippines who believed in a growth mindset did not differ between boys and girls, which was not, on average, the case for OECD countries.

Belief in a growth mindset was associated with better reading performance, particularly among girls and advantaged students. After accounting for the socioeconomic profiles of students and schools, students who held a growth mindset scored 29 points more in reading than those who held a fixed mindset. When examined by student characteristics, both girls and boys increased their scores when they endorsed a growth mindset, but the score-point difference was significantly higher at 12 points in favor of girls (Figure 27). Across OECD countries, the relationship between a growth mindset and reading performance was stronger among disadvantaged students. The opposite was seen in the Philippines, where a 76-score point gap was observed in favor of advantaged students. Disadvantaged students scored 3 points less, on average, when they endorsed a growth mindset, although this association was not significant.

Figure 27. Growth mindset and reading performance, by student characteristics



Source: OECD PISA 2018 database.

Notes: Bars represent the score-point change in reading when student disagreed or strongly disagreed with the statement: “Your intelligence is something you can’t change very much”. Students are categorized as “advantaged” if they belong to the top quartile of the ESCS index and “disadvantaged” if they belong to the bottom quartile of the ESCS index.

Although growth mindsets were more prevalent among advantaged students, believing in a growth mindset can contribute to academic resilience among disadvantaged students. Disadvantaged students who performed at the top quartile of reading performance, exhibiting academic resilience, were more likely to have a growth mindset. A significantly larger proportion of academically resilient students were found among those who believed in a growth mindset than among those who held a fixed mindset.

Students who hold a growth mindset were more likely to have a lesser fear of failure and attribute greater value to school. Belief in a growth mindset was, on average, positively associated with students’ motivation to master tasks, self-efficacy, and learning goals across

OECD countries, and in a majority of all PISA-participating countries and economies. In the Philippines, a negative association was observed between holding a growth mindset and these student attitudes. However, consistent with nearly all other school systems, students with a growth mindset tended to have a lesser fear of failure and value school more strongly than did those with a fixed mindset.

Education and career expectations

Along with students’ attitudes towards school and learning, PISA looks at students’ aspirations for their future education and work. PISA asks students which education level they expect to complete: junior high school, senior high school, technical-vocational degree, bachelor’s degree, or graduate degree (e.g. Master’s degree or doctorate). PISA also asks students what occupation they expect to be working in when they are 30-years old. In answering this question, students entered a job title or description in an open-entry field, which were then classified according to the International Standard Classification of Occupations (ISCO-08).

In the Philippines, about 19 percent of students had no clear idea about their future job. Close to a quarter of these students (24 percent) belonged to the bottom ESCS quartile, while about 14 percent belonged to the top ESCS quartile. The proportion of girls (52 percent) who did not have a clear idea about their future career was only slightly higher than that of boys (48 percent). Among those saying that they had a clear idea about their future career, more than half (57 percent) envisioned themselves to be professionals in fields, such as teaching, nursing, and engineering.

The career expectations most frequently cited by boys covered a wider range of occupations, and more science and engineering-related fields, than those reported by girls. Table 4 presents the top ten occupations cited by boys and girls. The most frequently cited career aspirations for boys included occupations categorized under the ISCO-08 as: professionals (e.g. engineering professionals); plant and machine operators (e.g. ships’ deck crews); service workers (e.g. police officers); and armed forces occupations. Science and engineering professional occupations (i.e. engineering professionals, civil engineers, and mechanical engineers) were more frequently cited by boys than by girls.

Table 4. Top ten career expectations, by gender

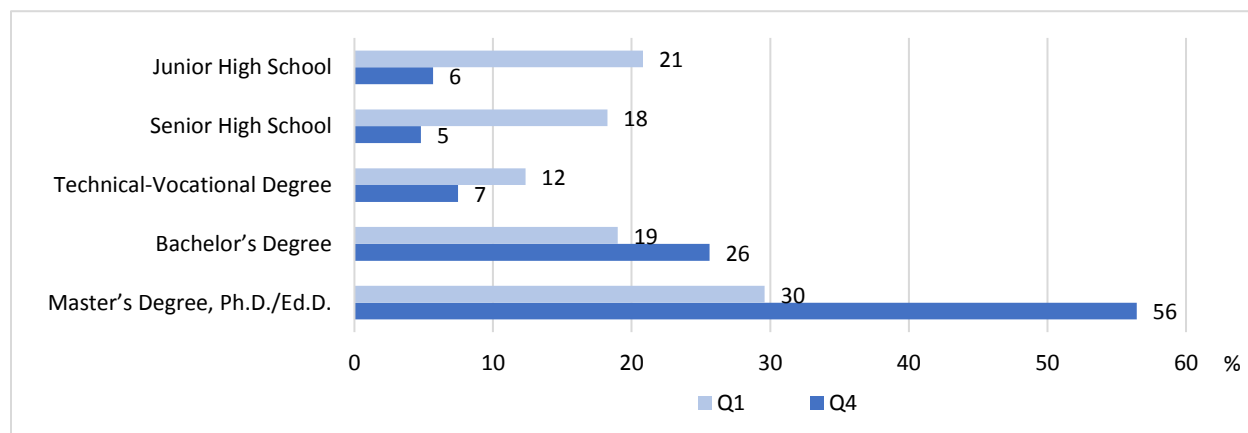
	Boys	Girls
1st	Ships’ deck crews and related workers	Teaching professionals
2nd	Police officers	Nursing professionals
3rd	Engineering professionals	Medical doctors
4th	Armed forces occupations	Accountants
5th	Teaching professionals	Travel attendants and travel stewards
6th	Chefs	Chefs
7th	Medical doctors	Police officers
8th	Aircraft pilots and related associate professionals	Engineering professionals
9th	Civil engineers	Specialist medical practitioners
10th	Mechanical engineers	Hotel and restaurant managers

Source: OECD PISA 2018 database.

Career expectations appear to be often misaligned with education expectations, especially among disadvantaged students. Most students expect to work in high-skilled occupations. About 70 percent of students aspired to high-skilled occupations¹⁰, such as managers and professionals. Advantaged students were significantly more likely than their disadvantaged peers to have high expectations for their careers. Among those who expect to work in high-skilled occupations, more than a quarter of students also reported that they did not expect to complete tertiary education. This suggests students may not have a clear understanding of what level of education is required for certain types of occupations. The mismatch between career and education expectations was more often observed among disadvantaged students. About two in five disadvantaged students expecting to work in a high-skilled occupation also expected not to complete a tertiary degree. In contrast, this proportion was a little over one in ten advantaged students.

Regardless of their career expectations, there is a large difference in students' education expectations by ESCS. The proportion of advantaged students (82 percent) who expect to complete an undergraduate degree or graduate degree was significantly larger than that of disadvantaged students (49 percent). Students in the bottom ESCS quartile had lower education expectations, and over half of these students (51 percent), expected to complete junior high school, senior high school, or a technical-vocational degree (Figure 28).

Figure 28. Students' education expectations, by ESCS quartile

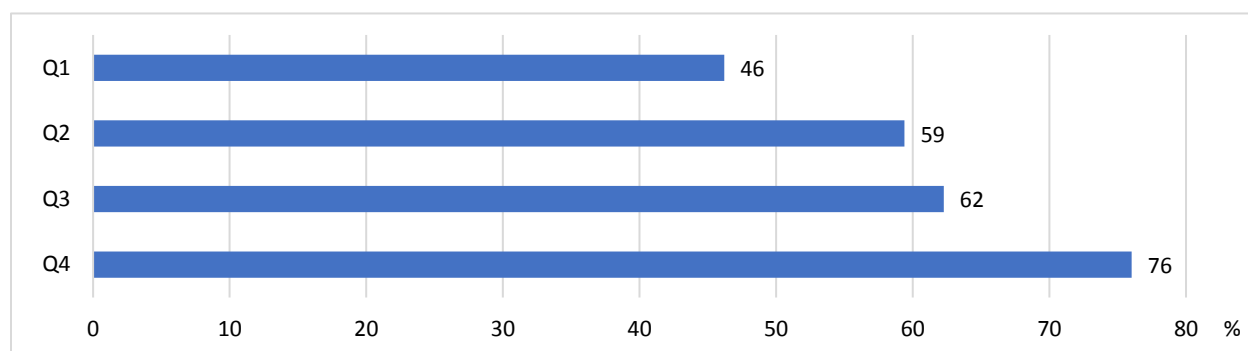


Source: OECD PISA 2018 database.

A considerable proportion of low performers below Level 2 had high ambitions for their future education and expected to complete tertiary education, with an increasingly larger share among those with higher ESCS. Among those who were unable to attain minimum proficiency in at least one PISA subject, about 60 percent expected to complete tertiary education. When examined by socioeconomic status, the proportions of such learners increased with each ESCS quartile (Figure 29).

¹⁰ PISA defines high-, medium- and low-skilled career expectations based on the one-digit ISCO-08 classification of occupations. High-skilled occupations correspond to ISCO codes 1-3 (i.e. managers, professionals, technicians and associate professionals); medium-skilled to codes 4-8 (i.e. clerical support workers, service and sales workers; skilled agricultural, forestry and fishery workers, craft and related trades workers, plant and machine operators and assemblers); and low-skilled to code 9 (elementary occupations).

Figure 29. Low performers below Level 2 who expect to complete tertiary education, by ESCS quartile



Source: OECD PISA 2018 database.

Note: Students are classified as low performers if they do not attain minimum proficiency (i.e. Level 2) in at least one of the three core PISA subjects.

These findings highlight the need to address misalignments between career and education aspirations and the performance of students, particularly among disadvantaged students. Students may be unaware of the competencies and the level of education needed for certain careers. To set high, yet realistic, expectations for future education and careers, schools should provide more formal career guidance under a specialized adviser. At present, only 35 percent of students in disadvantaged schools, as opposed to 69 percent of students in advantaged schools, had one or more dedicated counselors to provide career guidance. About 90 percent of students in disadvantaged schools, as compared to only 66 percent of students in advantaged schools, received career guidance from teachers rather than a specialized counselor. Moreover, information about financial aid available to prospective students and future returns to tertiary education is likely to help students pursue their education ambition (OECD 2019b).

CHAPTER 3: Foundations for success in the Philippines

3.1. Resources invested in Philippine education

PISA collects information on key financial, human, and digital learning resources invested in education. Financial resources are discussed in terms of the Philippines' cumulative education expenditure per student in comparison to that of other countries. In examining the availability of human resources, challenges arising in relation to the quantity and quality of teachers are discussed. Lastly, in relation to rapidly changing technologies, and particularly in the context of emerging challenges due to the COVID-19 pandemic, schools' digital learning resources are examined.

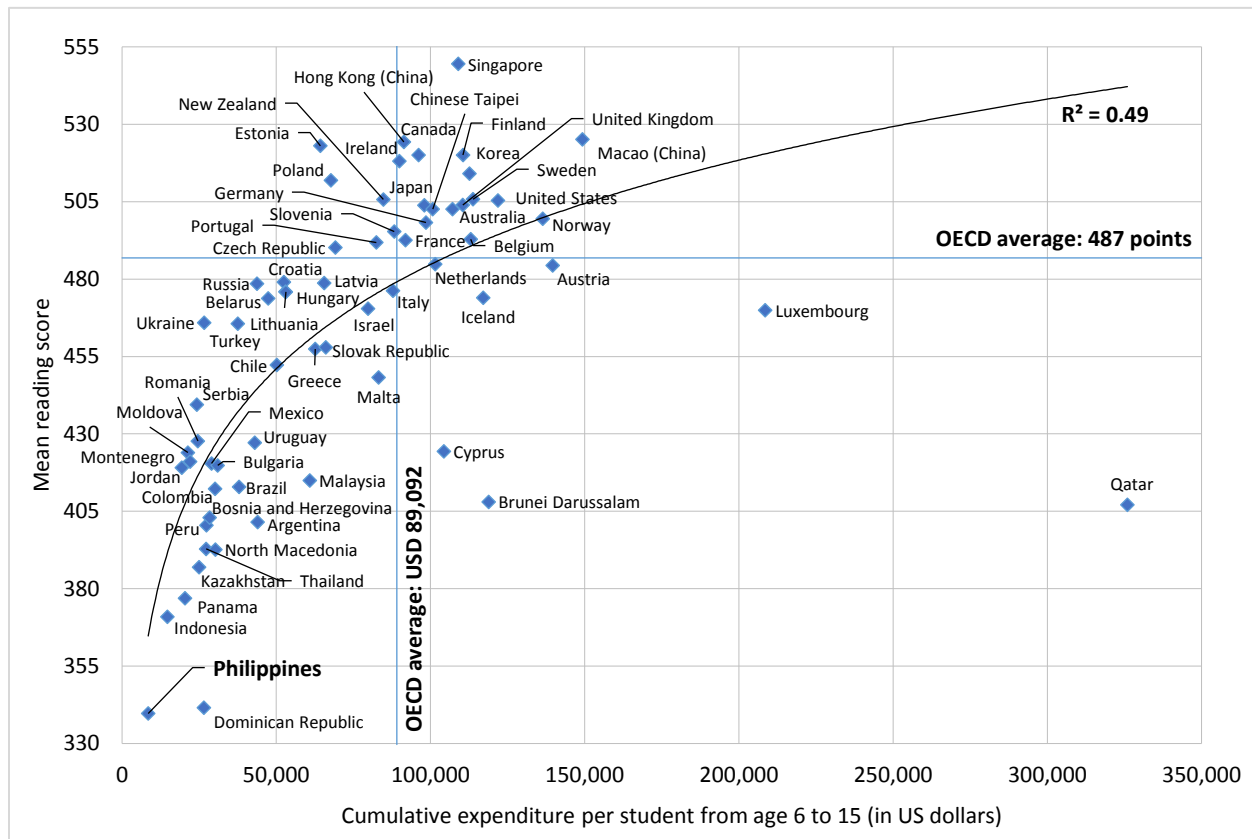
Financial resources

Given its income level, the Philippines performed considerably less well in PISA than expected. Countries with higher national incomes tended to score higher in PISA. About 44 percent of variation in mean reading scores among PISA-participating countries and economies was related to national income, as measured by per capita GDP (OECD 2019a). The Philippines underperformed in reading compared to other countries with similar levels of economic development. Moldova, for instance, scored more than four-fifths of a standard deviation more in reading than the Philippines, despite having a lower per capita GDP.

The cumulative spending per student in the Philippines (USD 8,474) was less than one-tenth that of the OECD average, or the lowest among all PISA-participating countries and economies. Figure 30 examines countries' cumulative spending per student from the age of 6 to 15 years and mean student performance in reading. Up to a certain spending level, cumulative spending per student is associated with performance. Average reading scores and per student spending are positively associated, but only up to around USD 50,000 (after accounting for purchasing power parity [PPP]). Above this threshold, education spending is much less related to reading performance. Expenditure per student accounts for about 49 percent of variation in mean reading performance between countries and economies.¹¹

¹¹ The Education 2030 Framework for Action (UNESCO 2015) calls for each country's public education expenditure to be raised to 15-20 percent of total public expenditure and 4-6 percent of GDP by 2030 to achieve SDG 4. According to the latest available data on UNESCO UIS, in 2016, global public spending on education was 14.6 percent of total public expenditure, slightly below the target by the Education 2030 Framework for Action, while education expenditure as a percentage of GDP (4.5 percent) was still at the lower end of this benchmark.

Figure 30. Mean reading performance and cumulative spending on education per student, in USD PPP



Source: OECD PISA 2018 database.

In the Philippines, a large proportion of public basic education spending goes towards paying the salaries of teachers and non-teaching staff. The next subsection looks at the quantity of teachers available to schools in the country as indicated by class size and student-teacher ratios, as well as the quality of teachers as reflected by their professional qualifications.

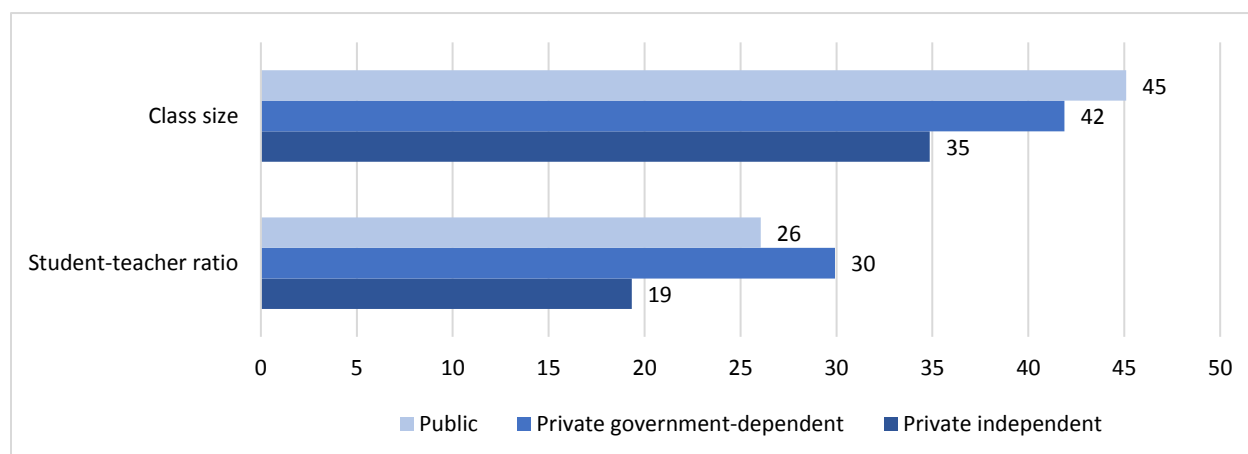
Human resources

The Philippines had the largest class sizes and highest student-teacher ratios among all PISA-participating countries and economies. PISA asks school principals to report the average size of Grade 10 English classes in their respective schools. The average class size in the Philippines was 44 students per class, as opposed to the OECD average of 26 students per class. The average student-teacher ratio in the Philippines was 21 students per teacher, as compared to the average of 12 students per teacher in other OECD countries.

Though not directly correlated with performance, larger class sizes tended to have more negative classroom disciplinary climates, which was a strong predictor of poor performance. Students are more likely to underperform when teachers are unable to manage order and discipline in their classrooms. Larger class sizes tended to have more negative disciplinary climates, and the difference in disciplinary climate was significant for classrooms with more than 50 students, as compared to those in average-sized classes.

Disadvantaged schools, public schools and private government-dependent schools tended to have larger class sizes and higher student-teacher ratios. Contrary to most PISA-participating countries and economies, in the Philippines, significantly larger class sizes and higher student-teacher ratios were more prevalent among disadvantaged (i.e. at the bottom quartile of school average ESCS) than advantaged schools (i.e. at the top quartile of school average ESCS). Public schools and private government-dependent schools tended to have significantly larger class sizes and higher student-teacher ratios than private independent schools (Figure 31). Large classroom sizes and high student-teacher ratios could be attributed to classroom and teacher shortages, particularly in disadvantaged schools. Such resource deficits can lead to schools operating on multiple shifts, which results in less learning and instructional time.

Figure 31. Average class size and student-teacher ratio, by school ownership type



Source: OECD PISA 2018 database.

As a proxy measure of teacher quality, this report looks at teachers’ professional qualifications. To measure the qualifications of teachers across schools, PISA asks principals to report the number of teachers in their respective schools who are fully certified (i.e. professional teachers with license from the Professional Regulatory Commission) and who have attained each level of higher education (i.e. bachelor’s degree, master’s degree, doctoral degree).

