

KEY POINTS

- Millions of children are attending school without achieving even basic learning outcomes. Teaching practice is a key determinant of student learning.
- This study draws together qualitative evidence on teaching practices in 18 economies in Asia and the Pacific. It compares the findings from these qualitative studies with student perceptions of interactive teaching practices.
- Our analysis reveals generally poor teaching practices in developing Asia, in line with evidence on low learning outcomes in these economies. However, there is evidence of shifts in practice to improve critical thinking and problem-solving in countries such as the People's Republic of China.
- Teaching that mainly uses whole-class approaches but appears to be effective at fostering higher-order thinking skills, particularly in Japan and the Republic of Korea, proves that there is not one universal approach to effective teaching.
- Gathering data on student perceptions may not be a reliable way to assess teaching practices.
- As the world considers how to respond to the learning crisis, which has been further exacerbated by the COVID-19 pandemic, there is an urgent need to focus attention on teaching quality. Efforts to improve learning without first improving teaching—for example through the use of online learning for students—are unlikely to be successful.

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How Teachers Teach: Comparing Classroom Pedagogical Practices in the Asia and Pacific Region

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1. INTRODUCTION

Data from across the world have revealed that while school attendance has increased in recent years, hundreds of millions of children are attending school without achieving even basic learning outcomes (World Bank 2018, UNESCO Institute of Statistics 2019). As the scale of this “learning crisis” is revealed, a great deal of policy attention has turned to teaching practices. There has been a general drive in developing countries to shift from rote learning to a more learner-centered education: international organizations have advised on this (United Nations Educational, Scientific and Cultural Organization [UNESCO] 2018); development partners have implemented programs specifically designed to make teaching more learner-centered (for example, Asian Development Bank [ADB] 2019); and a number of developing country governments have committed to moving away from traditional teacher-centered practices (You 2019).

Since the onset of the coronavirus disease (COVID-19) pandemic and the realization of the exacerbating impact it will have on the learning crisis, there have been renewed calls to focus urgently on improving teaching practices in low- and middle-income countries and in particular on the need to develop foundational skills so that children have the ability to become lifelong learners (Save Our Future Campaign 2020).

At the same time, in recent years, a number of high-income countries appear to have suffered a crisis of confidence about teaching practices in their education systems: commentators from Australia, the United Kingdom, and the United States (US) have expressed alarm that learning outcomes in their countries lag behind those in East Asian economies (Groch 2019, Lewis 2019, Goldstein 2019). Policy makers from developed economies have rushed to learn from East Asian education approaches (Hurst 2016, Rapple and Komatsu 2017, Singhal 2019).

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But there has also been a backlash from some who fear that the high academic achievements seen in East Asia may come at the expense of children's well-being and development of socioemotional skills (Fowler and Carey 2019, Xu 2016).

In fact, research evidence reveals that good quality teaching requires an appropriate *mix* of teaching approaches. Development of foundational literacy and numeracy relies on repetition and practice to automatize these skills (Abadzi 2008). Just as importantly, children need to develop foundational socio-emotional skills and this requires more self-directed learning in particular through play (Sanchez Puerta et al. 2016). At higher levels of schooling too, teaching is most effective when teachers both convey new knowledge and problem-solving strategies and enable learners to draw on these to direct their own learning (Kirschner and Hendrick 2020).

Many discussions of teaching practice in different regions have been characterized by speculation and stereotyping (Park 2013, You 2019), which is partly fueled by insufficient evidence concerning teaching practices in different locations. One might assume that studies done using standardized classroom observation methodologies such as TEACH (Molina et al. 2018a), Stallings (Stallings 1977), or CLASS™ (Teachstone 2017) could be compared across countries. However, the robustness of these tools for making cross-location comparisons is unclear. It is unknown whether the cultural biases of the raters in these methodologies could impact ratings. For example, in contexts where interactive teaching approaches are rare, raters may give a high score for even modest attempts to support interaction, whereas similar efforts might be given lower scores in contexts where interactive teaching is the norm. This could be one reason why countries that appear to have vastly different teaching approaches according to qualitative descriptions have similar scores using the CLASS tool. For example, studies from India (Grijalva et al. 2018), the US (Allen et al. 2013), and Norway (Westergård et al. 2019) all gave similar scores for instructional support, ranging from 3.36 in secondary schools in Norway to 4.3 in primary school mathematics in India, out of a possible score of 7.

