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What does PISA-D tell us about education in Cambodia?

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Key points:

- A system-level student assessment, like PISA-D, builds evidence and data on student learning as well as on the education system in Cambodia and places Cambodian education in the global discourse; yet evidence and data must be translated into better policies and practices.
- Cambodia needs to address dual challenges of low educational attainment and academic performance and to build the foundation for success at the school level.
- About 10% of Cambodian students aged 15 can be branded as "SDG students" in reading and mathematics: they achieve a minimum proficiency level (level 2) in PISA-D and can be compared to some students across OECD countries. Lessons learnt from them and their school systems can guide an effective implementation of school-based management and set a model for improving student learning outcomes.
- Cambodia's participation in PISA-D and now in PISA 2021 simply means that its curriculum, teaching and assessment must be aligned and move toward competency-based education to better prepare students for taking PISA-style learning tasks.

Introduction

Student assessment, either at a classroom or system level, is one of the key elements in any education systems. It not only measures student achievement per the set targets but also acts as a parameter for curriculum review and for teaching and learning assessment (UNESCO, 2015). The system-level student assessment, in particular, plays an important role in informing what can be done and what must be done in the midst of any education reforms. The presence of the system-level student assessment is meant to ensure that any strategic plans and actions at the policy and school levels are pertinent, leading to education quality improvement and sustainability.

To guide policy and implementation, Cambodia has strived to develop the system-level student assessment system, from having a humble repertoire of national assessments of student learning outcomes at grades 3, 6, 8 and 11, to the regional student assessment, South-East Asia Primary Learning Metric (SEA-PLM) and lately to the international student assessment, the Programme for International Student Assessment for Development (PISA-D) (MoEYS, 2018). Although the concept of the system-level student assessment is still rather new in Cambodia, its relevance is becoming evident in the current education reforms where the innovation and improvement of curriculum, teaching and learning and particularly school-based management need to be informed by evidence and data. If properly translated and utilized, evidence and data from the system-level student assessment can optimally guide good practices at both policy and implementation levels.

This brief discusses the roles of the system-level student assessment in informing policies and practices in Cambodian education against the backdrop of the current education reforms and highlights policies and actions that directly impact student learning by distilling evidence from Cambodia's experience in the international student assessment, globally known as PISA-D (MoEYS, 2018). It also analyzes the current education discourse in the context of the main PISA 2021 by mainly discussing the following so-called questions: What does it mean for Cambodia? Where to from here?

Cambodia in the context of PISA-D and global education

Cambodia participated in PISA-D in 2016 with other 8 members (Ecuador, Bhutan, Guatemala, Zambia, Senegal, Paraguay, Honduras and Panama). PISA-D is a new program for low- and middle-income countries and economies and to a large extent follows the PISA's assessment format, which is a triennial international survey that aims to evaluate education systems worldwide by testing knowledge and skills of 15-year-old students, who are studying in 7th grade or above. PISA-D assesses the extent to which 15-year-old students, near the end of their basic education, have acquired key knowledge and skills that are essential for full participation in modern societies. The assessment focuses on the core school subjects of science, reading and mathematics and does not just ascertain whether students can reproduce knowledge but also examines how well students can extrapolate from what they have learned and can apply that knowledge in unfamiliar settings, both in and outside of school. This approach reflects the fact that modern economies reward individuals not for what they know, but for what they can do with what they know.

The PISA-D assesses 5,162 Cambodian students, nationally representative of 15-year-old students at grade 7 and above. These students are required to sit a 2 hour-test and to complete the contextual questionnaire that measures other factors affecting their learning, such as school, class, home and community environments. The participation in PISA-D means that Cambodia's education is not only relevant to its country's context but also to the global trend in education, especially to the global education goals as indicated in the Sustainable Development Goals (SDG), where the minimum global competency is what countries and economies worldwide aspire (MoEYS, 2018). In the meantime, it sets a platform for Cambodia to prepare better for the main PISA in 2021. Results from PISA-D, therefore, have significant implications for education reforms in Cambodia and student performance in the next round of PISA. To be or not to be, Cambodia's education needs to address dual challenges: on the one hand, it has to respond to the local education needs; on the other hand, it has to feed itself better into the global education context. This requires innovations of teaching and learning that respectively foster "how to teach and learn" in addition to "what to teach and learn". To this end, evidence and data from the system-level student assessment is utterly in need for Cambodia.