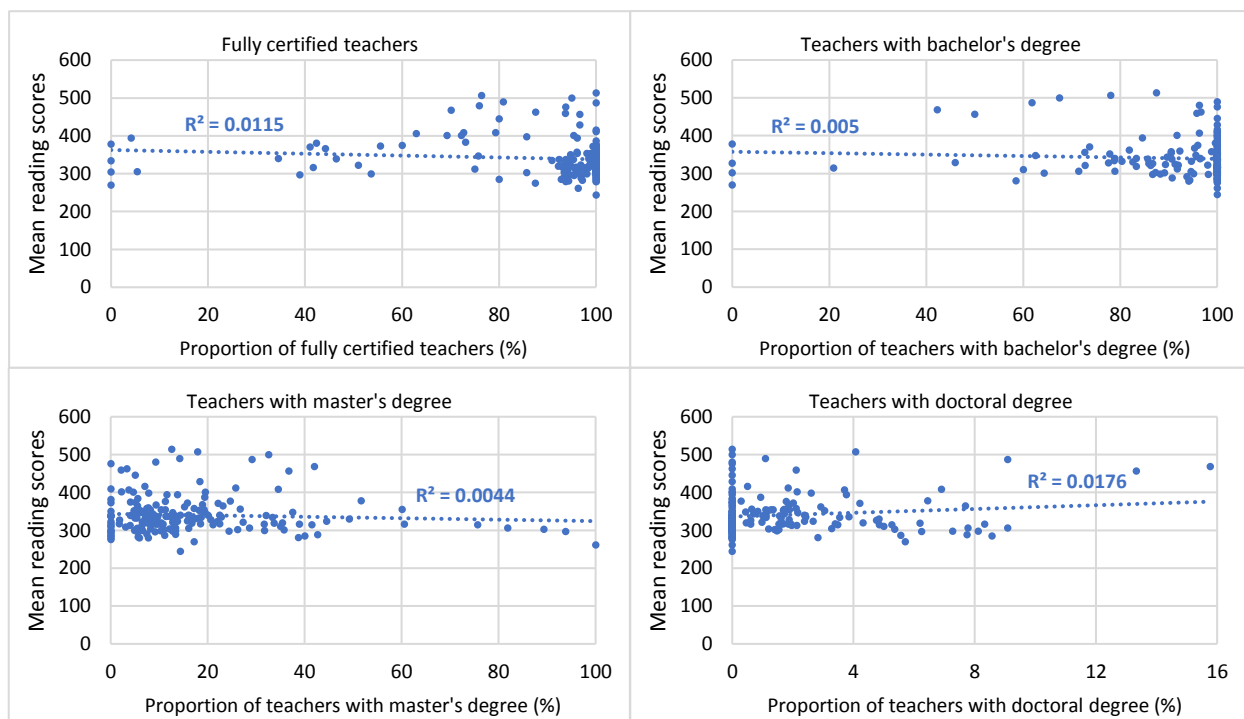
About 87 percent of teachers in the Philippines were fully certified, with larger proportions of fully certified teachers in disadvantaged and public schools. Although all elementary and secondary school teachers must hold professional licenses, the Enhanced Basic Education Act of 2013, or Republic Act No. 10533, allows certain exceptions for those who are not certified. Exceptions to this include teachers who are hired on a part-time basis, or for a maximum period of five years when there is a shortage of teachers. Significantly larger proportions of fully certified teachers were found in disadvantaged schools (95 percent) than in advantaged schools (72 percent), as well as in public schools (95 percent) than in private independent (72 percent), and private government-dependent schools (55 percent).

About one in every five teachers had at least a Master’s degree, with larger proportions observed in public than in private schools. There was no significant difference between disadvantaged and advantaged schools, or between urban schools and rural schools, in the proportion of teachers with at least a Master’s degree. However, significantly larger numbers of

teachers had at least a Master’s degree in public schools (23 percent) than in private independent (14 percent), or in private government-dependent schools (7 percent). One reason that public schools might have larger proportions of teachers with graduate degrees could be that teachers in public schools are promoted based on qualifications, such as educational attainment.

The educational qualifications and professional certification of teachers seems to make little, if any, difference in student learning outcomes in the Philippines. When each school’s mean reading scores are examined against the proportion of teachers who meet professional qualifications, weak to no relationships are observed (Figure 32). Moreover, these relationships were negative across all academic qualifications, except for a weak positive relationship found among teachers with a doctoral degree. Having larger proportions of teachers with higher levels of education, or with full certification, seem to make no, or only a marginal, difference in student learning outcomes.

Figure 32. School mean reading scores and teacher qualifications



Source: OECD PISA 2018 database.

A favorable school environment and family support may play a more important role in learning outcomes than the professional qualifications of teachers. Teachers’ abilities to maintain a positive disciplinary climate in their classrooms—a strong predictor of reading performance— was more commonly found among advantaged schools. Additionally, aspects of the school and home environments, such as maintaining a strong sense of inclusion and parents’ emotional support, were strongly related to student outcomes. These teacher-, school- and family-related factors were perceived to a greater extent among students in advantaged schools than in disadvantaged schools, as well as in private schools than in public schools.

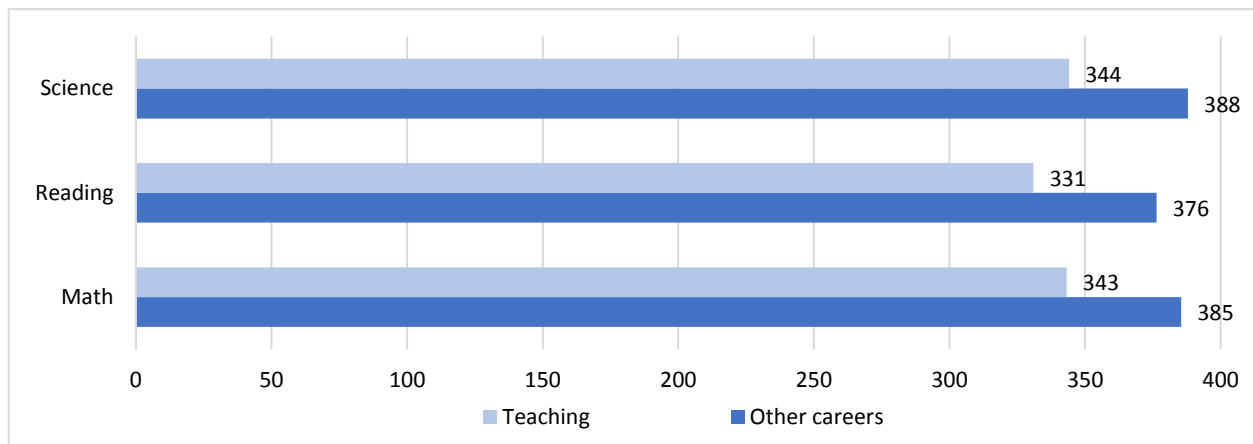
These findings also suggest that current screening mechanisms for teachers should be reviewed and strengthened to ensure their validity as benchmarks of teacher quality. Those that have passed the Licensure Examination for Teachers (LET) are presumed to have attained the desired skills and competencies for teaching. That certification appears to make very little difference in learning outcomes suggests the need to review the LET to ensure that test components are legitimate measures of what teachers should know and are able to do. Additionally, although certification exams can establish that one meets the required knowledge on curricular content and pedagogy, newly-certified teachers may find that they struggle with the realities of teaching. Singapore, for instance, does not rely on licenses or credentials; rather, it uses a mandatory probationary period to evaluate teaching candidates' competence for the job (OECD 2018a). A mandatory probationary period for all teachers following certification exams may help enhance the quality of the teaching force.

To improve teacher quality, the Philippines has in recent years begun implementing various teacher professional development reforms. These efforts include the national adoption of the Philippine Professional Standards for Teachers, which outlines the required skills and competencies of quality teachers, and paves the way for the development of frameworks for pre-service training in teacher education institutions. In addition, the DepEd has begun implementing the transformation of the National Educators Academy of the Philippines, which is responsible for the design, development and delivery of professional development for teachers.

Attractiveness of teaching profession

Students who expect to become teachers tend to be low achievers. Given the need to improve the quality of teachers in the Philippines, this report examines whether students aspire to take up teaching as a profession. PISA asks students to identify the occupation which they expect to work in when they are 30-years old. In the Philippines, about 12 percent of students expect to enter the teaching profession. Mean reading scores were then examined to see whether teacher aspirants were more frequently found among high achievers. As seen in Figure 33, students who expect to become teachers scored significantly less across all subjects, about 42-45 points less, on average, in reading, math, and science than their peers who expect to enter other careers.

Figure 33. Differences in mean reading scores between teacher aspirants and other career expectations



Source: OECD PISA 2018 database.

These findings might imply that many future teachers start their pre-service training with limited subject knowledge, which they may not be able to overcome, even after pre-service training. Poor content knowledge among in-service teachers is reflected in the persistently low performance of teachers on the Process Skills Test (PST) for math and science, as well as the Teachers' English Proficiency Test (TEPT), which are administered by the DepEd to teachers across two grade levels every year. In 2017, teachers in Grades 9 and 10 scored only 67 percent on reading comprehension in the TEPT, and only 62 percent in the PST in math and science (DepEd 2017).

Teaching does not appear to be an attractive profession among high achievers. Policies in teacher recruitment and hiring must be geared towards increasing the attractiveness of the profession, such that the best students are encouraged to pursue teaching. In Peru, the Teacher's Reform Law of 2012 sought to increase the social value of the teaching career by introducing a meritocratic system to attract, select and retain the best candidates. To incentivize secondary school graduates to pursue teaching, Peru's Ministry of Education launched the Teacher Vocation Scholarship, offering full merit-based funding for undergraduate studies in the best universities in the country. Peru offered economic incentives to the best performers in the recruitment examination process to ensure that the best candidates go into teaching (Saavedra and Gutierrez 2020).

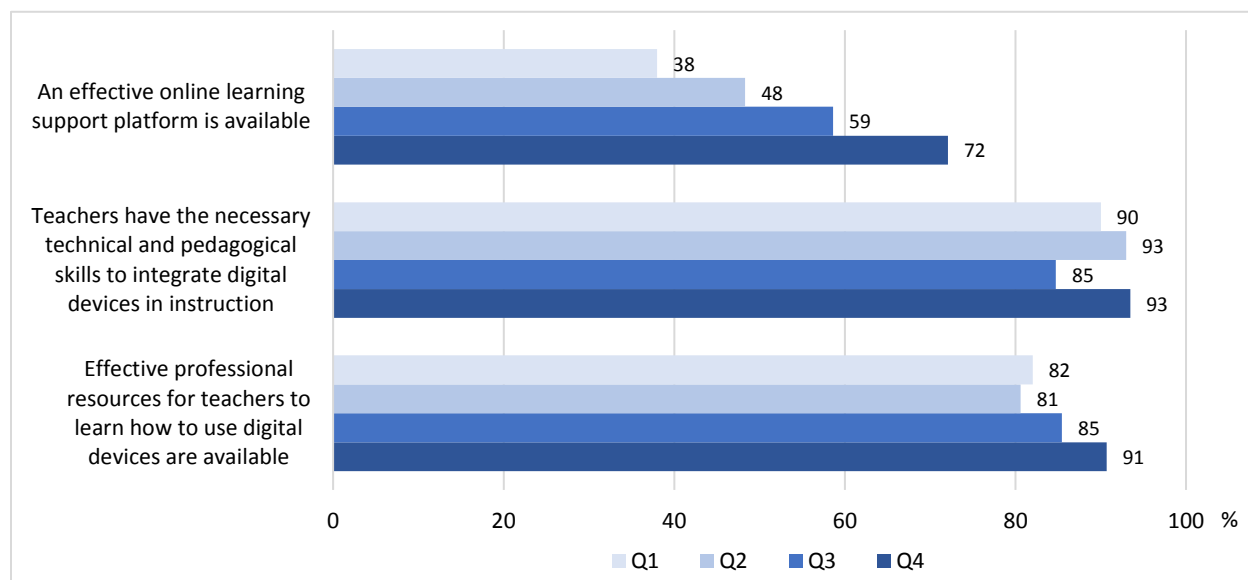
Digital learning resources

The readiness of schools for digital learning has steadily gained attention in education systems, especially in the current context of the COVID-19 pandemic. About 1.6 billion students across over 160 countries have seen schools close by early April 2020, as part of their governments' response to the pandemic (World Bank 2020a). To help prevent loss of learning, many countries are pursuing remote learning options to cope with the crisis.

Similar to many education systems in low- and middle-income countries, the Philippines faces limited access to the Internet, or to the devices needed for digital learning, particularly among disadvantaged students. Remote learning options, e.g. online learning, can help ensure

the continuity of learning in the midst of widespread school closures. However, according to principals' responses on the capacity of digital use in their schools, as well as responses provided by students on their Internet access and digital devices at home, access is limited and uneven. About 54 percent of students on average are in schools where principals agree, or strongly agree, that an effective online learning support platform is available with a wide gap by ESCS—only 38 percent of students in disadvantaged schools, as compared to 72 percent of those in advantaged schools (Figure 34). Across school ownership types, at least 73 percent of students in private schools, as compared to 50 percent of students in public schools, have principals who agree, or strongly agree, that an effective online learning support platform is available.

Figure 34. Schools' preparedness for digital learning, by school ESCS quartile



Source: OECD PISA 2018 database.

Notes: Responses are based on principals' reports. Quartiles are based on the average school ESCS.

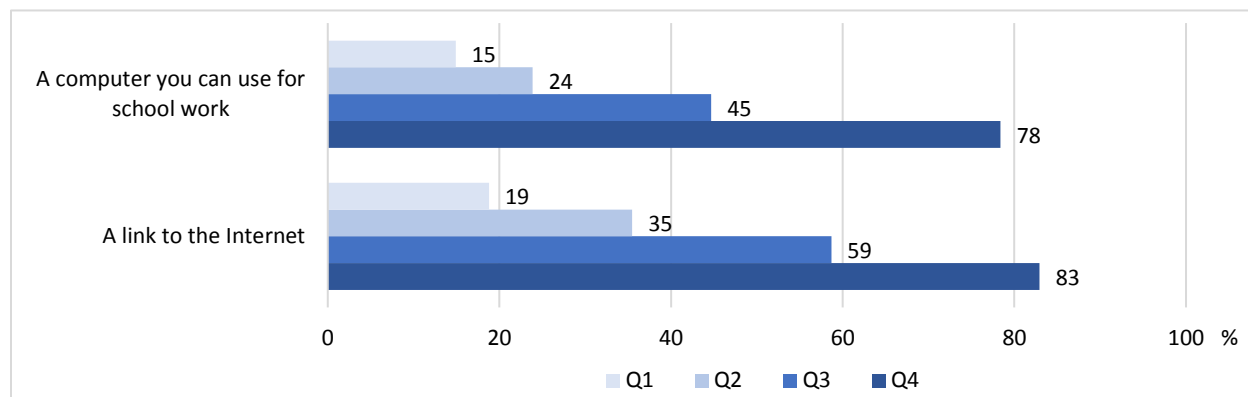
Most principals agreed that teachers are equipped with the skills and support needed for digital learning, but teachers may feel differently about their readiness for distance learning.

About 90 percent of students were in schools where principals agree, or strongly agree, that teachers have the necessary technical and pedagogical skills to integrate digital devices in instruction. This proportion on teacher preparedness was among the highest in all PISA-participating countries and economies. Across school socioeconomic profiles and school ownership types in the Philippines, over 85 percent of students were in schools where principals agree, or strongly agree, that effective professional resources are available for teachers to learn how to use digital devices. However, in a recent DepEd's *Teacher Readiness Survey on Distance Learning*, only 9 percent of the 788,066 teachers who responded indicated that they had attended a training course on distance education (Department of Education 2020).

Most students lack access to the necessary tools for online learning (Figure 35). Next to Indonesia, students in the Philippines appear to have the most limited access to digital learning resources. Less than half of students in the Philippines have access to a computer (41 percent), or the Internet (49 percent), at home. Access to these resources varied widely across socioeconomic

status. While more than three in four advantaged students have access to a computer and Internet at home, less than one in five disadvantaged students have access to these resources.

Figure 35. Availability of digital resources in students' homes, by ESCS quartile



Source: OECD PISA 2018 database.

In the absence of student access to digital learning resources, technological solutions to remote learning have the potential to exacerbate existing learning inequalities across socioeconomic groups. Students from disadvantaged backgrounds have a much more limited access to computers or the Internet in their homes. Moreover, these data represent 15-year-old students who are enrolled in school and tend to be more advantaged than those who have not reached this level. Access to the Internet and digital devices is likely to be more limited for younger students and those who live in more rural areas. In moments of severe disruptions to school operations, as is the case in the current COVID-19 crisis, policymakers need to consider delivering learning opportunities using multi-modal remote learning options, such as TV, radio, printed materials, to ensure continuity of learning.

3.2. Quality instruction

Derived from students' responses to a series of questions, PISA included indices that summarized and reflected quality of instruction.¹² These indices were constructed through the scaling of multiple items and standardized in such a manner that, across the OECD, the mean of the index value was zero and the standard deviation was one (OECD 2019b). Seven indices were related to quality instruction, namely: (i) teacher-directed instruction; (ii) teacher feedback; (iii) teacher support; (iv) teacher enthusiasm; (v) teachers' stimulation of reading engagement; (vi) adaptive instruction; and (vii) disciplinary climate.

Although students in the Philippines perceived their teachers provided feedback more frequently than reported by the average student across OECD countries, the quality of teacher feedback might not be constructive, or beneficial, to student learning. A multiple regression analysis was conducted to examine which quality instruction indices were statistically significant, and relatively important for predicting reading performance in the Philippines (Table

¹² PISA 2018 offered an additional teacher questionnaire as an option. The teacher questionnaire asks about teachers' initial training and professional development, beliefs and attitudes, and teaching practices. However, the Philippines did not opt to take part in the teacher questionnaire in 2018.

5). Among the seven predictor variables, teacher-directed instruction and teacher support had no statistically significant predictive effects on students. Among the remaining five significant predictors, teacher feedback appeared to have a negative relationship with reading performance, such that students who perceived their teachers provided more frequent feedback showed lower reading scores. This finding reinforces the need for better quality, and more targeted teacher training and professional development.

Teacher enthusiasm and disciplinary climate emerged as strong predictors of reading performance. Among the remaining statistically significant predictors, the standardized coefficients of teacher enthusiasm and disciplinary climate had the largest values (Table 5). A one-unit increase in either of these scales was associated with an increase of about 16 score points in reading. Given the relative importance of these variables, the following subsections examine teacher enthusiasm and disciplinary climate, as they are more closely aligned with student outcomes.

Table 5. Associations between PISA teacher-related indices and reading performance

PISA 2018 index	Regression coefficient	Standardized coefficient	t-value
Teacher-directed instruction	1.07	.01	.55
Teacher feedback	-19.06	-.22	-8.95*
Teacher support	1.56	.02	.73
Teacher enthusiasm	16.70	.19	11.68*
Teachers' stimulation of reading engagement	10.40	.13	7.88*
Adaptive instruction	7.91	.09	4.84*
Disciplinary climate	16.36	.18	9.74*

Source: OECD PISA 2018 database.

Note: *Statistically significant at $p < 0.05$ level.

Teacher enthusiasm

Significant differences in perceived teacher enthusiasm were found among students across socioeconomic backgrounds and the languages they speak at home. Advantaged students tended to report greater teacher enthusiasm than disadvantaged students. Perceived teacher enthusiasm was also greater among those who speak Tagalog than those who speak English at home. Variations in teacher enthusiasm across ESCS and language reflect those observed in reading performance, with higher reading scores in favor of those at the top ESCS quartile and Tagalog speakers. There were no significant differences in perceived teacher enthusiasm between students in public schools and in private schools, and between those in urban schools and rural schools.

Teacher enthusiasm was a significant predictor of reading performance. Results of the regression analysis showed that the relationship between teacher enthusiasm and reading performance may not necessarily be direct, as there could be other underlying factors that explain how or why teacher enthusiasm affects performance. An analysis was undertaken to explore the potential mediating effect of student motivation, as measured by the motivation to master tasks index, in the relationship between teacher enthusiasm and reading performance.

Up to a certain point, the teacher enthusiasm index reflects teachers' motivation, while the motivation to master tasks index reflects students' motivation. The teacher enthusiasm index reflects the extent to which students perceive their language-of-instruction teachers as enthusiastic. The index consists of items asking whether students agree or disagree with statements such as: "It was clear to me that the teacher liked teaching us", and "The enthusiasm of the teacher inspired me". The motivation to master tasks index reflects the extent to which students agree or disagree with statements such as: "I find satisfaction in working as hard I can", and "Once I start a task, I persist until it is finished".

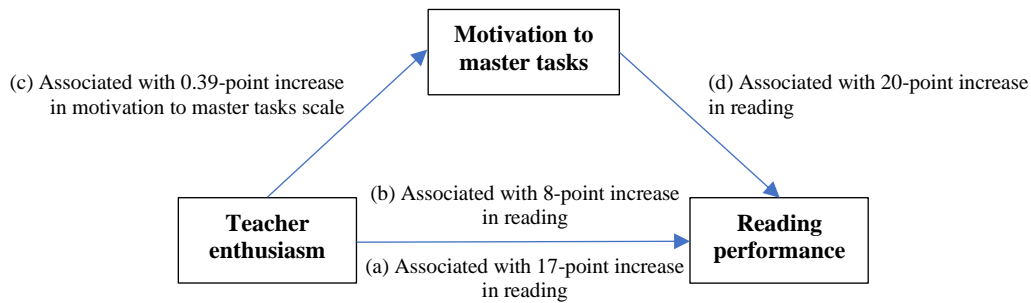
Teacher enthusiasm and student motivation appear to be interrelated constructs. Highly motivated teachers may be more successful at boosting student motivation; in turn, students who are more highly motivated are able to achieve better learning outcomes. This relationship is also valid the other way around: When students are more highly motivated, teachers become more motivated and enthusiastic as well. An analysis was thus conducted to examine the relationships between the three variables of: (i) teacher enthusiasm; (ii) motivation to master tasks; and (iii) reading performance (Figure 36).