Perhaps the “gold standard” approach for comparing teaching practices across countries involves video-based observations of classrooms from multiple countries, along with a rating approach that minimizes inter-rater variability and cultural bias. The classic example of this was the Trends in International Mathematics and Science Study (TIMSS) Video Study (Hiebert et al. 2003, Stigler et al. 1999), but beyond this, there are few examples.

This report seeks to provide a clearer picture of teaching practices in the Asia and Pacific region. We focus on a sample of 18 economies that have both data on learning outcomes and qualitative evidence on teaching practices. Countries in Central and West Asia, as well as the Pacific island countries, lack data and therefore are underrepresented.

In section 2, we provide a traffic light assessment of learning outcomes based on two key learning indicators: The World Bank Learning Poverty score, and the average score on the 2018 Programme for International Student Assessment (PISA). The assessment demonstrates the diversity in learning outcomes across the region.

In section 3, we present a focused literature review of studies that have used direct or video-enabled observation of K-12 classroom practice. For each of the 18 economies, we summarize results relating to interactive teaching practice and the fostering of higher-order skills such as problem-solving and critical thinking.

Overall, evidence reveals that, except for Australia and New Zealand, most economies in the Asia and Pacific region use whole-class, teacher-led approaches. The learning outcome data indicate that the effectiveness of these approaches varies. In many locations, the teacher-led approach resulted in poor learning outcomes; however, in others it was highly effective in achieving learning outcomes.

In section 4, we consider whether student surveys are a reliable way to understand teaching practice. We draw on students' survey data from PISA 2018 and compare the results with the qualitative evidence presented in section 3. We demonstrate that the student survey results are poorly correlated with the qualitative data that we have collected. We discuss some possible reasons for this and suggest implications for future research.

In the final section, we present our major finding and conclusions. Our study highlights the challenges in gathering evidence on teacher practices, especially the risk of bias if surveys are used to compare teaching practices in different locations. However, it is important to emphasize that, despite gaps in the data, we have enough information to know that there is a global learning crisis, and that governments and development partners need to act urgently to address it.

2. OVERVIEW OF LEARNING OUTCOMES IN THE ASIA AND PACIFIC REGION

We started by identifying the Asia and Pacific economies with at least one of two key learning indicators. The first is the Learning Poverty indicator (World Bank 2019), defined as the percentage of children unable to read and understand a simple text by age 10. This is a crucial indicator because the ability to read is a fundamental prerequisite for learning and has a strong positive correlation with learning in other areas, such as Math, Science, and the Humanities. Evidence shows that children who still struggle with reading when they reach upper primary are unlikely to ever achieve a good grasp of literacy (World Bank 2019, Fiester 2010).

The second learning indicator is the average of the three scores from PISA 2018, i.e., Reading, Mathematics, and Science (OECD 2019). Because PISA is administered to 15-year-old students, it paints a picture of the state of learning at secondary school level.

Table 1 presents traffic light assessments for the two learning indicators. In countries like Japan, the Republic of Korea (ROK), Singapore, and Viet Nam, learning poverty hardly exists. Countries with a learning poverty score below 10% get a green light in the assessment. Countries like Bangladesh, Cambodia, and India, where more than 50% of 10-year-olds cannot read a simple text, get a red light in the assessment.

Table 1: Assessment of Learning Outcomes in Asia and the Pacific

Economy	Learning Poverty		Programme for International Student Assessment 2018				
	Indicator	Assessment	Reading	Math	Science	Average	Assessment
Afghanistan	93.40	●	–	–	–	–	●
Australia	8.60	●	503	491	503	498.99	●
Bangladesh	58.10	●	–	–	–	–	●
Brunei Darussalam	–	●	408	430	431	423.06	●
Cambodia	51.10	●	–	–	–	–	●
Hong Kong, China	3.20	●	524	551	517	530.71	●
India	54.80	●	–	–	–	–	●
Indonesia	35.40	●	371	379	396	381.90	●
Japan	2.20	●	504	527	529	519.99	●
Malaysia	12.90	●	415	440	438	430.94	●
New Zealand	11.40	●	506	494	508	502.90	●
People's Republic of China ^a	18.20	●	555	591	590	579.03	●
Philippines	–	●	340	353	357	349.73	●
Republic of Korea	3.00	●	514	526	519	519.66	●
Singapore	2.80	●	549	569	551	556.47	●
Taipei,China	–	●	503	531	516	516.50	●
Thailand	23.50	●	393	419	426	412.42	●
Viet Nam ^a	1.70	●	–	–	–	–	●

^a The average reading, math, and science score at age 15 for the People's Republic of China is not representative of the country because only Beijing, Shanghai, Zhejiang, and Jiangsu participated in the Programme for International Student Assessment (PISA) 2018. PISA data for Viet Nam have not yet been fully validated. Source: Authors.