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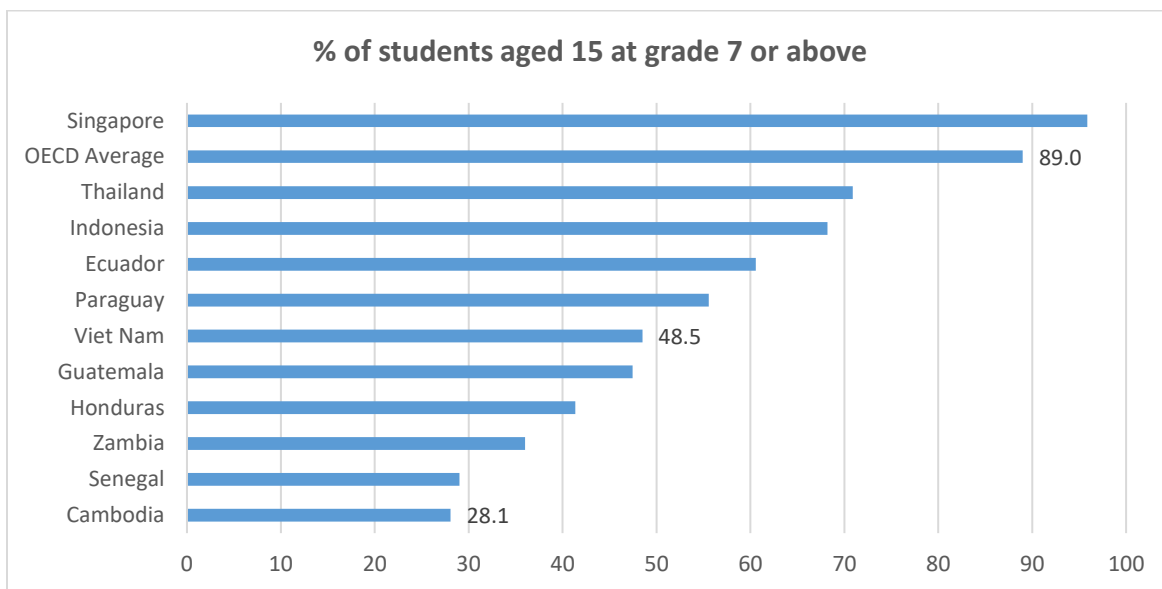
Attainment and achievement

Results from PISA-D show that Cambodia appears to have twin challenges in its education system: students aged 15 not only having low educational attainment and but also struggling with poor academic performance. On the attainment measure, Cambodia still has a long way to close the gap in student enrollment in secondary education with other PISA-D, ASEAN and OECD countries. Students aged 15 studying from grade 7 to 12 in Cambodia constitute only 28.1% of all Cambodian population aged 15, meaning that approximately 72% of the Cambodian youth at this age have dropped out of school or delayed their schooling, particularly among boys. The educational attainment of students aged 15 in Cambodia is comparable to those of Senegal and Zambia, in which most of the youth are out of school, but significantly lags behind Ecuador (61%), Paraguay (56%), Guatemala (47%), and Honduras (41%). This low educational attainment weakens students' employment prospect and constraints efforts to increase the workforce to support Cambodia's aspired economic structure as the upper-middle income and high-income country in 2030 and 2050, respectively. The low education attainment among 15-year-old students also means that more effective measures needs to be in place to enable students to complete at least lower secondary education (9-year basic education).

The low educational attainment in secondary education in principle suggests that students are automatically filtered through delayed schooling, repetition or dropout in early grades. Across education systems in developing economies, low-ability students may not be able to transit as far as the average students can do across grades. The remaining students are more likely to be resilient students or those with a strong academic profile. This argument is evident in the case of Vietnam where the proportion of 15 year-old students who participated in PISA is only about 48%, far less than the OECD average (89%), yet Vietnam outperforms most OECD countries in science in PISA 2012 and 2015. Policy makers caution that Vietnam's strong performances may deceptively reflect the success in its education system given that the system may naturally keep the best students, while leaving other students behind through

dropout. With a similar educational attainment problem, Cambodia, however, does not share the Vietnam's success, yet having to address dual challenges of low students' educational attainment and academic performance.

Figure 1. Educational attainment of 15-year-old students at grade 7 or above



Source: PISA 2015 and PISA-D databases

The PISA-D results show that in Cambodia while 15-year-old students outperform those in Senegal and Zambia in all subjects, much remains to be done to improve its PISA scores. What can be seen is that in reading and science, Cambodian 15-year-old students on average have significantly lower academic performances than those in PISA-D member countries and ASEAN countries (Vietnam, Thailand, Indonesia, and Singapore). Rural, public and disadvantaged schools in Cambodia even achieve lower academic performances. A notable picture from PISA-D is that private schools even outperform public schools about two years of schooling, an indication of inequality of student learning between the two systems.