First, teacher enthusiasm significantly predicted reading performance. Linear regression was conducted to examine the relationship between teacher enthusiasm and reading performance. After controlling for ESCS, school ownership type and disciplinary climate, teacher enthusiasm was a significant predictor of reading performance. A one-unit increase in the teacher enthusiasm scale was associated with a 17-point increase in reading scores.

Second, the motivation to master tasks had a mediating effect on the relationship between teacher enthusiasm and learning outcomes. The motivation to master tasks was added into the regression to test for its mediating effect. A one-unit increase in the motivation to master tasks index was associated with a 20-point increase in reading performance. After controlling for motivation to master tasks, a one-unit increase in the teacher enthusiasm index was associated with an 8-point increase in reading scores. The motivation to master tasks thus affected reading outcomes, as it absorbed half of the effect that teacher enthusiasm had in the first regression.

Lastly, teacher enthusiasm was positively associated with motivation to master tasks. A third regression was conducted to examine whether teacher enthusiasm was indeed related to motivation to master tasks. Teacher enthusiasm and motivation to master tasks were positively related, such that a one-unit increase in teacher enthusiasm was associated with a 0.39-point increase on the motivation to master tasks index. The association observed in the Philippines was among the strongest in all PISA-participating countries and economies.

Figure 36. *The motivation to master tasks mediates teacher enthusiasm and reading performance*



Source: OECD PISA 2018 database.

Notes: The variables in this set of regressions use different scales from the multiple regression analysis. For comparability, the standardized coefficients are as follows: (i) 0.19, before controlling for motivation to master tasks; (ii) 0.09, after controlling for motivation to master tasks; (iii) 0.35; and (iv) 0.25.

In sum, greater teacher enthusiasm is associated with stronger student motivation to master tasks. This, in turn, is associated with better reading performance. Increasing and sustaining teacher motivation, including job satisfaction and engagement in assigned subjects, is an important area on which teacher professional development activities must focus. Enhancing the management and leadership capacity of school principals is also critical to supporting teachers. To ensure teachers feel supported at school, principals must be able to recognize and address their needs and concerns. In Peru, for instance, educational management reforms included providing principals with specialized training on school management, and increasing their accountability through regular school-level data collection to identify areas of improvement (Saavedra and Gutierrez 2020).

Disciplinary climate

Students in the Philippines perceived their classroom disciplinary climate to be more negative, on average, than students in all other PISA-participating countries and economies. The disciplinary climate index summarizes students' responses to how often disorder occurred in their language-of-instruction lessons, such as: "Students don't listen to what the teacher says", and "There is noise and disorder". The Philippines' mean disciplinary climate index was -0.21, indicating a more negative disciplinary climate than across OECD countries, where the mean score on this index was 0.04.

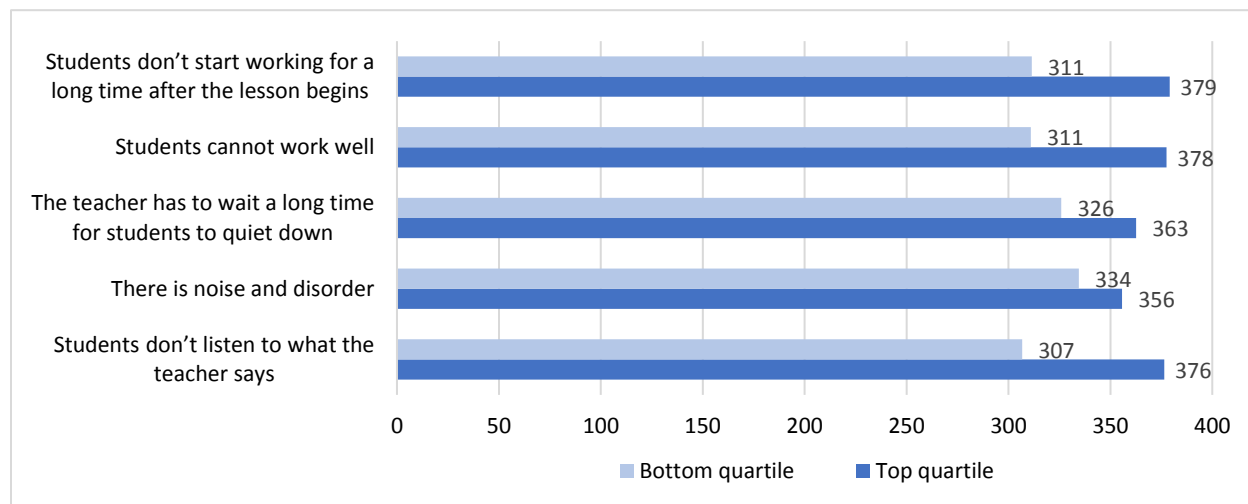
Disciplinary climate was positively associated with teacher enthusiasm. Teachers have the main responsibility of ensuring a positive disciplinary climate by managing their classrooms, keeping noise and disorder to a minimum, and fostering an environment that is conducive to learning. A key teacher quality that seems to make a difference in disciplinary climate is teacher enthusiasm. Across all participating countries and economies, students tended to report a better disciplinary climate when their teacher showed more enthusiasm. In the Philippines, after accounting for the socioeconomic profiles of students and schools, a one-unit increase in the teacher enthusiasm index was associated with a 0.25-point increase in the disciplinary climate index.

However, the disciplinary climate can also vary according to, for example, a schools' socioeconomic profile, which is largely out of a teacher's control. Students in advantaged schools reported a significantly more positive disciplinary climate than those in disadvantaged schools. In terms of student characteristics, girls tended to report a better disciplinary climate than did boys. Boys and girls may perceive the same classroom differently depending on their experiences. Boys are more likely than girls to display disruptive behavior (Kaplan et al. 2002; Bertrand and Pan 2013), and may thus perceive their learning environment as having less discipline and order than do girls (Koth, Bradshaw, and Leaf 2008).

Students in classrooms with more positive disciplinary climates tended to perform better in reading. After accounting for the socioeconomic profiles of students and schools, a one-unit increase in the disciplinary climate index was associated with an increase of 19 score points in reading. Among the five index components, the response that “students don't listen to what the teacher says” appears to have the strongest association with performance. Students who reported that this disciplinary problem occurs in every or most lessons scored 45 points less in reading than those who reported this never happened or happened only in some lessons, after accounting for ESCS.

Mean reading scores tended to be significantly higher in schools with a better disciplinary climate (Figure 37). In schools where students were least likely to report that students do not listen to their teachers (i.e. at the bottom quartile of the disciplinary climate index), the average reading score was about 70 points higher than in schools where students were most likely to report the same (i.e. at the top quartile of the index). The differences in scores between those at the top and bottom quartiles of the disciplinary climate index were significant for each component, except for the frequency of noise and disorder in classes.

Figure 37. Differences in mean reading scores between the top and bottom disciplinary climate quartiles



Source: OECD PISA 2018 database.

To improve disciplinary climates, ongoing professional development should target the classroom management skills of teachers. Classroom disciplinary climates in the Philippines appeared to be worse than in most other countries, signaling the need to improve teachers' skills in maintaining order and managing students' behavioral problems. Approaches to enhancing teachers' skills include coaching, mentoring, and feedback. For teachers working in complex

settings in Peru (e.g. single-teacher/multi-grade primary schools), for instance, continuous professional development is offered in the form of school-centered permanent coaching programs, where immediate feedback to teachers is provided after classroom observations (Saavedra and Gutierrez 2020).

3.3. Learning time

Despite having a fixed amount of instructional time allotted by the curriculum, intended learning time is lost when teachers and students are frequently absent. As discussed earlier, learning opportunities are also disrupted when there is a lack of discipline and order in the classroom. This section looks at measures of learning time based on principals' reports on the extent to which teacher absenteeism hinders student learning, as well as self-reports from students on absenteeism.

Teacher absenteeism

In the Philippines, most principals perceived teacher absenteeism as only hindering student learning very little or not at all. PISA asks principals to report the extent to which student learning in their schools is hindered by teacher absenteeism. About 4 percent of students in the Philippines, as compared to 2 percent of students across OECD countries, attended schools where principals reported that teacher absenteeism significantly hinders learning. About 9 percent of students were enrolled in schools where principals reported that teacher absenteeism hinders learning to some extent, while about 29 percent were in schools where principals reported that it did not hinder learning at all.

Teacher absenteeism was perceived to hinder learning to a greater extent in public and private government-dependent schools, as well as in schools in urban areas. Within private independent schools, teacher absenteeism was reported to hinder learning only very little or not at all. In contrast, about 14 and 19 percent of students in public schools and private government-dependent schools, respectively, had principals who perceived teacher absenteeism to hinder learning to some extent or a lot. Across school community types, about 9 percent of students in rural areas, as opposed to 18 percent of students in urban areas, were enrolled in schools where principals perceived teacher absenteeism to hinder student learning to some extent or a lot.

Having an adequate supply of capable substitute teachers can help ensure learning remains undisturbed when teachers are absent. When teachers are unable to come to class and substitute teachers are not available, schools may resort to merging classes, or having one teacher handle two different classrooms. Teacher absenteeism can thus pose an added challenge to public schools and private government-dependent schools, which tend to have larger class sizes and higher student-teacher ratios. Although the DepEd allows substitute teachers to take over when an incumbent teacher is on maternity or extended leave, there should also be a policy to provide substitute teachers to fill unexpected teacher absences.

Aside from loss of learning time due to teacher absenteeism, learning opportunities are missed when students skip classes and school days. In examining student truancy, PISA asks students how often they had skipped some classes, or a whole day of school in the two weeks prior to the assessment. Because patterns in skipping individual classes and skipping a whole day appear similar, this section focuses on skipping a whole day of school as a measure of student truancy.

Student absenteeism was frequently observed among all types of students in the Philippines, but more so among disadvantaged students, boys and students in public schools. About 29 percent of students in the Philippines, as compared to the OECD average of 21 percent of students, had skipped a day of school at least once in the two weeks prior to the PISA test. About one in three disadvantaged students (36 percent), boys (36 percent), and public school students (30 percent) reported having skipped a day of school. In contrast, about one in five advantaged students (22 percent), girls (23 percent), and private school students (22 percent) reported the same.

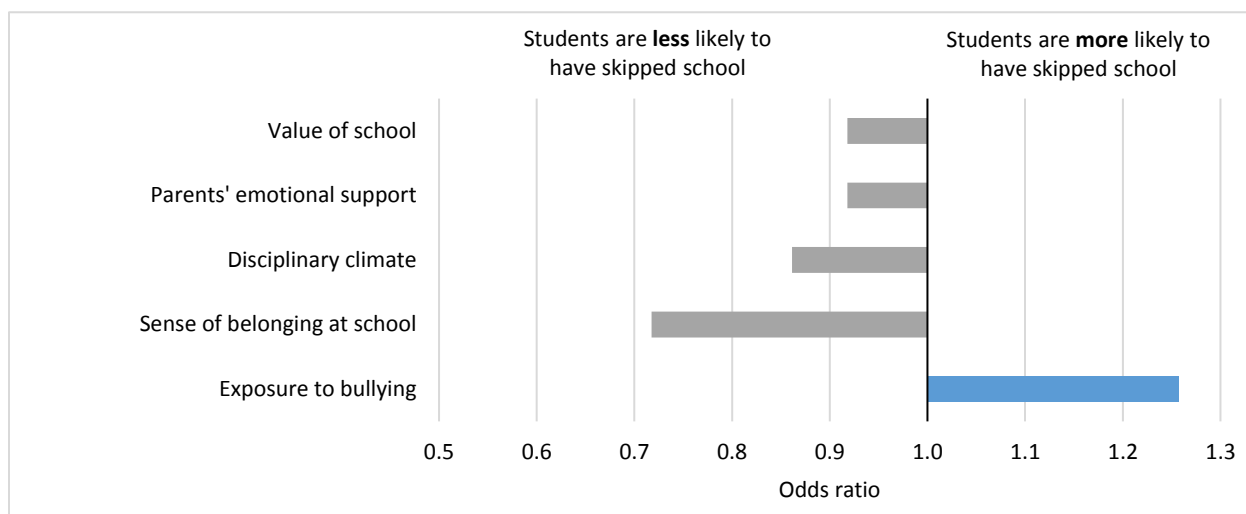
The more frequently students skipped school, the lower they tended to perform in reading. After accounting for the socioeconomic profiles of students and schools, students who skipped school once or twice in the two weeks prior to the PISA test scored 27 points less, on average, than those who had not skipped school over the same period. Skipping a whole day of school five or more times was associated with a drop of 39 score points in reading.

There seem to be strong negative peer effects of student absenteeism on the performance of other students, even when the latter themselves are not playing truant. Students attending schools with the lowest incidence of student truancy (i.e. at the bottom quartile of the distribution) scored an average of 377 points in reading, while those enrolled in schools with the highest incidence (i.e. at the top quartile of the distribution) scored an average of 317 points. This gap, a significant difference of 60 points, is equivalent to nearly two-thirds of a standard deviation.

Repeated truancy can have adverse effects on both individual students and the school learning environment. When students are frequently absent, they are more likely to fall behind, drop out, and even engage in substance abuse (Aucejo and Romano 2016; Cabus and De Witte 2015; Henry and Thornberry 2010). Truancy can also harm the larger class or school learning environment. When students fall behind due to truancy, they may require more attention and assistance from teachers, disrupting the flow of instruction. Furthermore, repeated truancy by students may demotivate attendance of peers who attend classes regularly.

A favorable school and home environment increase the likelihood that students skip school. After accounting for the socioeconomic profiles of students and schools, students were more likely to have skipped a day of school when they had more frequent exposure to bullying (Figure 38). Students were less likely to have skipped school when: (i) their classroom had a more positive disciplinary climate; (ii) when they received more emotional support from parents; (iii) they had a stronger sense of belonging at school; and (iv) when they valued school more strongly. These significant predictors of student truancy present important aspects in the learning environment that should be addressed by interventions to reduce absenteeism and improve student outcomes.

Figure 38. Predictors of student truancy



Source: OECD PISA 2018 database.

Notes: Bars represent the increased likelihood of having skipped a whole day of school in the two weeks prior to the PISA test per one-unit increase in the indices, after accounting for the socioeconomic profiles of students and schools. All values are statistically significant.

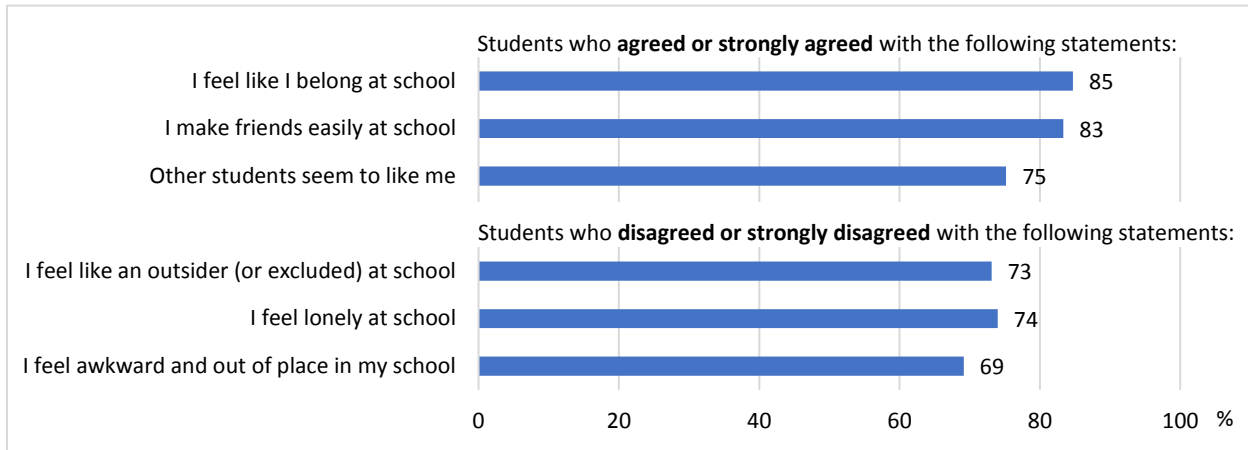
3.4. Inclusive environments

SDG 4 target on quality education addresses the provision of safe, non-violent, inclusive, and effective learning environments for all children and adolescents. Indicators for this target, include monitoring the percentage of students experiencing bullying, harassment, and other forms of attacks, threats, or discrimination within their learning environment (UNESCO 2015). In line with the need for more inclusive learning environments, this report examines PISA indices on students' feelings of belonging at school, as well as their sense of safety in school.

Feelings of belonging

Students in the Philippines tended to report a weaker sense of belonging at school than the average student in OECD countries. To measure students' sense of belonging at school, PISA asks students the extent to which they agree or not with statements such as: "I feel like an outsider (or excluded) at school", and "I feel awkward and out of place in my school". A total of six items were combined to create the sense of belonging index. When examined by item, results from the sense of belonging index paint a mixed picture on social connectedness at school (Figure 39). On the one hand, more than three-quarters of students in the Philippines agreed or strongly agreed that they make friends easily at school, feel like they belong at school, and believe that other students seem to like them. On the other hand, a sizeable number of adolescents reported that they do not feel socially connected at school, with more than one in four students agreeing, or strongly agreeing, that they feel like an outsider, feel awkward and out of place, and feel lonely at school.

Figure 39. Sense of belonging at school among students

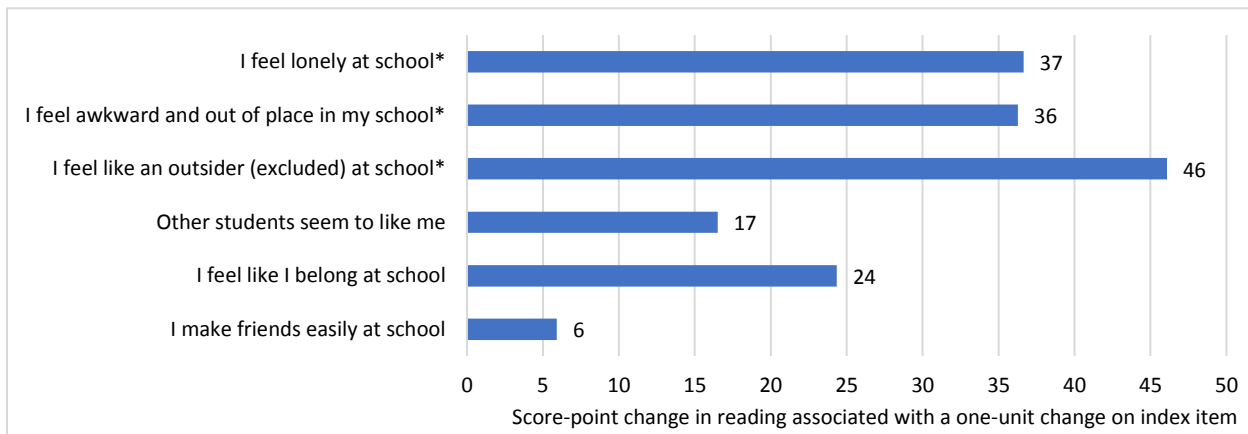


Source: OECD PISA 2018 database.

Advantaged students and girls tended to express a greater sense of belonging. As in all other PISA-participating countries and economies, students in advantaged schools in the Philippines reported a greater sense of belonging than those in disadvantaged schools. At the individual student level, advantaged students (i.e. at the top ESCS quartile) had a stronger sense of belonging than disadvantaged students (i.e. at the bottom ESCS quartile). Boys also reported a stronger sense of belonging than girls, with a difference of nearly one-fifth of a standard deviation.

A stronger sense of belonging at school was significantly associated with reading performance. After accounting for the socioeconomic profiles of students and schools, a one-unit increase in the sense of belonging index was associated with a 24-point increase in reading performance—the largest score-point difference observed among all PISA-participating countries and economies. The most strongly index component associated with reading performance was the statement: “I feel like an outsider (or excluded) at my school” (Figure 40). Students who disagreed with this statement scored 46 points higher, on average, in reading performance.

Figure 40. Students' sense of belonging and reading performance



Source: OECD PISA 2018 database.

Notes: Bars represent the score-point change in reading associated with a one-unit change on the sense of belonging index items, after accounting for students' and schools' socioeconomic profiles.

* Change in reading performance associated when students disagreed or strongly disagreed with these items.

Students are less likely to repeat a grade and more likely to hold higher education expectations, as well as express positive feelings and be academically resilient, when they have a stronger sense of belonging at school. First, after accounting for relevant predictors, such as academic performance, ESCS, and gender, grade repetition was negatively associated with students' sense of belonging. Although this relationship should not be interpreted as causal, this finding suggests that policy development to address issues, such as grade repetition should consider both non-academic and academic outcomes. Second, students who reported a greater sense of belonging were significantly more likely to expect to complete higher education. Third, students were more likely to express positive feelings (i.e. happy, joyful, cheerful), and less likely to express feelings of sadness when they reported a stronger sense of belonging at school. Lastly, significantly larger proportions of academically resilient students than non-resilient students reported that they do not feel like outsiders at school. The difference in the sense of belonging felt by these two groups of students was the largest among all PISA-participating countries and economies.