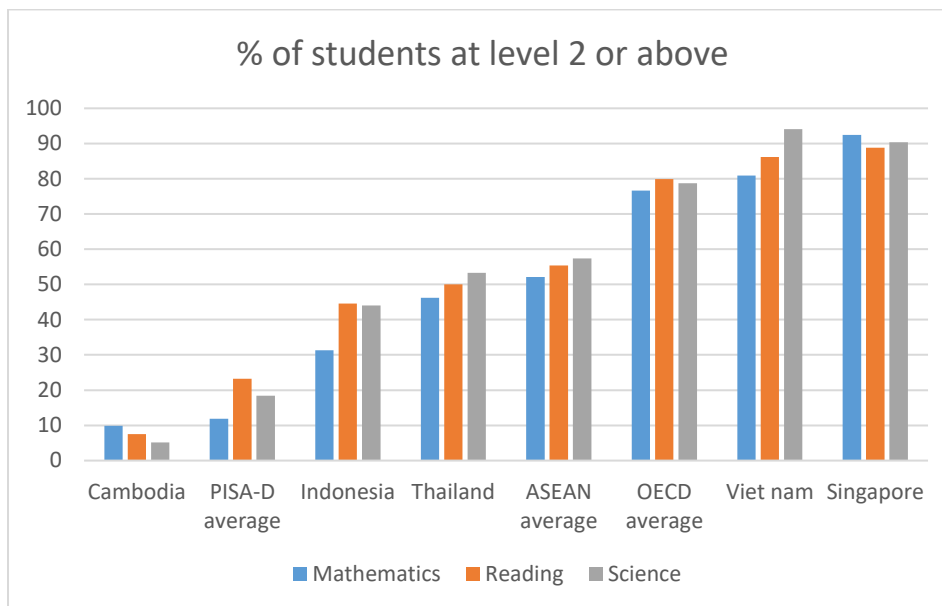
Cambodian students obtain 321 scores in reading and 330 in science out of the roughly 700 total scores. On average, students across countries participating in PISA-D obtain 346 scores in reading and 349 scores in science. Average students aged 15 across ASEAN countries obtain 430 scores in reading and 447 scores in science (OECD, 2013; OECD, 2016); while average students across OECD countries reach about 490 scores in all subjects, equivalent to level 3 of the 6 PISA proficiency levels. The scores at 410 or above suggests that students have achieved a minimum proficiency level (level 2) in line with what is anticipated in the SDG 4.

Level 2 is the baseline performance level of the PISA-D or PISA. At this level, students are able to discover key information in the reading articles or statistic tables, easily understand the key ideas of articles despite little ideas given in the article (they are able to make a conclusion), make a comparison and reflect on the article contents in the real world. In the domain of mathematics, students are able to apply general theories or mathematical formulas, resolve problems or calculate numbers in the work or real-life situation context, such as exchange rates, speed or distance, and explain or interpret the results found. In the domain of science, students are able to apply the contents and procedural knowledge, explain or interpret the data and phenomena in nature or real-life situations, such as friction, gravity, and the benefits of muscle or blood vessel exercise.

Compared to other PISA-D participating countries, students' proficiency level in Cambodia is considerably low, with only approximately 8% and 10% of the 15-year-old students respectively having achieved this minimum level (level 2) in reading and mathematics; whereas, in science, only 5% have reached this level, reflecting that a small proportion of students have the universal basic skills that meet the education target in the context of Sustainable

Development Goals (SDG 4). The proficiency levels can be substantially lower if out-of-school children aged 15, who are often, though not always, school dropouts, are included in the sample¹ (MoEYS, 2018). Nonetheless, this small share of outstanding students in Cambodia can be branded as "SDG students" who can be compared even with some students across OECD countries. To close the academic performance gap, Cambodia needs to learn from them and their education systems as lessons learnt and ways forward to improve student learning outcomes in the long run.

Figure 2: Percentages of students aged 15 reaching the minimum proficiency level



Source: PISA 2015 and PISA-D databases

Schooling and learning issues

On any measures, Cambodia is still far below the baseline performance, meaning that more direct policies and actions are needed to change this current education crisis. Effective and long-term reforms will enable Cambodian 15-year-old students to obtain better results, at least at level 2, given the fact that around 35% of Cambodian students are at level 1A (the highest of level 1 and closest to level 2) in reading and roughly 42% are at level 1A in science. In addition, PISA-D results show that, on many measures, schooling is viewed by students as a "luxury" in Cambodia: students show a strong sense of belonging, higher life satisfaction and positive attitudes towards school and their learning, which is a dividend for growth and development (MoEYS, 2018). Nonetheless, "being in school is not the same as learning" (World Bank, 2018). While much has been done, the PISA-D data show that Cambodia still has to immediately address issues at the school level, especially grade repetition, absenteeism and lateness among teachers and students, poor school management, lack of a strong learning culture and inequitable resource allocation, including uneven teacher allocation. Cambodia also has to close the gap in teacher education and development with other PISA-D, ASEAN and OECD countries. PISA-D data show that teacher qualification is considerably low in Cambodia compared to other PISA-D, ASEAN and OECD countries who have a large cadre of secondary school teachers holding at least a bachelor's degree.