Feelings of safety

School safety is examined through the PISA exposure to bullying index. Three distinct types of bullying behavior at school—physical, relational, and verbal—are assessed (OECD 2019c). The index asks students how often during the 12 months prior to the PISA test they had experienced situations such as: “Other students left me out of things on purpose”, and “Other students made fun of me”. PISA classifies students as “frequently bullied” if they were among the 10 percent of students with the highest values in the index across all countries and economies with available data (OECD 2019c).

Although bullying occurs in all PISA-participating countries and economies, the magnitude of this issue appears largest in the Philippines. About 65 percent of students in the Philippines, as compared to the OECD average of only 23 percent, reported being bullied at least a few times a month. Whereas only an average of 8 percent of students across OECD countries were frequently bullied, about 40 percent of students in the Philippines reported being subjected to frequent bullying. Among the items in the exposure to bullying scale, the most commonly occurring bullying act was “Other students made fun of me”. Nearly half of students reported that others had made fun of them at least a few times a month. About one-third of students reported that each of the remaining bullying acts (i.e. remaining items on the exposure to bullying scale) occurred at least a few times a month.

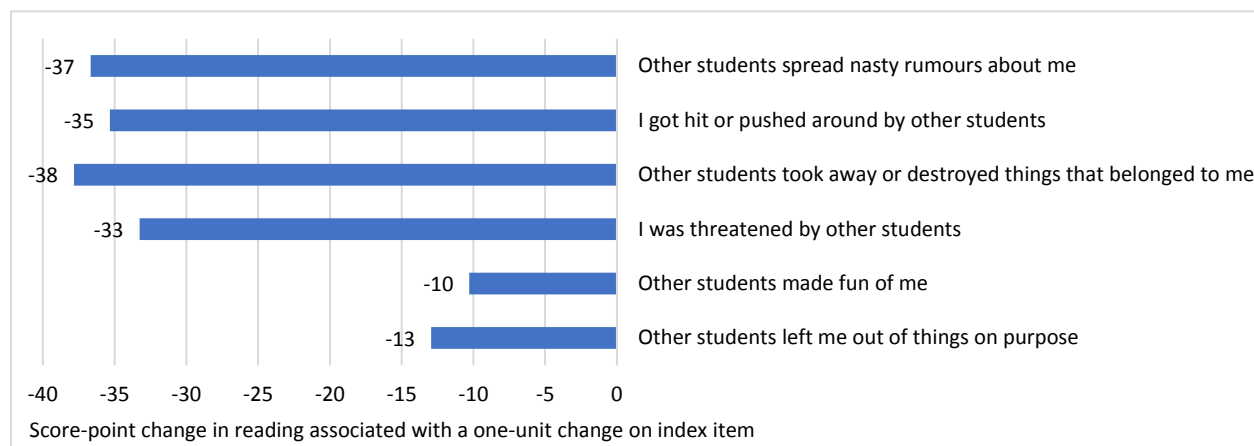
Regardless of school type, victims of bullying appeared to be heavily concentrated in certain schools, particularly among disadvantaged and public schools. About 90 percent of students attended schools where over 50 percent of their schoolmates reported being bullied at least a few times a month. In comparison to the OECD average, only 4 percent of students attended such schools. In the Philippines, significantly more students in disadvantaged schools (68 percent) and public schools (67 percent) were bullied at least a few times a month, as compared to those in advantaged (56 percent) and private schools (56 percent), respectively.

Although the extent to which students are exposed to bullying varies by student characteristics, bullying was prevalent across all student groups. Both boys and girls reported

being bullied at least a few times a month, with a slightly higher occurrence among boys (69 percent) than girls (61 percent). Incidence of bullying was also high across all socioeconomic groups, with about 59 percent and 67 percent of advantaged and disadvantaged students, respectively, reporting having been bullied at least a few times a month. Larger differences in exposure to bullying appeared between low-performing (i.e. those who score at the bottom quartile in reading) and high-achieving students (i.e. those who score at the top quartile in reading). About 73 percent of low-performing students, as compared to 48 percent of high-achieving students, reported being bullied at least a few times a month.

A greater exposure to bullying was associated with significantly lower scores in reading performance. After accounting for the socioeconomic profiles of students and schools, a one-unit increase in the exposure to bullying index was associated with a decrease of 13 score points in reading. Students who reported having experienced any type of bullying act at least a few times a month scored 28 points lower, on average, than those who were less-frequently bullied. Furthermore, the relationship between exposure to bullying and reading performance depended on the type of bullying that occurred. Physical and relational bullying acts were associated with larger decreases in reading score (Figure 41).

Figure 41. Students' exposure to bullying and reading performance



Source: OECD PISA 2018 database.

Notes: Bars represent the score-point change in reading associated with a one-unit change on the exposure to bullying index items, after accounting for the socioeconomic profiles of students and schools.

As in the case of student absenteeism, there seem to be strong negative peer effects of bullying on student performance when they attend schools where bullying is prevalent, even if they themselves have not been bullied. Students attending schools with the highest incidence of any bullying act (i.e. those at the top quartile of the distribution) scored an average of 320 points in reading, while those in schools with the lowest incidence (i.e. those at the bottom quartile of the distribution) scored significantly higher with an average of 379 score points.

Students who were more frequently bullied are significantly more likely to report feeling scared or sad. These differences remained significant even after accounting for the socioeconomic profiles of schools and students, gender and reading performance. Interestingly, whereas frequently bullied students across the OECD were less likely to have the self-belief to get through

hard times, frequently bullied students in the Philippines were significantly more likely to have this self-belief than their peers who were not frequently bullied.

Principals and teachers may not be fully aware of the extent to which bullying occurs in their schools. PISA asks principals to describe the extent to which learning is hindered by student bullying. About 66 percent of students attended schools where principals reported that bullying only hinders learning very little. About 10 percent of students were in schools where principals reported that bullying does not hinder learning at all. A potential reason that relatively few principals recognize bullying as an obstacle to learning is their limited awareness on the extent to which bullying occurs in their schools. To prevent bullying, educators must be better trained to recognize different forms of bullying, take appropriate actions to address bullying acts, and encourage students to disclose incidents of bullying.

Preventing bullying in schools will mean engaging all education stakeholders. Aside from teachers and principals, other key stakeholders, e.g. parents, school staff, and the students themselves must be involved in anti-bullying programs. Japan, one of the few countries that have shown significant decreases in exposure of bullying from 2015 to 2018, has a bullying prevention law that requires all schools to formulate bullying prevention guidelines, and take early detection and active countermeasures. Community involvement is emphasized, as schools are required to establish a group of teachers and experts in psychology, child welfare, and other related fields to implement anti-bullying measures. Schools are also asked to strengthen their capacity to guide and consult students, and to encourage peer support and counseling in schools (UNESCO 2017).

3.5. Family support

Interactions between the two key aspects of students' lives, i.e. their families and school, can shape educational outcomes. Parents, in particular, play an important part in their children's school success. Meta-analyses of research on parental engagement and academic achievement have found a positive relationship between the two variables, with stronger associations appearing for certain forms of parental engagement, such as: (i) parental expectations for academic achievement; (ii) reading at home; communication between parents and children on school; and (iii) parental encouragement and support for learning (Wilder 2014; Boonk et al. 2018). This section examines how parental involvement in school and emotional support are related to student outcomes in academic achievement, well-being, and attitudes towards school and learning.¹³

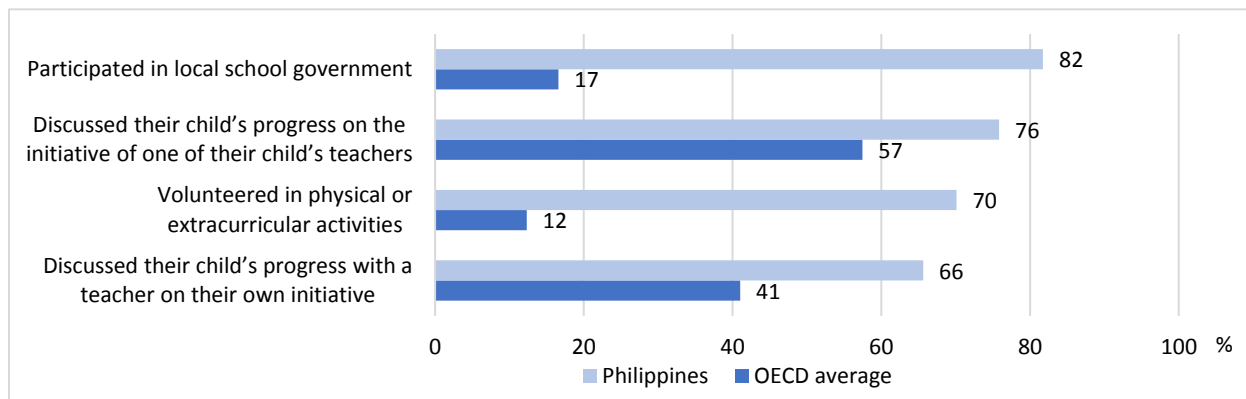
Parental involvement at school

Among all PISA-participating countries and economies, the level of reported parental involvement at school was highest in the Philippines. PISA asks principals questions about the proportion of parents who participated in school-related activities such as: “Participated in local school government (e.g. Parent-Teacher Association or school management committee)”, and “Volunteered in physical or extracurricular activities (e.g. building maintenance, carpentry,

¹³ PISA 2018 offered an optional parent questionnaire which asks questions on: parents' perceptions of and involvement in their child's school; their support for learning at home; school choice; their child's career expectations; and their background (i.e. immigrant/non-immigrant). However, the Philippines did not opt to take part in the parent questionnaire in 2018.

gardening or yard work, school play, sports, field trip)”. In the Philippines, four in five parents participated in local school government (Figure 42). For each type of school activity, principals reported participation by at least 65 percent of students’ parents during the previous academic year.

Figure 42. *Proportion of parents who participated in school-related activities*



Source: OECD PISA 2018 database.

Note: Bars represent the proportion of students’ parents who participated in school-related activities in the previous academic year, as reported by school principals.

Significant school differences in parents’ participation were observed only in terms of volunteering in physical or extracurricular activities. The proportion of parents who participated in this type of school activity was larger in disadvantaged schools (75 percent) than in advantaged schools (60 percent). About 72 percent of parents in both public schools and private government-dependent schools, as compared to only 50 percent of parents in private independent schools, were reported to have volunteered to participate in physical or extracurricular activities.

Parental involvement in school-related activities was mostly unrelated to students’ reading performance. Participation in local school government and volunteering in physical or extracurricular activities were negatively associated to reading performance; however, these associations were not significant after accounting for the socioeconomic profiles of students and schools. Across PISA-participating countries and economies, average reading scores tended to be lower in education systems where more parents participated in local school government and volunteer activities. The OECD (2019c) notes that a possible reason for this negative association could be that schools in low-income countries have greater need for increased parental involvement due to financial constraints, and that students in these countries also tend to show poorer academic performance.

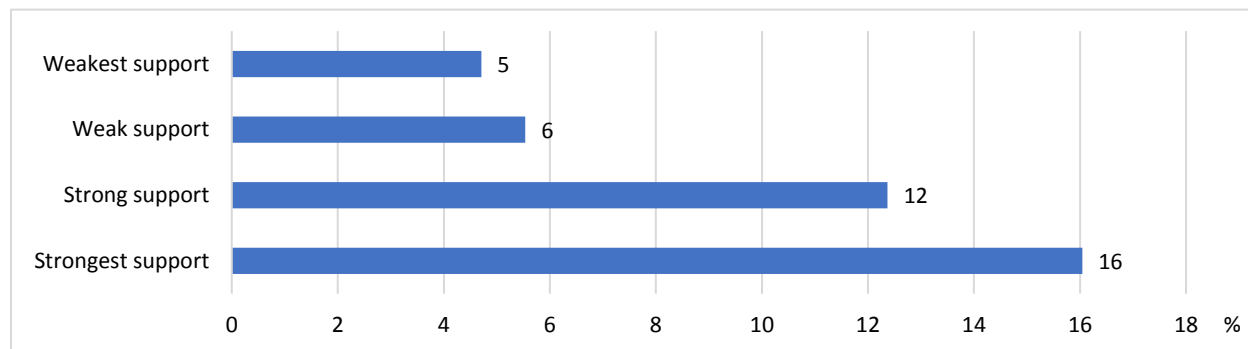
Parents’ emotional support

The average level of perceived parents’ emotional support in the Philippines was only slightly lower than that of the OECD average. PISA asks students questions on the extent to which they agree with statements related to the academic year when they sat for the PISA test, e.g.: “My parents support my educational efforts and achievements”, and “My parents support me when I am facing difficulties at school”. These items were combined to create the parents’ emotional support index.

Advantaged students and students in private independent schools were more likely to report strong emotional support from their parents. Socioeconomically advantaged students reported significantly greater levels of emotional support from their parents than disadvantaged students. Students in private independent schools also reported more emotional support from their parents than those in private government-dependent and public schools.

Students who perceived greater emotional support from their parents were more likely to perform better in reading and be more academically resilient. After controlling for students’ ESCS, a one-unit increase in the parents’ emotional support index was associated with an increase of 18 score points in reading. Moreover, shares of academically resilient students increased with levels of parents’ emotional support (Figure 43). Among students who received the strongest emotional support, 16 percent were academically resilient. This share was 11 percentage points larger than that of academically resilient students who received the weakest emotional support. Among all PISA-participating countries and economies, the Philippines showed one of the strongest relationships between academic resilience and emotional support of parents.

Figure 43. Proportion of academically resilient students, by level of parents' emotional support



Source: OECD PISA 2018 database.

Notes: Academically resilient students are defined as students who belong to the bottom ESCS quartile and who score at the top quartile of reading performance. The levels of parents’ emotional support correspond to the quartiles on the parental emotional support index, with “weakest support” referring to the bottom quartile and “strongest support” referring to the top quartile.

Parents’ emotional support was also positively associated with student well-being and attitudes towards school and learning. The greater the perceived emotional support from parents, the more likely that students expressed feelings of happiness, joy and cheerfulness, as well as overall life satisfaction. Students who perceived greater emotional support from their parents were also more likely to have a stronger motivation to master tasks and more ambitious learning goals. Parents’ emotional support was also positively but only weakly correlated with the extent to which students valued schooling.

Emotional support from parents can be encouraged through school- and home-based interventions to improve parenting skills. Training in parenting skills can be incorporated into programs focused on improving children’s skills in cognitive domains, such as language and literacy. Research suggests that when parenting skills training are embedded in programs focused on children’s cognitive development, gains are observed in both parents’ emotional support and children’s academic outcomes (van Tuijl and Leseman 2004). The provision of parenting skills’

programs to families from poorer backgrounds is especially important, given its protective role in mitigating the risk of underperformance among disadvantaged students.

CHAPTER 4: Policy options for the Philippines

4.1. Summary of findings

In the Philippines, student attainment and achievement outcomes are poor: dimensions of well-being and attitudes towards school and learning must be improved. Relative to other PISA-participating countries, the foundations for success in the Philippines are at low levels and, to a lesser extent, often present in socioeconomically disadvantaged and public schools.

Four outcomes of education at age 15

Poor educational attainment in the Philippines is associated with poor performance, compared to most other PISA-participating countries and economies. While access to basic education (K to 12) has substantially improved in recent years, only 68 percent of 15-year-olds were eligible to participate in PISA 2018, suggesting a sizable proportion of youth had left school by the age of 15. In addition, there was noticeable grade-age mismatch due to late entry and grade repetition, particularly among boys and socioeconomically disadvantaged students. Poor educational attainment was associated with poorer academic outcomes: Grades 9 and 10 students who had repeated a grade once scored as much as 94 points lower in reading as compared to peers who had not repeated a grade.

The overwhelming majority of students in the Philippines failed to reach minimum levels of proficiency across all three PISA subjects, with a wide gap by socioeconomic status. About 81 percent of students scored below minimum proficiency levels in reading and math, and 78 percent in science. These challenges in foundational skills start at early grades: a significant proportion of students do not demonstrate that they understand what they read in English by the end of Grade 3 (Education Development Center 2018). Weak proficiency in English significantly constrains students' learning ability in all subjects in later grades. Performance varied by sociodemographic characteristics, such as gender (in favor of girls), school ownership (in favor of students in private independent schools), and socioeconomic status (in favor of socioeconomically advantaged students). The high level of social segregation in the Philippines—a typical disadvantaged student has about a one-in-seven chance of attending the same school as high-achieving peers—seemed to reinforce performance gaps.

Disciplinary climates in classrooms and students' sense of belonging at school were strongly associated with levels of life satisfaction, which, in turn, impact academic performance. Though most students express high levels of life satisfaction and emotional well-being, more than three in five students report feeling sometimes or always scared, afraid or sad. Girls and advantaged students tended to report greater meaning in life and more frequent positive feelings than boys and disadvantaged students. Greater life satisfaction, meaning in life, and positive feelings were associated with higher levels of achievement, higher likelihood of academic resilience, and a lower likelihood of truancy. Students were more likely to express these dimensions of well-being when they had a stronger sense of belonging at school, a more positive disciplinary climate in their classrooms, and greater emotional support from their parents.

Positive attitudes towards school and learning—which were significantly associated with reading performance—were particularly weak among boys and disadvantaged students. Girls and advantaged students tended to have greater motivation to master tasks, hold more ambitious learning goals, value school more strongly, believe in a growth mindset, and have high educational and career expectations. About 82 percent of advantaged students, as opposed to only 47 percent of disadvantaged students, expect to complete tertiary education. A misalignment between career expectations and education expectations was observed, particularly among disadvantaged students. Among those expecting to work in high-skilled occupations, more than a quarter of students reported that they do not expect to complete tertiary education.

Five foundations for success

Investments in key financial, human, and digital learning resources were low overall, but particularly in disadvantaged schools. The cumulative spending per student in the Philippines (USD 8,474 in PPP) was the lowest among all participating countries and economies. Class sizes and student-teacher ratios were largest in disadvantaged schools and public schools. Larger class sizes tended to have more negative disciplinary climates, which was a significant predictor of poor performance. Teacher certification and educational attainment appeared to be unrelated to student performance. Though most principals perceived their schools and teachers to be adequately equipped with digital learning resources, less than half of all students reported having access to a computer for schoolwork or the Internet at home. Among disadvantaged students, less than one in five have access to these resources at home.

Students in the Philippines perceived their classroom disciplinary climate—which was strongly associated with performance—to be more negative, on average, than students in all other PISA-participating countries and economies. Significantly worse disciplinary climates were observed in socioeconomically disadvantaged schools than in advantaged schools. Improving teachers' classroom management skills appears to be an important area of focus for professional development, as students in classrooms with more positive disciplinary climates tended to perform better. Along with fostering a positive disciplinary climate, teacher enthusiasm emerged as a key dimension of quality instruction. Higher levels of teacher enthusiasm were associated with stronger motivation to master tasks among students, which, in turn, was related to better reading performance.

Learning time was lost due to high student absenteeism, which was negatively associated with student performance. Teacher absenteeism was perceived to hinder learning to a greater extent in public schools and private government-dependent schools. As class sizes tend to be larger and student-teacher ratios tend to be higher in these schools, teacher absenteeism may bring additional challenges. Boys, disadvantaged students and students in public schools tended to skip school more frequently. Skipping a day of school once or twice in the two weeks prior to the PISA test was associated with a decrease of 27 score points in reading. Students are less likely to skip school when: (i) they have a positive disciplinary climate in the classroom; (ii) receive more emotional support from parents; (iii) have a stronger sense of belonging at school; (iv) and value school more strongly.

Students acknowledge that bullying in schools in the Philippines is a serious issue, and report a weak sense of belonging at school, both of which were negatively associated with performance. Despite students' claims, most principals perceived bullying to hinder learning only very little or not at all, which may indicate their limited awareness of the problem. Although bullying was prevalent across all types of students, exposure to bullying was higher among boys, disadvantaged students and low-achieving students. A greater sense of belonging at school was observed among students in socioeconomically advantaged schools. Students with a stronger sense of belonging tended to score higher in reading, were more likely to be academically resilient, and less likely to repeat a grade.

Stronger emotional support from parents plays a protective role against underperformance among disadvantaged students, but not parental involvement at school. The emotional support provided by parents—more frequently observed among advantaged students and students in private independent schools—was positively related to not just academic performance, but also to positive outcomes in well-being and attitudes towards school and learning. In contrast, although high levels of parental involvement at school were observed, particularly in disadvantaged schools and in public and private government-dependent schools, school-based parental involvement appeared to have no relation to reading performance.

4.2. [The impact of COVID-19 school closures on schooling and learning](#)

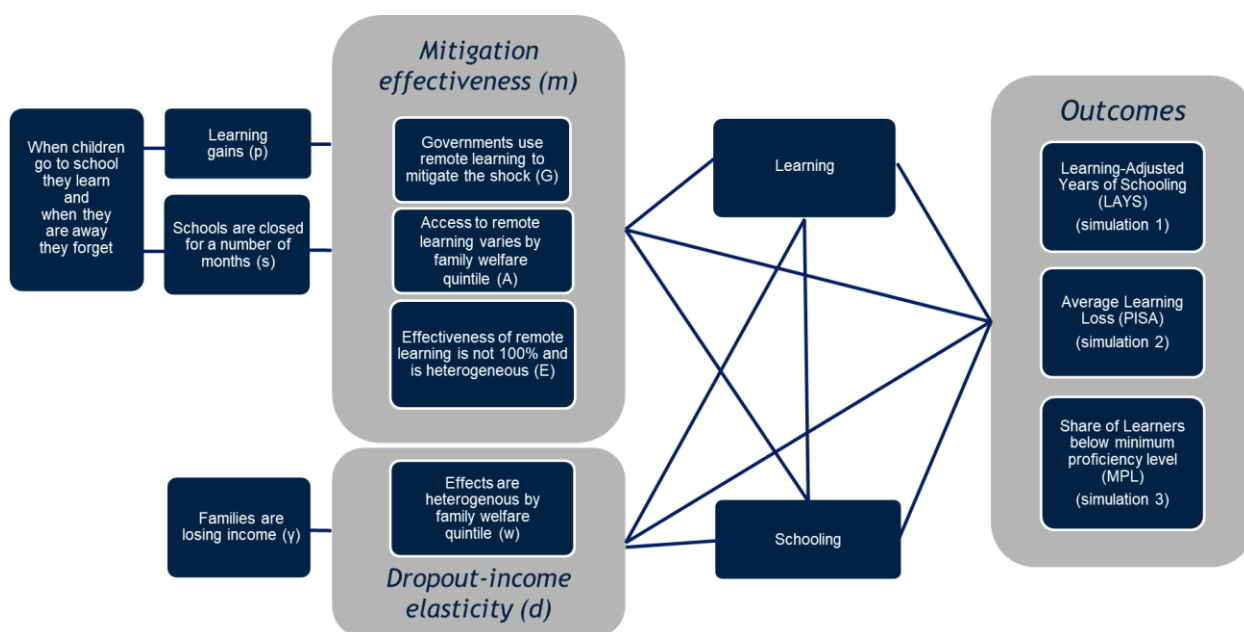
The Philippines is in learning crisis. Even before the COVID-19 pandemic, the Philippines was facing a learning crisis. In 2018, i.e. before the COVID-19 pandemic, 32 percent of 15-year-old children were out of the formal education system. Of those who were still enrolled in school, about 80 percent did not achieve the minimum proficiency in three core subjects, reading, math, and science. According to the World Bank's Human Capital Index for 2017 (World Bank 2018), the learning-adjusted years of schooling was only 8.4 years (adjusted for the quality of learning), even though the expected years of schooling in the Philippines was 12.8 years. Even worse, the crisis was not equally distributed: socioeconomically disadvantaged children and boys had the largest learning deficits.

The COVID-19 pandemic will make the learning crisis even worse. In the Philippines, the school year ends in March 2020, hence students only missed the last few weeks of schooling before they went onto the summer break. However, schools did not open at the beginning of June as they normally do and will now only open at the end of August. Even then, many schools are likely to be operating with limited face-to-face time in school. With school closed for several months, followed by a partial opening in subsequent months, students' learning opportunities are likely to decline, and the disparities between students are likely to increase. The damage will become even more severe as the deep global recession evolved into a full-blown economic crisis, which will negatively impact the financial situation of many families and force their children to drop out of school.

A simulation analysis of the impact of COVID-19 school closures on schooling and learning suggests that short-term learning losses caused by COVID-19 can lead to significant negative medium-term and long-term impacts on learning-adjusted years of schooling (LAYS) and its income effects, learning outcomes, and the basic proficiency level. The World Bank has

developed a simulation tool to analyze the impact of the COVID-19 school closures on schooling and learning (Azevedo et al. 2020a). This tool enables the creation of different scenarios building on a range of parameters, such as (i) the typical learning gains from one grade to the next (p); (ii) the duration of school closures (s); (iii) the supply of remote education modalities (G); (iv) access to these alternative modalities (A); (v) the effectiveness of alternative modalities (E); (vi) γ , families are losing income. The income loss is an exogenous parameter, as is determined by existing GDP projections, from the World Bank and IMF; and, (vii) d , countries have age group specific income elasticities to schooling¹⁴, which will lead some children to drop out (Figure 44) (see Annex 5 on detailed assumptions). The choice of values for these parameters is driven by our understanding of the Philippines' current situation and the existing international literature. For instance, the DepEd has developed an online educational platform, Commons as a key remote learning modality, but access to online materials are still limited in the Philippines.

Figure 44. Assumptions on pathways of learning loss in the short-and medium-term



Source: Azevedo et al. (2020b).

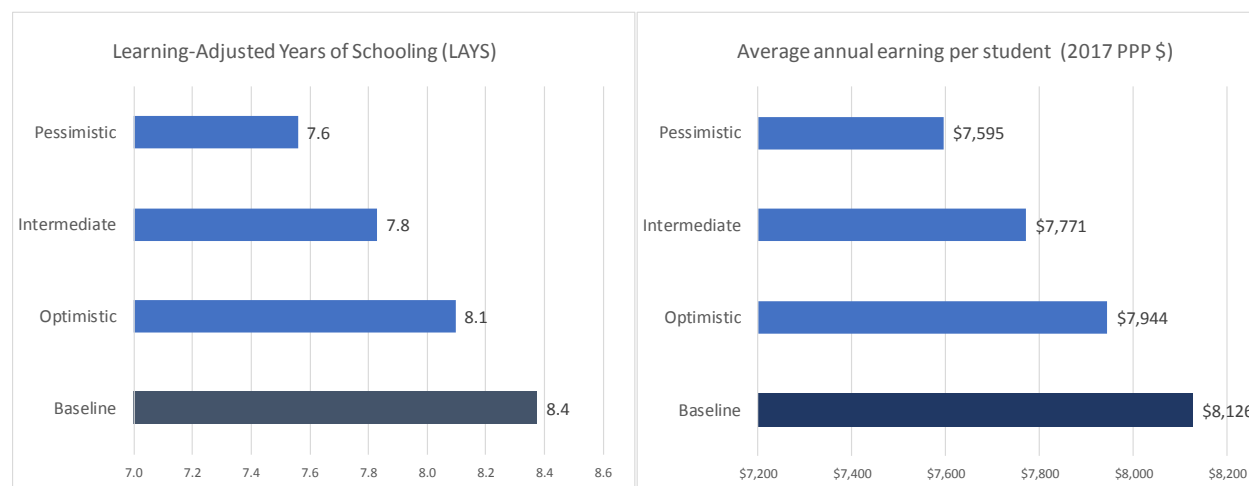
Notes: EYRS – Expected Years of Schooling; LAYS – Learning-Adjusted Years of Schooling; MPL – Minimum Proficiency Level.

The results of the simulations suggest that short-term learning losses could lead to significant long-term effects on students' future income. The tool examines the medium-term effect of the shock on the LAYS and its long-term effects on incomes in terms of projected annual income changes. Learning losses would range widely depending on the various assumptions discussed above, but the general thrust of these assumptions is that the current student cohort from 4-17 years of age is likely to lose between 0.3 (optimistic scenario) and 0.8 (pessimistic scenario) of their LAYS. Furthermore, the short-term shock could lead to substantial economic losses in terms of

¹⁴ For more information regarding this parameter please see the discussion on school enrollment-income elasticity see Azevedo et al (2020b) in this annex A.2.

annual earnings between \$182 and \$531 (in 2017 PPP), as well as losses in the present value of lifetime earnings of all students in school today at an aggregate level (Figure 45).

Figure 45. The short-term shock could lead to shorter LAYS and long-term economic losses



Source: Azevedo et al. (2020a) using parameters from the World Bank Philippines Education Team.

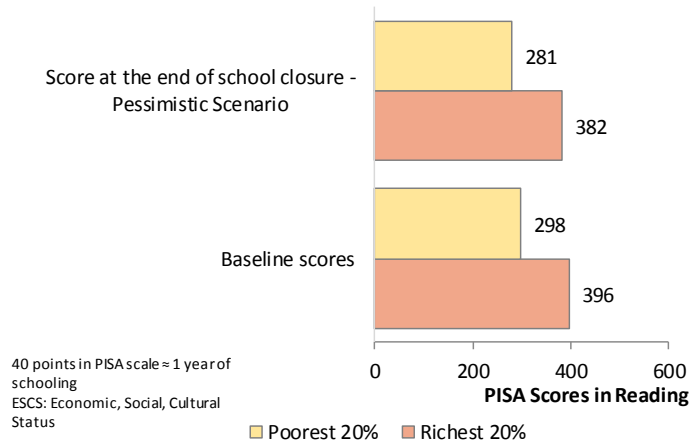
Notes: Mean monthly earnings of employees in 2017 PPP \$ are sourced from ILO (as cited in Azevedo et al. (2020a)). Country specific where available otherwise average for country's income class. Assumes returns to education of 8 percent.

The simulation results also suggest that learning will be lost significantly in terms of PISA scores and proficiency levels. For lower secondary students, this shock is likely to result in 14 and 17 score points for top and bottom 20 percent of ESCS, respectively (Figure 46). Also, it is estimated that the share of lower secondary students below Level 2 could increase from 81 percent to up-to 87 percent (Figure 47). As discussed in Azevedo et al (2020b), education systems need to be able to rapidly adapt, as the share of students in the classroom unable to demonstrate the **basic** skills and competencies needed to participate effectively and productively in life will increase. Effective strategies to teach at the right level will need to be designed and rapidly deployed when schools reopen. There is overwhelming evidence that shows that teaching at a higher level compared to where children are reduces how much they learn.¹⁵

Post COVID-19, schools should adapt to the learning needs of each child and should continue to blur the walls to allow children to continuously learn at school and at home. Education systems will need to adapt to the “school of the future” (and to the new normal), with a focus on five key drivers: learners, teachers, learning resources, learning spaces, and school leaders. COVID19 has compelled countries to develop smarter and sustainable strategies for delivering quality education for all, enabling children to learn anywhere, anytime. Adjusting to this new normal will be a complex process, but this process is both urgent and necessary to address the learning crisis both during the COVID-19 pandemic and beyond. This shift to the “school of the future” and related key drivers will be explored in more detail in an upcoming World Bank position paper entitled “*Reimagining Education: Building Back Better Post-COVID-19*”.

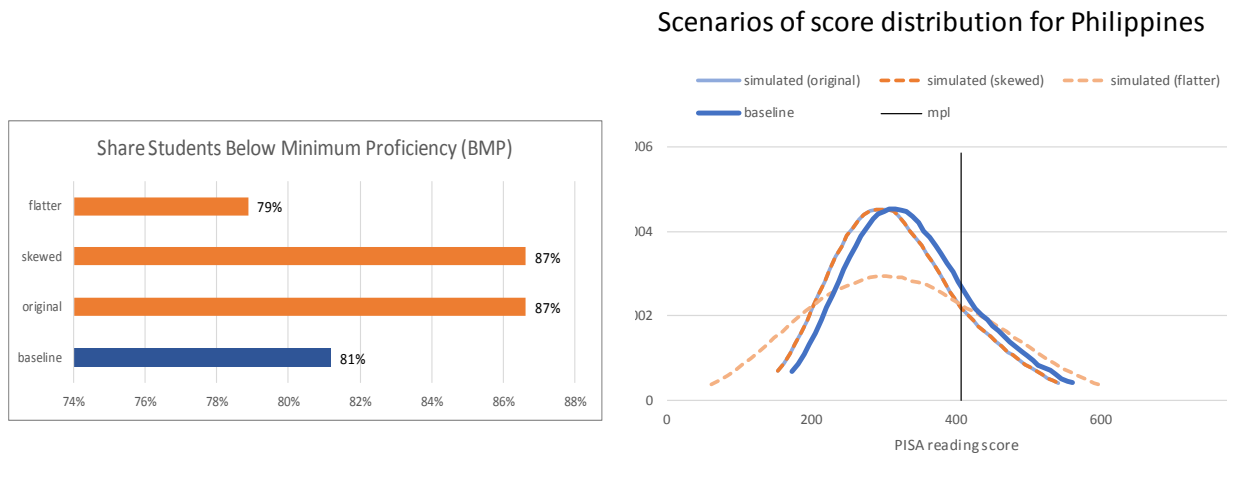
¹⁵ Banerjee et al. (2016)

Figure 46. Estimated learning losses in terms of PISA scores



Source: Azevedo et al. (2020a) using parameters from the World Bank Philippines Education Team.

Figure 47. The estimated share of students below minimum proficiency



Source: Azevedo et al. (2020) using parameters from the World Bank Philippines Education Team. Notes: The three simulated distributions should be interpreted as: (i) Original – all students are affected equally; (ii) Skewed – those at the bottom fall behind; and (iii) those at the bottom fall behind and those at the top move ahead.

4.3. Building foundations for education success

Given the unprecedented disruptions caused by COVID-19 to education, it is now more urgent than ever to establish the foundations for success, not only as an immediate response to COVID-19, but also as a long-term strategy to strengthen the education system. The first step is to cope successfully with school closures and prepare for school reopenings. This include protecting health and safety of students and teachers, preventing dropout, ensuring healthy school conditions, and using new techniques to promote rapid learning recovery in key areas once students

are back in school. As the school system stabilizes, countries can use the focus and innovativeness of the recovery period to ‘build back better’ to improve education outcomes for all.

To improve education outcomes, the findings from PISA 2018 point to three key policy areas to strengthen the foundations for effective learning: (i) creating safe and welcoming school climates; (ii) fostering students’ social and emotional skills and promoting academic resilience; and (iii) transforming the roles of teachers to support student learning.

Creating safe and welcoming school climates

By promoting school climates where students feel safe, welcomed and socially connected, educators can more effectively support learning for all students. Beyond the traditional notion of education as simply delivering curriculum content, schools should give attention to the importance of cultivating inclusive learning environments. When students have minimal exposure to bullying, have a strong sense of belonging at school, and are placed in well-managed classrooms, they are more likely to show positive outcomes in education achievement, attainment and well-being.

Educators may overlook important obstacles to learning if they only focus on what goes on inside their classrooms. Although students report alarmingly high levels of bullying in their schools, most principals think that bullying hinders learning only very little or not at all. This suggests educators may not be aware of the extent to which bullying occurs in their schools. Policies should help build school management systems that allow principals, teachers, and students to assess the current climate in their schools and to use data from these measures to address specific school needs.

Comprehensive bullying prevention programs need to engage all education stakeholders, including students, educators, parents and school staff. The DepEd’s Child Protection Policy provided the basis for the creation of a Child Protection Committee, which also serves as the Anti-Bullying Committee, in each school. Monitoring and reporting systems should be strengthened to ensure that Anti-Bullying Committees are implementing appropriate and effective bullying prevention strategies. Principals and teachers should be provided training to recognize and address different forms of bullying (e.g. verbal, physical, relational). School policies and practices should ensure that teaching students, staff and parents are able to recognize early signs of bullying, respond to incidents appropriately, and access formal reporting systems.

To foster a safe and inclusive school climate, teachers should be able to clearly communicate and implement rules and expectations. In addition to equipping teachers with bullying prevention strategies, pre-service training and ongoing professional development should strengthen teachers’ abilities to manage noise and disorder in their classrooms. By enhancing their classroom management skills, teachers can be better-equipped to maintain a positive disciplinary climate which, in turn, can help prevent transgressions such as bullying.

Professional development for teachers can include teaching practices that promote positive teacher-student relationships and sensitivity to students’ needs and emotions. Sustaining an environment of inclusion will be particularly important once school closures are lifted after the

COVID-19 outbreak has ended. Educators must be especially sensitive to students' transition back to the classroom, ensuring that students feel welcomed, safe, and connected to their school.

Adapting school climates will entail fostering social and emotional skills for both learners and educators. A growing body of literature on social and emotional skills (e.g. perseverance, self-control, emotion regulation) highlights their significant role in improving education, social and labor market outcomes (Puerta, Valerio, and Bernal 2016; OECD 2015). With strong social and emotional skills, learners are able to consistently follow rules, contribute to positive disciplinary climates, and foster a stronger sense of inclusion. By developing these skills in teachers, educators can become more adept at communicating rules, able to build strong and positive relationships with parents and students, and maintain order in their classrooms. Social and emotional skills training and intervention programs should be provided for both learners and educators. Policymakers should also consider a system-level integration of social and emotional learning, such as incorporating this element into national curricula (Box 3).

Box 3. Country examples of policies and practices for social and emotional skills development

Education systems around the world have included social and emotional skills development into their national education objectives and national curricula. These skills are targeted either by integration across some or all subjects in the curriculum, or by dedicated subjects designed to enhance social and emotional skills.

In some countries, e.g. Australia, social and emotional skills development are incorporated across subjects in the curriculum framework. The mathematics curriculum, for instance, targets 'personal and social capability' by providing opportunities for initiative-taking, decision-making, and collaboration in the classroom. In Korea, social and emotional skills are addressed in all subjects by incorporating character education and creativity as cross-curricular themes.

Schools in many countries include subjects, such as civic and citizenship education and moral education, which are specifically aimed at developing social and emotional skills. In Israel, a dedicated subject for social and emotional skills development was introduced through the subject 'Life Skills Studies'. This subject teaches skills sets in five clusters: (i) self-identity; (ii) self-regulation; (iii) interpersonal relations; (iv) leisure, career choice and learning; and (v) coping with stress. Though the subject is implemented during dedicated learning time, the program is also encouraged across other subjects in the curriculum.

Source: OECD (2015).

Fostering students' social and emotional skills and promoting academic resilience

Policymakers should focus on early detection and intervention for students at risk of underperformance, such as boys and disadvantaged students. Both boys and disadvantaged students have a higher likelihood of dropping out, repeating a grade, and failing to reach learning standards. They also have a lower likelihood of expressing overall life satisfaction, positive attitudes towards school and learning, and feelings of inclusion in school. Early detection and intervention for students at risk of dropping out, or failing, can help reduce grade repetition, which is a costly policy that does not appear to have positive effects on academic achievement and attainment (Ikeda and Garcia 2014; Jacob and Lefgren 2009; UNESCO 2012).

Mitigating underperformance will mean providing not just additional academic support, but also an inclusive learning environment for all learners. Providing adequate support to low

performers may require additional teaching time and differentiated instruction, which can only be successfully implemented when schools and teachers have the necessary resources to do so. Equally important, policymakers and educators should give attention to enhancing feelings of safety and belonging in schools, particularly in disadvantaged and public schools where more frequent bullying and less social connectedness are reported.

Fostering a growth mindset among students will mean instilling a growth mindset in educators. When teachers believe in a fixed mindset, the students they identify as intelligent are often the only ones who perform well; in contrast, when teachers hold a growth mindset, a wider range of students tend to do well (Dweck 2008). By modeling and teaching students about growth mindsets, teachers can encourage learners to believe in their potential to develop their skills over time. School-based interventions that teach students to think of intelligence as malleable have been shown to increase student motivation and academic achievement (Blackwell, Trzesniewski, and Dweck 2007). Teacher training programs and continuing education programs should include information on growth mindset and its implications on student outcomes.

Developing a growth mindset in teachers also means providing them with the necessary tools and skills to successfully support their students. Targeted teacher training can enhance educators' abilities to provide process feedback, which focuses on the student's effort, perseverance, and improvement, as opposed to the student's intelligence, talents or abilities (Dweck 2008). Additionally, differentiated instruction (i.e. tailoring instruction to students' individual needs) and mastery learning (i.e. building upon tasks that have been previously mastered) are teaching strategies that help foster a growth mindset in students. Adequate support from policymakers and school administrators will be needed to ensure that teachers are not only trained in these strategies, but also have sufficient resources to successfully implement them.

In the home setting, the provision of strong emotional support by parents can help protect against underperformance. Parental involvement in school activities did not appear to be related to reading performance. However, strong emotional support from parents was positively associated with reading performance and academic resilience. Along with more positive classroom disciplinary climates, strong emotional support from parents appears to be one—though certainly not the only—factor contributing to the relatively better performance observed among students in private independent schools and advantaged schools.

Family-school partnerships should raise awareness on the benefits of parents' emotional support to student learning, especially among those from disadvantaged backgrounds. Policymakers and teacher education institutions should strengthen approaches to equipping educators with the skills for building family-school partnerships (Willemse 2018). Educators should help make parents aware that, compared to school-based parental involvement, greater benefits to learning can be reaped from providing strong emotional support to their children. With the COVID-19 crisis, family-school partnerships are now even more crucial as parents spend more time at home with their children, many of whom may struggle with adjusting to remote learning.