The low performance among students aged 15 in Cambodia also means that more investment is needed, especially in the early childhood and primary education and in support of under-staffed and under-resourced schools, which are often, though not always, in rural regions. Rebalancing the education budget would help reduce the cost of

¹ This low learning levels are also discussed by **Michelle Kaffenberger**, a Research Fellow with the RISE Programme, at https://www.riseprogramme.org/blog/PISA-D_low_learning.

remedial education or school dropout in the higher grades. From the PISA-D data, Cambodia still has a low investment in education (2.7% of GDP) in the region and PISA-D, let alone the fact that the majority of the budget goes to teacher salary. On balance, Cambodia still has a long way to establish the foundation for success at the school levels (Willms, 2015). Concrete policies and actions that directly impact school management and student learning will be the right and long-term responses.

Education prospect in the context of PISA: Where to from here?

Cambodia has done much to improve education quality through many reforms by strengthening, among other things, the grade 12 examination, teacher education, school leadership, curriculum, the inspection system as well as student learning assessments. However, the implications of these reforms have yet to materialize in full swing. The national assessments of student learning outcomes consistently show that student performance is still below par (MoEYS, 2016; 2017; 2018). The PISA-D results also show that the majority of students at age 15 in Cambodia have poor basic skills in reading and mathematics, highlighting that learning does not take place as it is meant in the secondary education curriculum. But the fact that PISA measures students on their functional literacies accumulated from low grades (OECD, 2017) means that attention to curriculum, teaching and learning and assessment must be taken early on. Breaking this learning crisis will require strong and consistent systemic reforms from the low grades (preferably the emphasis on K-9 education).

In fact, Cambodia's participation in PISA 2021 reflects a strong commitment to excellence in its education. But, the road to strong performances in PISA will require strong and right education reforms (OECD, 2013; Schleicher, 2018). In the PISA context, teaching global knowledge and skills to retrieve, analyze and evaluate short, medium and lengthy texts, mathematic stimuli and scientific phenomena, for example, are what matters most to PISA students. In the meantime, students need routine practices of diverse learning tasks to optimize their cognitive skills (in line with Bloom's taxonomy) and to cultivate a strong reading and learning culture. But, what can be done and must be done in Cambodian education to make this happen?

The PISA-D results for Cambodia and other participating countries seem to suggest that education modalities in the past need to be revisited; in the same vein, current policies and actions have yet to directly influence student learning. Concrete actions are, in particular, not effectively in place at the school level, if any. Education systems need to be realistic to ensure students are actually learning while being in school. Successful systems such as Korea, Brazil, Estonia and even Vietnam are those committed to using the results from PISA to reform teaching and learning modalities and budget invested in education and allocation. Upgrading teacher education and ensuring firm monitoring and accountability are, in particular, the centerpiece of their strong PISA performances. Aligning what will be tested in PISA with what is taught in the class is a straightforward practice among some successful PISA countries, though not all. In this regard, Cambodia needs to find both quick wins and long-term solutions for current and future education to feed better into the global education context such as SDG and/or PISA.

What should policy makers do?

This policy brief is not exhaustive in itself but desperately highlights key issues that can be done and must be done to improve student learning outcomes as well as the foundation for success in Cambodia education (Willms, 2015). The following options are worthwhile for education policy thinking, research and implementation.

- Increase and wisely use public spending in preschool and primary education to ensure students are in school and particularly mastering cognitive skills for doing lengthy and higher-order thinking reading and mathematical tasks. To this end, schools and teachers need to revisit and develop a breadth of learning tasks that promote different cognitive levels and integrate those learning tasks into classroom assessment, be it formative or summative.
- Develop or improve the system to monitor and mentor schools against pre-determined standards to establish the foundation for success.

- Continue to upgrade teacher education and teaching methods in line with the global competency framework where knowledge, skills and attitudes are promoted in teaching and learning and to support disadvantaged schools.
- Train and use surplus teachers to offer supplementary tutoring to disadvantaged and academically poor students to reduce grade repetition.
- Promote performance- and competency-based teaching and learning at the teacher training centers and school level.
- Increase learning opportunities in and outside of class by integrating supplementary learning tasks into teaching and learning. This can be done and must be done, and it is not costly.

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