In the context of the COVID-19 pandemic, ensuring continuity of learning is especially critical for disadvantaged students who are vulnerable to underperformance. Limited access to digital technologies and digital remote learning among disadvantaged students can potentially

exacerbate existing learning gaps. Policymakers should consider alternative remote learning models that do not rely exclusively on online strategies. Offline options for remote learning, include distributing printed material for students to learn at home, using educational radio or TV to deliver the curriculum or lecture-based classes.

Mass media options, e.g. television, may be more accessible to students from poorer backgrounds. PISA student questionnaires reveal that although most disadvantaged students do not have computers at home, more than three-quarters (76 percent) report having a television at home. Other efforts, such as creating a virtual helpdesk (e.g. via SMS messaging), can complement remote learning by allowing students and parents to ask questions and providing them with information and advice (World Bank 2020a). However, it is critical that policymakers continue exploring viable offline modes of remote learning, as a considerable number of students may not have access to devices, such as mobile phones, radios, or televisions.

Transforming the roles of teachers and school leaders to support student learning

Continuing professional development should focus on key skills, e.g. classroom management, and important issues, e.g. student bullying. Teachers should be equipped with the necessary classroom management skills to ensure disruptions are minimized, learning time is maximized, and rules and expectations are clearly communicated in their classrooms. Training and programs for in-service teachers should cover important issues and aspects in student life that are often not readily observed in the classroom, such as bullying, parental support, and students' well-being.

Teachers should be equipped with the proper tools and training, which can be delivered through mentoring and coaching programs, to support their students. To foster a growth mindset among students, for instance, teachers will need specific training on providing student feedback and the resources to implement interventions, e.g. differentiated instruction and mastery learning. Continuous support can be provided through school-based mentoring and coaching, whereby experienced teachers (e.g. Master Teachers, Head Teachers) give guidance to less experienced teachers. Regular mentoring and coaching sessions can be held through Learning Action Cells, which function as a professional learning community, which are already in place in schools.

Given its association with student performance, teacher enthusiasm should be increased and sustained by improving job satisfaction and engagement. Increasing job satisfaction will mean improving the contexts in which teachers operate, particularly those dealing with challenges, such as scarce school resources and limited access to professional development opportunities. School administrators should ensure avenues are provided for teachers to raise their concerns, so that these are appropriately addressed and do not cause potential demotivation.

Sustaining teacher enthusiasm is particularly important in the current context of the COVID-19 crisis, as educators must quickly adjust to new modes of teaching, and prepare for the reopening of classrooms. As schools reopen to welcome back students, teachers will need to sustain high levels of enthusiasm to help students successfully and smoothly transition back to school. In this transition period, teachers may also need additional support in managing their

approach to welcoming students back to school. Teachers may seek guidance on learning recovery, as well as on addressing the psychosocial needs of their students following the pandemic.

To ensure all teachers in all classrooms are of high quality, the prestige and standards of the teaching profession should be raised. That teachers' qualifications have little to no correlation with students' performance suggests the need to assess the validity of current screening mechanisms for teacher quality. The Licensure Examination for Teachers should be regularly reviewed to ensure alignment among what is tested, what is offered in teacher education institutions, and what the DepEd expects of teachers. To increase the competitiveness and attractiveness of the teaching profession, more stringent admissions processes and standards should be put in place in teacher education institutions.

Teacher recruitment should ensure that the most qualified individuals are targeted and supported from education to employment. Scholarships and other financial aid mechanisms can be adopted to reduce the risk that high-achieving students from disadvantaged backgrounds are unable to meet the higher educational requirements needed for a teaching career. Other factors that might affect the image of teaching as a profession, such as attractive working conditions in schools and fair and continuous opportunities for professional development and career advancement, should also be taken into consideration.

Three policy areas need to be considered to turn the COVID-19 crisis into an opportunity to address systemic education issues in the country; these policy areas can be grouped in three overlapping phases, namely: (i) coping; (ii) managing continuity; and (iii) improving and accelerating learning (World Bank 2020b), as summarized in Table 6.

Table 6. Policy responses to COVID-19 and long-term education reforms

	Phase 1: Coping <i>Adapting and responding to the COVID-19 crisis</i>	Phase 2: Managing continuity <i>Creating climates of safety and inclusion in all schools</i>	Phase 3: Improving and accelerating learning <i>Addressing systemic issues in the Philippines education system</i>
Key challenges	<ul style="list-style-type: none"> • Teachers and students do not have skills and devices to adopt distance learning. • Access to digital learning resources is inequitable. • Students, parents and teachers are concerned about their safety. 	<ul style="list-style-type: none"> • Students’ sense of belonging at school is particularly weak among boys and disadvantaged students. • Poor disciplinary climates are associated with poor student learning. • Students’ exposure to bullying in the Philippines is higher than in most other countries. 	<ul style="list-style-type: none"> • Over three quarters of 15-year-old students do not meet the minimum proficiency level in reading, math, and science. Boys and socioeconomically disadvantaged students are more likely to underperform. • Teacher management and professional development, e.g. pre-service training, licensing, recruitment, in-service training and performance evaluation, do not ensure high quality of teaching.
Policy options	<ul style="list-style-type: none"> • Ensure continuity of learning for all students by exploring alternative and offline modes of remote learning. • Provide increased support to teachers in adapting to remote learning approaches, and in managing the transition of students back to the classroom. • Encourage parental engagement through emotional support to children. 	<ul style="list-style-type: none"> • Build school management systems to assess school climates. • Provide continuous professional development on wide-ranging skills and supportive environments, including social and emotional skills, classroom management. • Create comprehensive bullying prevention programs with key stakeholders. • Foster social and emotional skills for both learners and educators. 	<ul style="list-style-type: none"> • Promote system-level integration of social and emotional learning into the curriculum. • Review and strengthen teacher screening mechanisms. • Strengthen the career advancement system to raise the quality of teachers and school leaders. • Enhance academic support and inclusion. • Improve working environment to sustain teacher enthusiasm. • Regulate public school enrollments to better integrate students from different backgrounds.

Source: Authors.

Annex 1: Proficiency levels in PISA 2018

Student performance in reading, math, and science is described through their placement along each subject’s scale, which is divided into a range of proficiency levels. These proficiency levels summarize what the student is able to do, as well as the complexity of test items. Level 2 is the minimum proficiency level on the reading, math, and science scales.

Reading proficiency levels

Reading was the major domain of PISA 2018. PISA defines reading literacy as “understanding, using, evaluating, reflecting on and engaging with texts in order to achieve one’s goals, to develop one’s knowledge and potential, and to participate in society” (OECD 2018b, p. 28). The PISA 2018 framework for reading literacy identifies four cognitive processes that determine how readers engage with text: (i) locating information; (ii) understanding; (iii) evaluating and reflecting; and (iv) reading fluency, which underpins the other three processes. The framework also identifies two types of sources or units of text: (i) single-source texts; and (ii) multiple source texts. Two sets of reading subscales were developed: (i) the reading process subscale, which is related to three process skills (i.e. locating information, understanding, and evaluating and reflecting); and (ii) text-source subscale, which is related to the two types of sources (i.e. single- and multiple-source texts). Table 7 presents the approximate distribution of tasks of the PISA 2018 reading literacy assessment, by process and text source.

Table 7. Distribution of reading literacy tasks, by process and text source

	Single-source text (65%)	Multiple-source text (35%)
Locating information (25%)	Scanning and locating (15%)	Searching for and selecting relevant text (10%)
Understanding (45%)	Representing literal meaning (15%) Integrating and generating inferences (15%)	Integrating and generating inferences (15%)
Evaluating and reflecting (30%)	Assessing quality and credibility, and reflecting on content and form (20%)	Corroborating and handling conflict (10%)

Source: OECD PISA (2019a), p. 35.

Level 2 is the minimum proficiency level on the reading scale. Level 2 is the minimum level of proficiency that all children should acquire by the end of their secondary education (OECD 2019a). Table 8 presents a summary description of the reading proficiency levels in PISA 2018.

Table 8. Reading proficiency levels in PISA 2018

Level	Lower score limit	Characteristics of tasks
6	698	Readers at Level 6 can comprehend lengthy and abstract texts in which the information of interest is deeply embedded and only indirectly related to the task. They can compare, contrast and integrate information representing multiple and potentially conflicting perspectives, using multiple criteria and generating inferences across distant pieces of information to determine how the information may be used.

Level	Lower score limit	Characteristics of tasks
		<p>Readers at Level 6 can reflect deeply on the text’s source in relation to its content, using criteria external to the text. They can compare and contrast information across texts, identifying and resolving inter-textual discrepancies and conflicts through inferences about the sources of information, their explicit or vested interests, and other cues as to the validity of the information.</p> <p>Tasks at Level 6 typically require the reader to set up elaborate plans, combining multiple criteria and generating inferences to relate the task and the text(s). Materials at this level include one or several complex and abstract text(s), involving multiple and possibly discrepant perspectives. Target information may take the form of details that are deeply embedded within or across texts and potentially obscured by competing information.</p>
5	626	<p>Readers at Level 5 can comprehend lengthy texts, inferring which information in the text is relevant even though the information of interest may be easily overlooked. They can perform causal or other forms of reasoning based on a deep understanding of extended pieces of text. They can also answer indirect questions by inferring the relationship between the question and one or several pieces of information distributed within or across multiple texts and sources.</p> <p>Reflective tasks require the production or critical evaluation of hypotheses, drawing on specific information. Readers can establish distinctions between content and purpose, and between fact and opinion as applied to complex or abstract statements. They can assess neutrality and bias based on explicit or implicit cues pertaining to both the content and/or source of the information. They can also draw conclusions regarding the reliability of the claims or conclusions offered in a piece of text.</p> <p>For all aspects of reading, tasks at Level 5 typically involve dealing with concepts that are abstract or counterintuitive, and going through several steps until the goal is reached. In addition, tasks at this level may require the reader to handle several long texts, switching back and forth across texts in order to compare and contrast information.</p>
4	553	<p>At Level 4, readers can comprehend extended passages in single or multiple-text settings. They interpret the meaning of nuances of language in a section of text by taking into account the text as a whole. In other interpretative tasks, students demonstrate understanding and application of ad hoc categories. They can compare perspectives and draw inferences based on multiple sources. Readers can search, locate and integrate several pieces of embedded information in the presence of plausible distractors. They can generate inferences based on the task statement in order to assess the relevance of target information. They can handle tasks that require them to memorize prior task context.</p> <p>In addition, students at this level can evaluate the relationship between specific statements and a person’s overall stance or conclusion about a topic. They can reflect on the strategies that authors use to convey their points, based on salient features of texts (e.g. titles and illustrations). They can compare and contrast claims explicitly made in several texts and assess the reliability of a source based on salient criteria.</p> <p>Texts at Level 4 are often long or complex, and their content or form may not be standard. Many of the tasks are situated in multiple-text settings. The texts and the tasks contain indirect or implicit cues.</p>
3	480	<p>Readers at Level 3 can represent the literal meaning of single or multiple texts in the absence of explicit content or organizational clues. Readers can integrate content and generate both basic and more advanced inferences. They can also integrate several parts of a piece of text in order to identify the main idea, understand a relationship or construe the meaning of a word or phrase when the required information is featured on a single page.</p> <p>They can search for information based on indirect prompts, and locate target information that is not in a prominent position and/or is in the presence of distractors. In some cases, readers at this</p>

Level	Lower score limit	Characteristics of tasks
		<p>level recognize the relationship between several pieces of information based on multiple criteria. Level 3 readers can reflect on a piece of text or a small set of texts, and compare and contrast several authors' viewpoints based on explicit information. Reflective tasks at this level may require the reader to perform comparisons, generate explanations or evaluate a feature of the text. Some reflective tasks require readers to demonstrate a detailed understanding of a piece of text dealing with a familiar topic, whereas others require a basic understanding of less-familiar content.</p> <p>Tasks at Level 3 require the reader to take many features into account when comparing, contrasting or categorizing information. The required information is often not prominent or there may be a considerable amount of competing information. Texts typical of this level may include other obstacles, such as ideas that are contrary to expectation or negatively worded.</p>
2	407	<p>Readers at Level 2 can identify the main idea in a piece of text of moderate length. They can understand relationships or construe meaning within a limited part of the text when the information is not prominent by producing basic inferences, and/or when the text(s) include some distracting information.</p> <p>They can select and access a page in a set based on explicit though sometimes complex prompts, and locate one or more pieces of information based on multiple, partly implicit criteria.</p> <p>Readers at Level 2 can, when explicitly cued, reflect on the overall purpose, or on the purpose of specific details, in texts of moderate length. They can reflect on simple visual or typographical features. They can compare claims and evaluate the reasons supporting them based on short, explicit statements.</p> <p>Tasks at Level 2 may involve comparisons or contrasts based on a single feature in the text. Typical reflective tasks at this level require readers to make a comparison or several connections between the text and outside knowledge by drawing on personal experience and attitudes.</p>
1a	335	<p>Readers at Level 1a can understand the literal meaning of sentences or short passages. Readers at this level can also recognize the main theme or the author's purpose in a piece of text about a familiar topic, and make a simple connection between several adjacent pieces of information, or between the given information and their own prior knowledge.</p> <p>They can select a relevant page from a small set based on simple prompts, and locate one or more independent pieces of information within short texts.</p> <p>Level 1a readers can reflect on the overall purpose and on the relative importance of information (e.g. the main idea vs. non-essential detail) in simple texts containing explicit cues.</p> <p>Most tasks at this level contain explicit cues regarding what needs to be done, how to do it, and where in the text(s) readers should focus their attention.</p>
1b	262	<p>Readers at Level 1b can evaluate the literal meaning of simple sentences. They can also interpret the literal meaning of texts by making simple connections between adjacent pieces of information in the question and/or the text.</p> <p>Readers at this level can scan for and locate a single piece of prominently placed, explicitly stated information in a single sentence, a short text or a simple list. They can access a relevant page from a small set based on simple prompts when explicit cues are present.</p> <p>Tasks at Level 1b explicitly direct readers to consider relevant factors in the task and in the text. Texts at this level are short and typically provide support to the reader, such as through repetition of information, pictures or familiar symbols. There is minimal competing information.</p>

Level	Lower score limit	Characteristics of tasks
1c	189	Readers at Level 1c can understand and affirm the meaning of short, syntactically simple sentences on a literal level, and read for a clear and simple purpose within a limited amount of time. Tasks at this level involve simple vocabulary and syntactic structures.

Source: OECD (2019a), pp. 87-88.

Math proficiency levels

Math was the major domain in the 2003 and 2012 PISA cycles and will, once again, be the major domain in PISA 2021. PISA defines mathematical literacy as the “capacity to formulate, employ and interpret mathematics in a variety of contexts...[including] reasoning mathematically and using mathematical concepts, procedures, facts and tools to describe, explain and predict phenomena” (OECD 2018b, 75). PISA assesses students’ capacity to demonstrate mathematical concepts and procedures learned in school, and their ability to apply these skills and knowledge to real-life contexts. Table 9 presents a summary description of the math proficiency levels in PISA 2018.

Table 9. Math proficiency levels in PISA 2018

Level	Lower score limit	Characteristics of tasks
6	669	At Level 6, students can conceptualize, generalize, and utilize information based on their investigations and modelling of complex problem situations, and can use their knowledge in relatively non-standard contexts. They can link different information sources and representations together and flexibly translate amongst them. Students at this level are capable of advanced mathematical thinking and reasoning. These students can apply this insight and understanding, along with a mastery of symbolic and formal mathematical operations and relationships, to develop new approaches and strategies for attacking novel situations. Students at this level can reflect on their actions, and can formulate and precisely communicate their actions and reflections regarding their findings, interpretations, arguments, and the appropriateness of these to the original situation.
5	607	At Level 5, students can develop and work with models for complex situations, identifying constraints and specifying assumptions. They can select, compare, and evaluate appropriate problem-solving strategies for dealing with complex problems related to these models. Students at this level can work strategically using broad, well-developed thinking and reasoning skills, appropriate linked representations, symbolic and formal characterizations, and insight pertaining to these situations. Students at this level have begun to develop the ability to reflect on their work and to communicate conclusions and interpretations in written form.
4	545	At Level 4, students can work effectively with explicit models for complex, concrete situations that may involve constraints or call for making assumptions. They can select and integrate different representations, including symbolic representations, linking them directly to aspects of real-world situations. Students at this level can utilize their limited range of skills and can reason with some insight in straightforward contexts. They can construct and communicate explanations and arguments based on their interpretations, arguments, and actions.
3	482	At Level 3, students can execute clearly described procedures, including those that require sequential decisions. Their interpretations are sufficiently sound to be a base for building a

Level	Lower score limit	Characteristics of tasks
		simple model or for selecting and applying simple problem-solving strategies. Students at this level can interpret and use representations based on different information sources and reason directly from them. They typically show some ability to handle percentages, fractions and decimal numbers, and to work with proportional relationships. Their solutions reflect that they have engaged in basic interpretation and reasoning.
2	420	At Level 2, students can interpret and recognize situations in contexts that require no more than direct inference. They can extract relevant information from a single source and make use of a single representational mode. Students at this level can employ basic algorithms, formulae, procedures or conventions to solve problems involving whole numbers. They are capable of making literal interpretations of results.
1	358	At Level 1, students can answer questions involving familiar contexts where all relevant information is present and the questions are clearly defined. They are able to identify information and carry out routine procedures according to direct instructions in explicit situations. They can perform actions that are almost always obvious and follow immediately from the given stimuli.

Source: OECD 2019a, p. 105.

Science proficiency levels

Science was the major domain assessed in the 2006 and 2015 PISA cycles. Scientific literacy is defined as “the ability to engage with science-related issues, and with the ideas of science, as a reflective citizen” (OECD 2018b, p. 100). The competencies required for scientific literacy include explaining phenomena scientifically, evaluating and designing scientific inquiry, and interpreting data and evidence scientifically. Table 10 presents a summary description of the science proficiency levels in PISA 2018.

Table 10. Science proficiency levels in PISA 2018

Level	Lower score limit	Characteristics of tasks
6	708	At Level 6, students can draw on a range of interrelated scientific ideas and concepts from the physical, life, and earth and space sciences and use content, procedural and epistemic knowledge in order to offer explanatory hypotheses of novel scientific phenomena, events and processes or to make predictions. In interpreting data and evidence, they are able to discriminate between relevant and irrelevant information and can draw on knowledge external to the normal school curriculum. They can distinguish between arguments that are based on scientific evidence and theory and those based on other considerations. Level 6 students can evaluate competing designs of complex experiments, field studies, or simulations and justify their choices.
5	633	At Level 5, students can use abstract scientific ideas or concepts to explain unfamiliar and more complex phenomena, events, and processes involving multiple causal links. They are able to apply more sophisticated epistemic knowledge to evaluate alternative experimental designs and justify their choices, and use theoretical knowledge to interpret information or make predictions. Level 5 students can evaluate ways of exploring a given question scientifically and identify limitations in interpretations of data sets, including sources and the effects of uncertainty in scientific data.
4	559	At Level 4, students can use more complex or more abstract content knowledge, which is either provided or recalled, to construct explanations of more complex or less familiar events and processes. They can conduct experiments involving two or more independent variables in

Level	Lower score limit	Characteristics of tasks
		a constrained context. They are able to justify an experimental design by drawing on elements of procedural and epistemic knowledge. Level 4 students can interpret data drawn from a moderately complex data set or less familiar context, draw appropriate conclusions that go beyond the data, and provide justifications for their choices.
3	484	At Level 3, students can draw upon moderately complex content knowledge to identify or construct explanations of familiar phenomena. In less familiar or more complex situations, they can construct explanations with relevant cueing or support. They can draw on elements of procedural or epistemic knowledge to carry out a simple experiment in a constrained context. Level 3 students are able to distinguish between scientific and non-scientific issues and identify the evidence supporting a scientific claim.
2	410	At Level 2, students are able to draw on everyday content knowledge and basic procedural knowledge to identify an appropriate scientific explanation, interpret data and identify the question being addressed in a simple experimental design. They can use basic or everyday scientific knowledge to identify a valid conclusion from a simple data set. Level 2 students demonstrate basic epistemic knowledge by being able to identify questions that can be investigated scientifically.
1a	335	At Level 1a, students are able to use basic or everyday content and procedural knowledge to recognize or identify explanations of simple scientific phenomena. With support, they can undertake structured scientific enquiries with no more than two variables. They are able to identify simple causal or correlational relationships and interpret graphical and visual data that require a low level of cognitive demand. Level 1a students can select the best scientific explanation for given data in familiar personal, local, and global contexts.
1b	261	At Level 1b, students can use basic or everyday scientific knowledge to recognize aspects of familiar or simple phenomena. They are able to identify simple patterns in data, recognize basic scientific terms, and follow explicit instructions to carry out a scientific procedure.

Source: OECD (2019a), p. 113.

Annex 2: Reading Test – Chicken Forum

Chicken Forum is one of the two units that had been developed and used for the field trial. Even though it was not selected for the main survey in 2018, the questions provide a concrete sense of the type of questions and the level of difficulty of Levels 1 and 2.

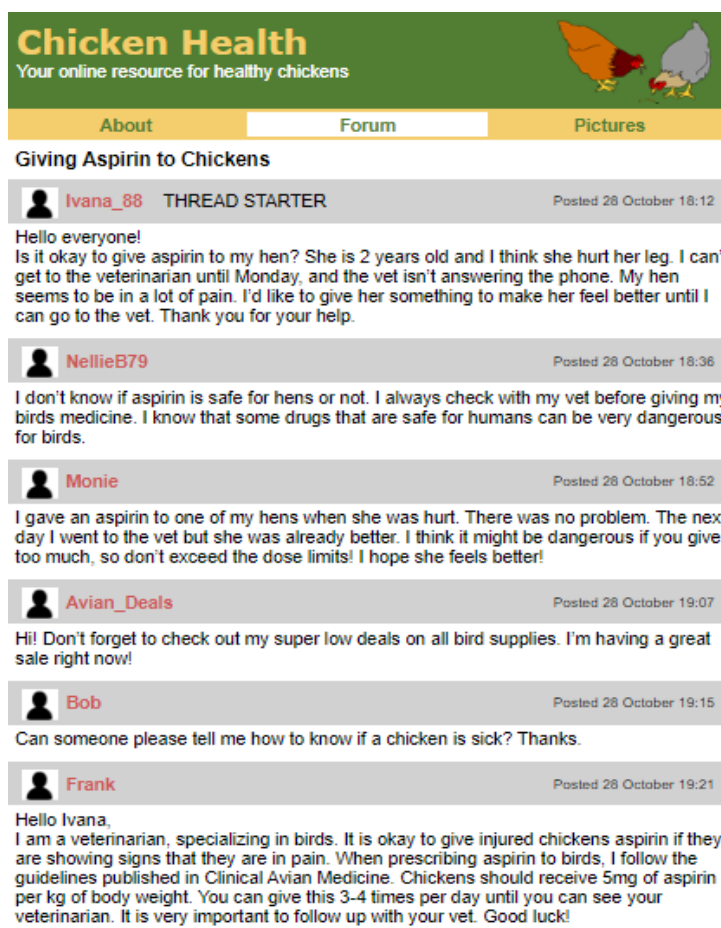
During the test, students are first provided the context and shown the online resource, then are asked to answer questions assessing different cognitive processes. Students are given seven questions in total, including two Level 1b questions, two Level 1a questions, and three Level 2 questions.¹⁶ Each question assesses a different cognitive process, such as: (i) “represent literal meaning”; (ii) “integrate and generate inferences”; (iii) “integrate and generate inferences across multiple sources”; (iv) “reflect on content and form”; and (iv) “assess quality and credibility.”

Introduction

You are visiting your relatives, who recently moved to a farm to raise chickens. You ask your aunt, “How did you learn how to raise chickens?”

She says, “We talked to a lot of people who raise chickens. And, there are lots of resources on the Internet. For example, there is a Chicken Health forum that I like to visit. It was very helpful to me recently when one of my hens hurt her leg. I’ll show you the conversation I had.”

Click on the NEXT arrow to read the forum.



The screenshot shows the 'Chicken Health' forum website. The header includes the title 'Chicken Health' and the tagline 'Your online resource for healthy chickens', accompanied by an illustration of two chickens. Below the header are navigation tabs for 'About', 'Forum', and 'Pictures'. The main content area displays a forum thread titled 'Giving Aspirin to Chickens'. The thread starts with a post from user 'Ivana_88' asking for help with a hen's leg pain. It is followed by replies from 'NellieB79' (advising to consult a vet), 'Monie' (sharing a personal experience), 'Avian_Deals' (promoting a sale), 'Bob' (asking for signs of illness), and 'Frank' (providing professional advice as a veterinarian).

¹⁶ Source: OECD (2019a), Table I.5.2.

Question	Assessment framework	
<p>Chicken Forum Question 1 / 7</p> <p><i>Refer to the Chicken Health Forum on the right. Click on a choice to answer the question.</i></p> <p>What does Ivana_88 want to know?</p> <ul style="list-style-type: none"> <input type="radio"/> If she can give aspirin to an injured hen. <input type="radio"/> How often she can give aspirin to an injured hen. <input type="radio"/> How to contact a veterinarian about an injured hen. <input type="radio"/> If she can determine the pain level of an injured hen. 	Cognitive process	Represent literal meaning
	Response format	Simple multiple choice – computer scored
	Difficulty	328 – Level 1b
<p>[Answer Key] For full credit the student selects (A) If she can give aspirin to an injured hen. In this item, the student must consider Ivana_88’s post and understand the literal meaning of the post. The student must match the paraphrase of Ivana_88’s initial question (Is it okay to give aspirin to my hen?) to the options in the item. This not simply an “Access and retrieve information within a text” item because there is not a direct, verbatim match between the item options and the stimulus.</p>		
<p>Chicken Forum Question 2 / 7</p> <p><i>Refer to the Chicken Health Forum on the right. Click on a choice to answer the question.</i></p> <p>Why does Ivana_88 decide to post her question on an Internet forum?</p> <ul style="list-style-type: none"> <input type="radio"/> Because she doesn't know how to find a veterinarian. <input type="radio"/> Because she thinks the hen's problem isn't serious. <input type="radio"/> Because she wants to help her hen as soon as possible. <input type="radio"/> Because she cannot afford to go to the veterinarian. 	Cognitive process	Integrate and generate inferences
	Response format	Simple multiple choice – computer scored
	Difficulty	357 – Level 1a
<p>[Answer Key] For full credit the student selects (C) “Because she wants to help her hen as soon as possible”. In this item, the student must understand Ivana_88’s post at a deeper level than in the previous item. The student must go beyond what is represented literally in the post (I can’t get to the veterinarian until Monday, and the vet isn’t answering the phone) and the full context of her post to identify the correct answer. The student can infer that because her hen is in a lot of pain and she is not able to get a quick response in another way (going to the vet or calling), she has posted on the forum.</p>		

Question	Assessment framework																			
<p>Chicken Forum Question 3 / 7</p> <p><i>Refer to the Chicken Health Forum on the right. Click on the choices in the table to answer the question.</i></p> <p>Some posts on a forum can be relevant to the topic while some posts are not. Click on either Yes or No to indicate whether the posts in the table below are relevant to Ivana_88's problem.</p> <table border="1" data-bbox="196 541 769 793"> <thead> <tr> <th>Is the post relevant to Ivana_88's problem?</th> <th>Yes</th> <th>No</th> </tr> </thead> <tbody> <tr> <td>NellieB79's post</td> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> <tr> <td>Monie's post</td> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> <tr> <td>Avian_Deals' post</td> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> <tr> <td>Bob's post</td> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> <tr> <td>Frank's post</td> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> </tbody> </table>	Is the post relevant to Ivana_88's problem?	Yes	No	NellieB79's post	<input type="radio"/>	<input type="radio"/>	Monie's post	<input type="radio"/>	<input type="radio"/>	Avian_Deals' post	<input type="radio"/>	<input type="radio"/>	Bob's post	<input type="radio"/>	<input type="radio"/>	Frank's post	<input type="radio"/>	<input type="radio"/>	Cognitive process	Reflect on content and form
Is the post relevant to Ivana_88's problem?	Yes	No																		
NellieB79's post	<input type="radio"/>	<input type="radio"/>																		
Monie's post	<input type="radio"/>	<input type="radio"/>																		
Avian_Deals' post	<input type="radio"/>	<input type="radio"/>																		
Bob's post	<input type="radio"/>	<input type="radio"/>																		
Frank's post	<input type="radio"/>	<input type="radio"/>																		
	Response format	Complex multiple choice – computer scored																		
	Difficulty	458 – Level 2																		
<p>[Answer Key] For full credit the students were required to get all 5 rows correct: Yes, Yes, No, No, Yes. In this item, the student must complete a table by selecting “Yes” or “No” for each row. The question asks the student to identify whether each post in the forum is relevant to the topic. The student must first understand the literal meaning of each post and then reflect on the content and how it relates to the main topic – Giving Aspirin to Chickens.</p>																				
<p>Chicken Forum Question 4 / 7</p> <p><i>Refer to the Chicken Health Forum on the right. Click on a choice to answer the question.</i></p> <p>Who has had positive experiences giving aspirin to an injured hen?</p> <ul style="list-style-type: none"> <input type="radio"/> Ivana_88 <input type="radio"/> NellieB79 <input type="radio"/> Monie <input type="radio"/> Bob 	Cognitive process	Represent literal meaning																		
	Response format	Simple multiple choice – computer scored																		
	Difficulty	328 – Level 1b																		
<p>[Answer Key] For full credit the answer is (C) Monie. In this item, the student is required to understand the literal meaning of the posts by Ivana_88, NellieB79, Monie and Bob. If the student has understood the literal meaning of each, the student would understand that Ivana_88 is asking about whether she can give aspirin to a hen, NellieB79 is warning Ivana_88 about giving medicine to hens, Bob has posted something irrelevant, and it is Monie who has said she has given aspirin to her hen and it was okay.</p>																				

Question	Assessment framework	
<p>Chicken Forum Question 5 / 7</p> <p><i>Refer to the Chicken Health Forum on the right. Click on a choice to answer the question.</i></p> <p>Why does Avian_Deals respond to Ivana_88's post?</p> <ul style="list-style-type: none"> <input type="radio"/> To promote a business. <input type="radio"/> To answer Ivana_88's question. <input type="radio"/> To add to Monie's advice. <input type="radio"/> To demonstrate expertise with birds. 	Cognitive process	Integrate and generate inferences
	Response format	Simple multiple choice – computer scored
	Difficulty	347 – Level 1a
<p>[Answer Key] For full credit the answer is (A) To promote a business. In this item, the student must go beyond the literal meaning provided in the text of Avian_Deals's post and make an inference about why this person has made the post. The post by Avian_Deals does not explicitly state that they are promoting their business, thus the student must infer that from the information provided in the post.</p>		
<p>Chicken Forum Question 6 / 7</p> <p><i>Refer to the Chicken Health Forum on the right. Click on a choice and then type an explanation to answer the question.</i></p> <p>Who posted the most reliable answer to Ivana_88's question?</p> <ul style="list-style-type: none"> <input type="radio"/> NellieB79 <input type="radio"/> Monie <input type="radio"/> Avian_Deals <input type="radio"/> Frank <p>Give a reason for your answer.</p> <div style="border: 1px solid black; height: 40px; width: 100%;"></div>	Cognitive process	Assess quality and credibility
	Response format	Open response – human coded
	Difficulty	409 – Level 2
<p>[Answer Key] For full credit the student could select any option except Avian_Deals and receive credit provided that the student gave one of the correct elements described below which supports why the selection is reliable.</p>		
<p>Chicken Forum Question 7 / 7</p> <p><i>Refer to the Chicken Health Forum on the right. Type your answer to the question.</i></p> <p>Why can't Frank give Ivana_88 the exact amount of aspirin for her hen?</p> <div style="border: 1px solid black; height: 40px; width: 100%;"></div>	Cognitive P\process	Integrate and generate inferences across multiple sources
	Response format	Open response – human coded
	Difficulty	466 – Level 2
<p>[Answer Key] Full credit is given when the student states that the weight or size of the chicken was not provided/is not known.</p>		

Source: OECD (2019e).

Annex 3: Additional findings on reading-related habits and strategies

In addition to measuring students' proficiency, PISA 2018 collects information on students' reading-related habits and strategies. The reading-related information in PISA 2018 include students' exposure to books and reading, reading practices, attitudes towards reading, and strategies for reading and understanding.

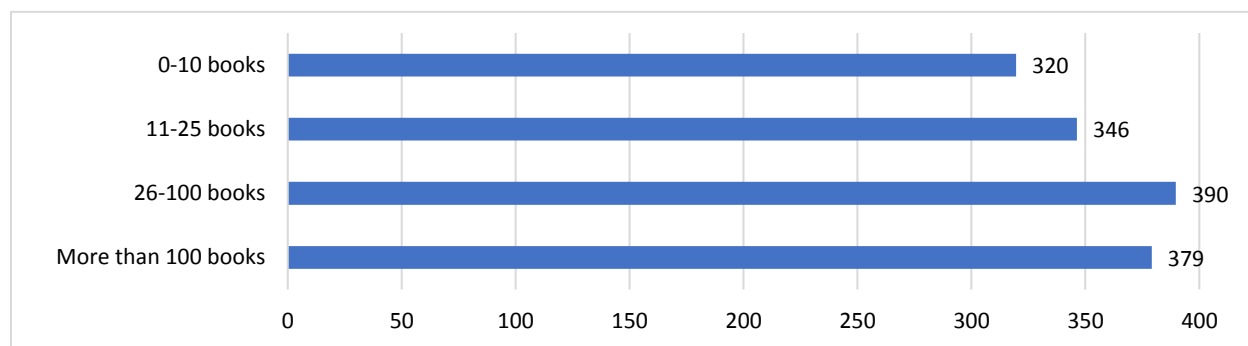
Exposure to books and reading

The majority of students have ten or less books at home. More than half of students (53 percent) reported having zero to ten books at home, while more than a quarter of them (27 percent) reported having 11-25 books at home. A smaller number of students (6 percent) reported having over 100 books at home.

Advantaged students are more likely to have a greater number of books at home than disadvantaged students. The number of books students owned at home varied by socioeconomic status. Students from more disadvantaged backgrounds tended to own less books than their more advantaged peers. About 77 percent of disadvantaged students, as opposed to 26 percent of advantaged students, owned zero to ten books.

Average reading scores generally tend to increase with the number of books students have at home (Figure 48). Compared to students who had zero to ten books at home, those who reported having 11-25 books at home scored about 27 points higher in reading. This gain increases to 70 score points when students reported having 26-100 books at home.

Figure 48. Mean reading scores and number of books at home



Source: OECD PISA 2018 database.

Students appear to be frequently exposed to a variety of texts for school, either in the classroom or as homework. About 39 percent of students reported reading works of fiction (e.g. novels, short stories) for school many times during the last month. At least 24 percent of students reported reading texts that included diagrams or maps, tables or graphs, and digital reading selections many times during the last month. With the exception of digital texts, less than 10 percent of students reported not having to read these types of texts at all over the last month.

Advantaged students and students in private schools are more frequently exposed to digital texts. Larger proportions of advantaged students than disadvantaged students, and of private school students than public school students, reported reading digital reading selections many times during the last month. Variations in the frequency of exposure to other types of texts were not large across socioeconomic groups and school ownership types.

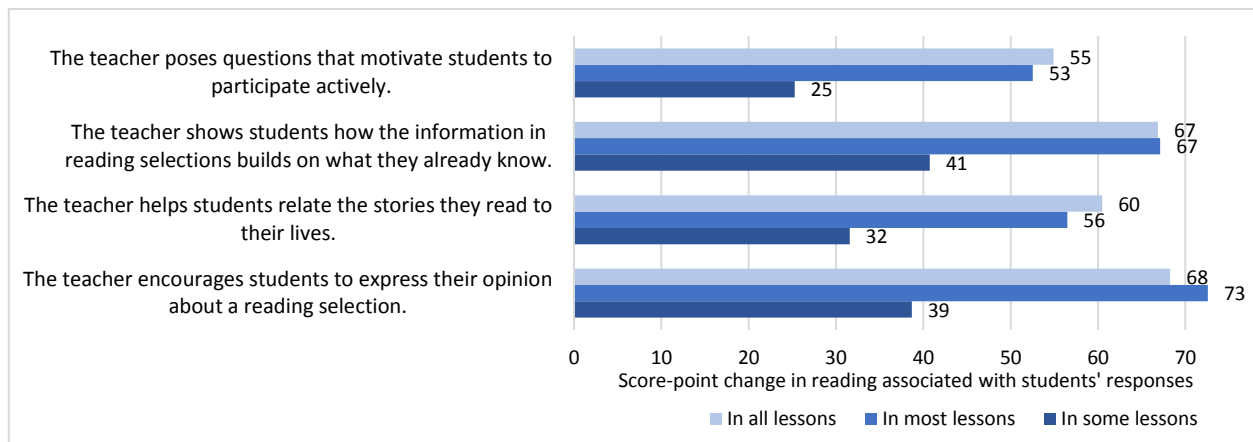
Students are more likely to be assigned shorter reading selections in school. About 41 percent of students reported that the longest reading selection they had to read for their English lessons during the school year was between 2 and 10 pages long. Under a third (29 percent) of students reported reading texts that were over 50 pages long.

Students who are assigned shorter texts to read in class, which is more commonly reported among disadvantaged students, tend to perform worse. About 11 percent of disadvantaged students, as compared to 4 percent of advantaged students, reported that the longest reading selection they were assigned to read in class was only one page or less. Students who reported that their longest assigned text was only one page or less tended to have lower reading scores than their peers who had read longer texts. The difference in reading performance was as large as 64 score points when compared to students who had read texts between two and ten pages in length.

The reading strategies teachers use can affect the way students engage with reading selections. More than half of students report that, in most or all of their English lessons, their teacher: (i) encourages them to express their opinions about a reading selection (59 percent); (ii) helps them relate the stories they read to their lives (67 percent); (iii) shows them how information in reading selections builds on what they already know (66 percent); and (iv) poses questions that motivate them to participate actively (68 percent).

Students whose teachers more frequently use these teaching strategies tend to outperform peers whose teachers never, or hardly ever, implement these strategies (Figure 49). Students who reported that their teachers encouraged them to express their opinion about a reading selection in most or all lessons in the last month scored at least 68 points higher, on average, than those who reported that this never or hardly ever happened in their classes. Gains of at least half a standard deviation (53 score points) were observed when students reported that the other teaching strategies happened in most or all lessons over the last month.

Figure 49. Teacher reading-related strategies and reading performance



Source: OECD PISA 2018 database.

Note: Bars represent the score-point change in reading associated with students' responses, relative to those who responded teachers "never or hardly ever" used the strategy in their English lessons.

Exposure to books at home, as well as in school, is important to reading literacy. The number of books at home has been found to be a significant predictor of children's academic success (Sikora, Evans, and Kelley 2018; van Bergen et al. 2016). However, the extent to which reading resources can be provided at home vary widely by socioeconomic status. Parents from advantaged backgrounds are able to provide their children with more home resources for learning, as well as a more stimulating home environment for learning, than do those from disadvantaged households.

Improving access to books and home learning resources among children from disadvantaged homes can help improve their academic outcomes. Beyond improving access to books, priority policy areas can also include providing training to parents on how to utilize these books in the most effective ways, such as early exposure to books and shared book-reading strategies between caregiver and child.

Pre- and in-service teachers should be provided with training on appropriate teacher practices and strategies specifically targeting students' reading literacy. In the school environment, the more frequently teachers used certain reading-related practices and strategies, the better students' reading performance tended to be. These pedagogical skills can result to an increase of as much as two-thirds of a standard deviation when implemented in most lessons. Teacher practices specific to reading should be incorporated in pre-service training, as well as in continuing professional development offered to in-service teachers.

Reading practices and attitudes towards reading

About a third of students (32 percent) spend 30 minutes or less a day reading for enjoyment, while about 10 percent of students do not read for enjoyment at all. PISA asks students how much time they usually spend reading for enjoyment, including diverse kinds of reading, such as books, magazines, newspapers, blogs, and emails. About 23 percent of students reported spending 30 minutes to an hour a day reading for enjoyment. About 17 percent of students reported spending

one to two hours a day reading for enjoyment, while 18 percent reported spending more than two hours a day in the same activity.

Students who spend more time reading for enjoyment tend to have significantly better reading scores. Compared to those who read for enjoyment for only 30 minutes or less a day, students who reported spending 30 minutes to an hour reading for enjoyment scored 15 points more; those who spend one to two hours a day reading scored about 27 points more; and those who spend more than two hours a day reading for enjoyment, on average, scored about 69 points more.

Girls spend significantly more time reading for enjoyment than boys. More than half of boys (55 percent), as compared to about a third of girls (31 percent), reported spending no time at all or less than 30 minutes a day reading for enjoyment. Only 8 percent of boys, as opposed to over a quarter of girls (26 percent), reported reading for enjoyment for more than two hours a day.

Students in the Philippines tend to report a greater enjoyment of reading than the average student across OECD countries. PISA asks students the extent to which they agree with statements such as: “I read only if I have to”; and “Reading is one of my favorite hobbies”. These statements were combined to establish of the enjoyment of reading index. The average index score in the Philippines was higher than that of the OECD average.

Although most students express positive attitudes towards reading, many also report that they only read when they need to. More than two-thirds of students agreed, or strongly agreed, that they like talking about books with other people (67 percent), or that reading is one of their favorite hobbies (73 percent). However, a sizable proportion of students also agreed, or strongly agreed, that they only read if they have to (63 percent), or only to get the information they need (62 percent). Close to a quarter of students (24 percent) agreed, or strongly agreed, that reading is a waste of time.

Greater levels of enjoyment of reading are reported among advantaged students and girls. Large differences were seen across genders, with girls reporting much higher levels of reading enjoyment than boys. About a third of boys (32 percent), as compared to only 18 percent of girls, agreed, or strongly agreed, that reading is a waste of time. In contrast, more than four-fifths of girls (81 percent), as opposed to 64 percent of boys, agreed or strongly agreed that reading is one of their favorite hobbies. Even after accounting for reading performance, the gender gap in enjoyment of reading remained significant.

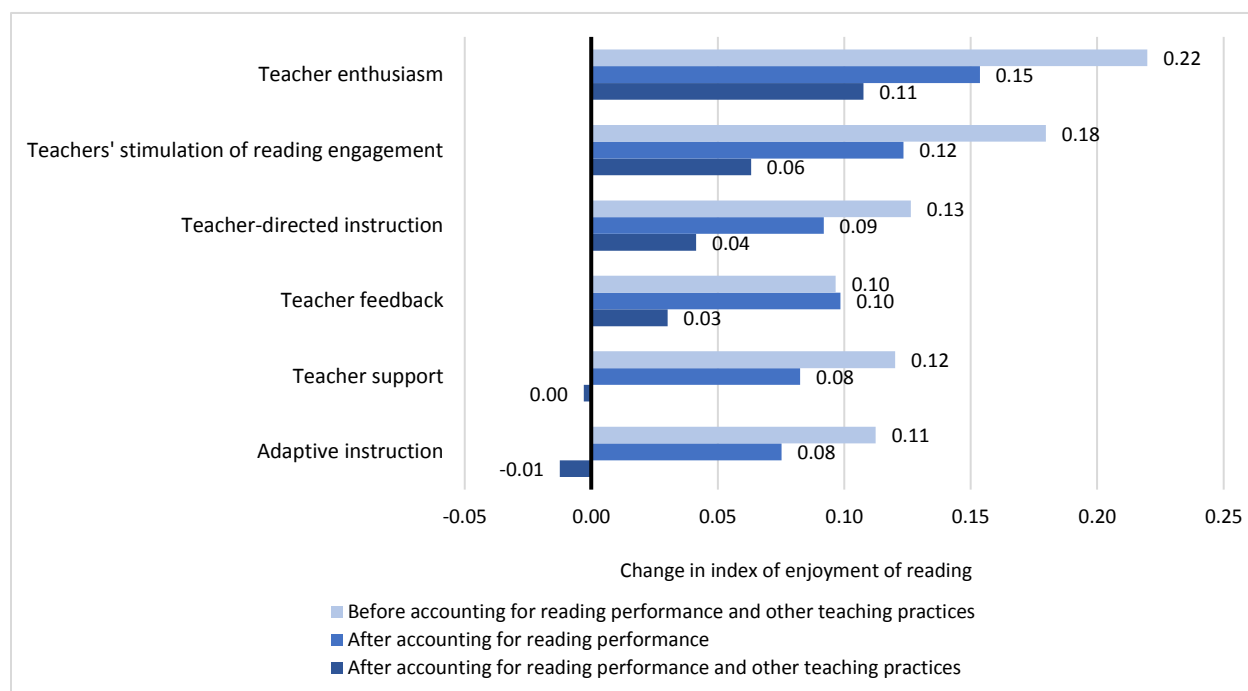
The enjoyment of reading index is positively associated with reading scores. After controlling for the socioeconomic profiles of students and schools, a one-unit increase in the enjoyment of reading index was associated with a 30-score point increase in reading. Among the index items, students who disagreed or strongly disagreed that “reading is a waste of time” scored 42 points and 74 points higher, respectively, than their peers who strongly agreed with the statement.

Enjoyment of reading is also related to academic resilience. Academically resilient students (i.e. those who belong to the bottom ESCS quartile, but are in the top quartile of reading

performance) tended to express significantly higher levels of reading enjoyment than did their non-resilient peers.

Beyond simply teaching students how to read, teachers must focus on instilling a joy of reading in their students. After accounting for the socioeconomic profiles of students and schools, certain teaching practices were positively related to enjoyment of teaching (Figure 50). Once students’ reading performance and other teaching practices were accounted for, most of these teaching practices remained significantly and positively related to reading enjoyment. Teacher enthusiasm, in particular, had a strong association with students’ reading enjoyment; a one-unit increase in the teacher enthusiasm index was associated with a 0.11-point increase in students’ enjoyment of reading.

Figure 50. Teaching practices and students’ enjoyment of reading



Source: OECD PISA 2018 database.

Note: Bars represent the score-point change in enjoyment of reading associated with a one-unit increase in each teacher-related index, after accounting for students’ and schools’ socioeconomic profiles.

These findings reinforce the importance of teacher enthusiasm, including the need to sustain motivation and job satisfaction among teachers. When teachers feel more enthusiastic about their work, their students are more likely to discover the joys of reading and display better reading performance. Given the significant gender gaps observed in both enjoyment of reading and time spent reading for enjoyment, educators and policymakers should pay particular attention to encouraging reading among boys.

Strategies for reading and understanding

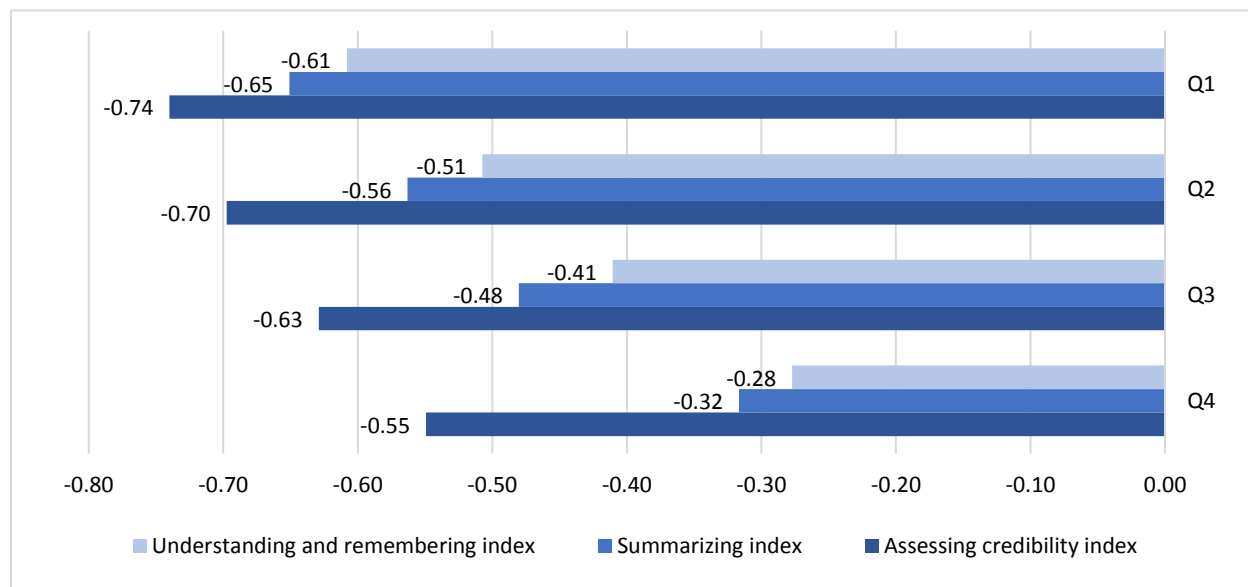
Among all PISA-participating countries and economies, the Philippines ranks near the bottom in all three metacognition indices. Metacognition is an individual’s awareness of and

ability to use a variety of appropriate strategies to read and understand texts (OECD 2018b). To examine students’ metacognition, PISA asks students to rate the usefulness of certain strategies for three reading tasks. Students’ responses to each of these tasks were combined to create three metacognition indices: (i) the understanding and remembering index; (ii) the summarizing index; and (iii) the assessing credibility of sources index.

The understanding and remembering index and the summarizing index are moderately positively correlated with reading performance. The index of assessing credibility was only weakly associated with reading performance. After controlling for the socioeconomic profiles of students and schools, a one-unit increase in the understanding and remembering index was associated with an increase of 14 score points in reading. Slightly higher gains in reading scores were observed for the summarizing index; a one-unit increase in the summarizing index was associated with a gain of 18 score points in reading.

Awareness of the usefulness of strategies for understanding and remembering information, summarizing information, and assessing credibility tend to increase with socioeconomic status (Figure 51). Advantaged students were more likely than their disadvantaged peers to know that certain strategies were more useful than others in completing specific reading tasks. These findings suggest that students from disadvantaged backgrounds could attain better levels of reading performance if they were more aware on the best strategies for learning.

Figure 51. Metacognition indices, by ESCS quartile



Source: OECD PISA 2018 database.

Although the key responsibility of teachers is to deliver curriculum content, teaching students how to be aware of their thinking strategies and how to improve these strategies is as important to learning. Given its role in learning outcomes and education equity, policymakers and educators should consider how to incorporate metacognition skills into the curriculum. Teachers should provide more opportunities for students—especially among students who are socioeconomically disadvantaged—to develop an understanding of which strategies are most

effective for learning. Targeted training should also be provided to teachers to equip them with the appropriate skills and approaches to improving students' metacognition.

Annex 4: Additional findings on school governance and policies

PISA 2018 examines aspects of school governance, including assessment, evaluation, and accountability in school systems. Information collected on school policies and governance include the use of assessment data and achievement data, quality assurance, and the provision of additional English lessons and study help in schools.

Use of assessment data

Most principals report that their schools use Grade 10 student assessment data for various purposes. Over 95 percent of students were in schools where principals reported using assessment data to: (i) guide students' learning; to inform parents about their child's progress; (ii) make decisions about the retention or promotion of students; (iii) monitor school progress from year to year; (iv) identify aspects of instructions or the curriculum that could be improved; and (v) adapt teaching to students' needs; and award certificates to students. At least four-fifths of students attended schools where principals reported using assessment data to make judgments about teachers' effectiveness (82 percent), or compare their school to the national performance (83 percent), or to group students for instructional purposes (87 percent).

The use of assessment data to make comparisons against other schools appears to be a less common practice. Only a little over half of students (54 percent) were enrolled in schools where principals reported using assessment data to compare their school with other schools. This proportion was higher than that observed on average across OECD countries (45 percent).

Across school characteristics, relatively wide variations are observed in the use of assessment data to assess the effectiveness of teachers, and making comparisons with other schools. While 88 percent of students in advantaged schools attended schools where principals reported using assessment data to make judgments about the effectiveness of teachers, about 67 percent of students in disadvantaged schools had principals who reported the same. About 33 percent of students in private independent schools had principals who reported using assessment data to make comparisons with others schools; in contrast, a little over half of students in private government-dependent schools (54 percent) and public schools (56 percent) had principals who reported the same.

Use of achievement data

Most principals report using achievement data for tracking the performance of their schools. About 90 percent of students were in schools where principals reported that achievement data are provided directly to parents; by comparison, this proportion was only 81 percent on average across the OECD. In the Philippines, about 91 percent of students, as compared to only 66 percent on average across the OECD, attended schools where principals reported that achievement data are tracked over time by an administrative authority. Less than half of students (43 percent) were in schools where principals reported that achievement data is posted publicly. This proportion is likewise slightly higher than the average observed across OECD countries (37 percent).

Only slight variations in the use of achievement data are observed by school characteristics.

About 41 percent of students in disadvantaged schools, as compared to 31 percent in advantaged schools, attended schools where achievement data was posted publicly by principals. All students in private independent schools attended schools where principals reported that achievement data was tracked over time by an administrative authority; about 90 public school students attended schools where principals reported the same.

Quality assurance

Most of quality assurance arrangements were mandatory or based on the DepEd's policies.

Arrangements included were such as: (i) written specification of the school's curriculum standards and educational goals; (ii) written specification of student performance standards; and (iii) systematic recording of student test results and graduation rates. Some arrangements, however, were based on school initiatives, which included seeking written feedback from students, regular consultations on school improvement with one or more experts over a period of at least six months, and teacher mentoring.

The extent to which quality assurance arrangements are present in schools varied only slightly by school ownership type.

While all students in private schools had school principals who reported seeking written feedback from students (e.g. on students, teachers or resources), about 13 percent of students in public schools had principals who reported that this form of quality assurance did not exist in their school. All private independent schools reported undergoing an external evaluation, whereas only about 11 and 8 percent of students in private government-dependent schools and public schools, respectively, had principals who reported that no external evaluations were conducted in their schools.

Additional English lessons and study help offered in schools

Less than half of students attended schools offering additional English lessons, which are frequently for both enrichment and remedial purposes.

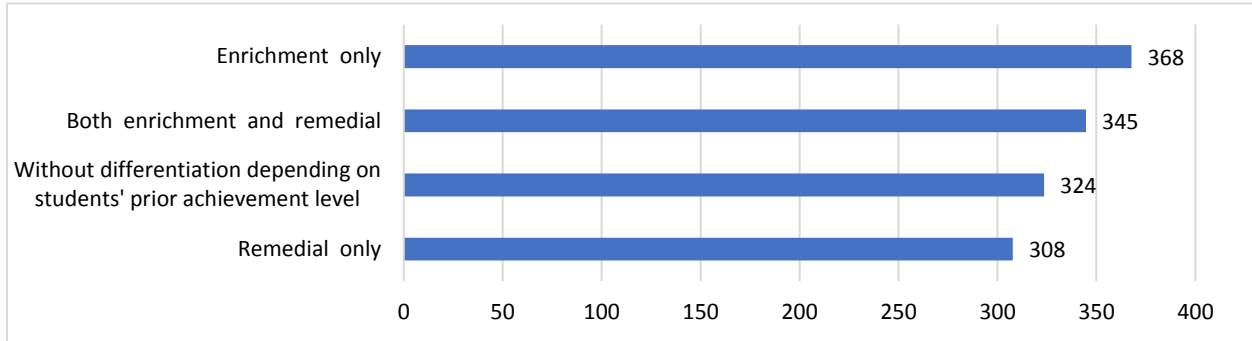
Most students (57 percent) were enrolled in schools where principals reported that no additional English lessons were offered, other than the English lessons held during regular school hours. Among those offering additional English lessons, the majority of students (86 percent) were in schools offering additional English lessons for both enrichment and remedial lessons, while about 9 percent were in schools offering additional lessons for remedial purposes only. About 2 percent of students attended schools offering additional English lessons for enrichment purposes only, while another 2 percent were in schools which provided additional lessons without differentiation, depending on the prior achievement level of students.

No significant differences in mean reading scores were observed between students in schools offering additional English lessons and those in schools that do not.

However, among those offering additional lessons, significant differences were observed on the different objectives of these additional English lessons (Figure 52). Students in schools offering additional lessons for enrichment purposes tended to perform better than those in schools offering these lessons for other purposes. Similarly, students in schools offering remedial lessons performed significantly less well than those in schools offering enrichment, or both enrichment and remedial lessons. These gaps in

performance are not surprising: schools with a larger proportion of high-achieving students are more inclined to offer enrichment classes, whereas those with a larger proportion of struggling students are more likely to use remedial lessons as a means to address underperformance.

Figure 52. Additional English lessons offered and reading performance

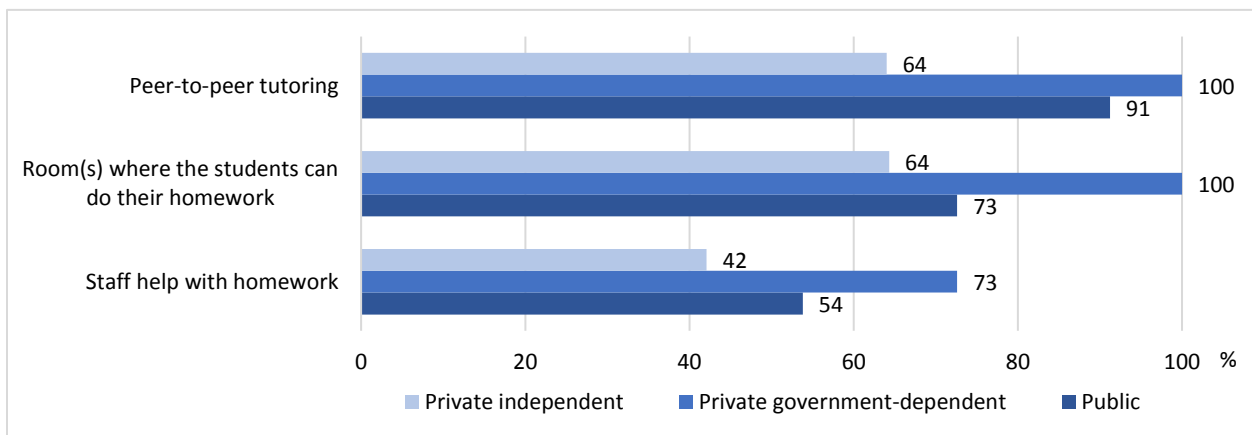


Source: OECD PISA 2018 database.

The majority of students are in schools that offer study help through peer-to-peer tutoring, and have rooms available for students to do their homework. About 89 percent of students were in schools where principals reported that peer-to-peer tutoring was provided as a study help in their schools. Nearly three-quarters of students (74 percent) were enrolled in schools where principals reported that rooms were available for students to do their homework. However, only a little over half of students (54 percent) were in schools that provided staff help with homework.

Different forms of study help are more widely available in private government-dependent schools than in private independent and public schools (Figure 53). While rooms for doing homework were available in all private government-dependent schools, less than three in four students in public schools (73 percent) and in private independent schools (64 percent) had principals who reported that such rooms were available in their schools. Across the different school ownership types, study help tended to be less frequently available in private independent schools.

Figure 53. Study help offered in schools, by school ownership type



Source: OECD PISA 2018 database.

Annex 5: Parameters setting for simulating the potential impacts of COVID-19 school closures on schooling and learning outcomes

Instructions & Parameters Setting				
1. Choose the country				
Country name	Philippines			
Country code	PHL			
2. Understand the data availability for the selected country				
Is there LAYS data available?	Yes			
Is there PISA data available?	Yes			
Latest available PISA year	2018			
3. Verify and possibly change the assumptions related to expected learning in a school year				
Number of months schools are open in a typical school year	10			
Learning gains during one school year (points in HLO scale)	25			
4. Customize the parameters on the length of the school closure. They serve to provide ranges of effects.				
	Optimistic	Intermediate	Pessimistic	
School closure length				
Length of school closures (months)	3	5	7	
Share of the school year affected by closures	30%	50%	70%	
5. Verify and possibly change the assumptions related to the mitigation				
G	Government supply of distance learning			
	Government supply of alternative modalities for Poorest Quintile	100%		
	Government supply of alternative modalities for Quintile 2	100%		
	Government supply of alternative modalities for Quintile 3	100%		
	Government supply of alternative modalities for Quintile 4	100%		
	Government supply of alternative modalities for Richest Quintile	100%		
	Government supply of alternative modalities Overall (Simple average)			
		100%		
A	Data for alternative modalities available in the tool	Internet or TV Internet TV		
		Internet or TV		
	Access to alternative modalities	Parameter in Use		
	Source:	PISA	Other values	
	Access of alternative modalities for Poorest Quintile	81%	81%	
	Access of alternative modalities for Quintile 2	95%	95%	
	Access of alternative modalities for Quintile 3	97%	97%	
	Access of alternative modalities for Quintile 4	98%	98%	
	Access of alternative modalities for Richest Quintile	99%	99%	
	Access of alternative modalities Overall (Simple average)	94%	94%	
		No Value		
E	Effectiveness of alternative modalities	Optimistic	Intermediate	Pessimistic
	Effectiveness of alternative modalities for Poorest Quintile	20%	10%	0%
	Effectiveness of alternative modalities for Quintile 2	20%	10%	0%
	Effectiveness of alternative modalities for Quintile 3	40%	20%	10%
	Effectiveness of alternative modalities for Quintile 4	60%	30%	20%
	Effectiveness of alternative modalities for Richest Quintile	60%	30%	20%
	Effectiveness of alternative modalities Overall (Simple average)	40%	20%	10%
m = (G*A*E)	Overall Mitigation effectiveness of alternative modalities	Optimistic	Intermediate	Pessimistic
	Overall mitigation effectiveness of alternative modalities for Poorest Quintile	16%	8%	0%
	Overall mitigation effectiveness of alternative modalities for Quintile 2	19%	10%	0%
	Overall mitigation effectiveness of alternative modalities for Quintile 3	39%	19%	10%
	Overall mitigation effectiveness of alternative modalities for Quintile 4	59%	29%	20%
	Overall mitigation effectiveness of alternative modalities for Richest Quintile	59%	30%	20%
	Overall mitigation effectiveness of alternative modalities Overall (Simple average)	38%	19%	9%

Source: Azevedo et al. (2020).

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