Countries that are below 50% but above 10%, such as Indonesia, Malaysia, and Thailand get an amber light. A gray light means the learning poverty score is unavailable.

PISA scores are scaled to fit approximately normal distributions with the means around 500 points and the standard deviations around 100 points (OECD 2019). A green light in the assessment represents an above-average performance; an amber light indicates scores between 450 and 500, which are average or slightly below average; and a red light is for scores below 450. A gray light means that PISA 2018 scores are unavailable.

A number of East Asian economies—Hong Kong, China; Japan; Beijing, Shanghai, Jiangsu, and Zhejiang in the People's Republic of China (PRC); the ROK; Singapore; and Taipei,China—top the PISA 2018 global rankings.¹ Australia and New Zealand are at average or slightly above average performance; Brunei Darussalam, Indonesia, Malaysia, the Philippines, and Thailand are below average.

The data in Table 1 show that the region is home to a great deal of diversity in learning outcomes. In the next section, we relate learning outcomes to the evidence on classroom pedagogical practices.

3. DIRECT OBSERVATION STUDIES

Very few studies exist that describe teaching practices in multiple countries; however, there are many studies that describe teaching practice in an individual country based on classroom observations. We conducted a comprehensive literature review to identify studies that used classroom observation (either direct or via video recordings) to understand teaching practices in the 18 economies in our sample. All studies using the TEACH tool kit were gathered from the World Bank website. Google Scholar was used to identify as many studies as possible using the CLASS™ tool kit (using the search string “CLASS AND teachstone”). Additional searches were done for each eligible economy on both Google Scholar and Google using the search string “[Economy name] AND classroom observation” and limiting results to publications from 1999 onward.

¹ The PISA 2018 score does not represent the PRC entirely because only students from Beijing, Shanghai, Jiangsu, and Zhejiang participated in the assessment.

Where few or poor-quality studies were found, we sought information on classroom observation studies directly from academics working on K-12 pedagogy in the location of interest.

Studies were assessed as high rigor if they provided information that met two criteria: first, they had to be based on a nationally or regionally representative sample, and second, they had to have been conducted by observers in a manner that sought to minimize the risk of bias in data collection. Studies that did not meet both criteria—or generally, the ones that used smaller sample sizes and less transparent data-gathering or approaches that could be prone to bias—were assessed as low rigor. Low rigor does not imply low quality: for example, a study may provide very high quality information on a specific context but be considered low rigor here since we cannot confirm that it is representative of the region or economy. The studies identified through our literature review are listed, grouped by economy, assessed, and summarized in Table 2.

The analysis of teaching practices drawn from the studies in Table 2 focuses on two aspects of the teaching practice: the use of interactive teaching approaches and the fostering of higher-order thinking skills. These two aspects have been promoted by international organizations (UNESCO 2018) and many Asia and Pacific economies have introduced policies that aim to embed them in their education systems (Takayama 2017, You 2019, Care and Luo 2016). The two aspects are often discussed as a means and an end, i.e., it is assumed that higher-order thinking skills are developed mainly through interactive teaching approaches (Yakovleva and Yakovlev 2014, Senthamarai 2018). However, our initial analysis of evidence on teaching practices in the Asia and Pacific region revealed that in some contexts, practices enabled students to develop and use higher-order thinking skills without using a highly interactive teaching approach. For this reason, we examined the two aspects separately.

3.1 Afghanistan

Molina et al. (2018c) noted that many teachers in Afghanistan had little knowledge of the subjects they are attempting to teach and that they “struggle both to read and understand a factual text (average score of 40%), and translate this information into teaching.” General pedagogical knowledge was poor, and the teachers’ ability to assess, respond, and monitor their students’ learning was considered by the study team as inadequate.

Teaching practices are unlikely to foster higher-order thinking skills, the authors observed: “Many teachers asked questions that required students to recall information or to practice what was learned, but significantly fewer asked questions that required higher-order skills, encouraged students to apply what was learned to different contexts, or be creative” (Molina et al. 2018c: p. 74). They concluded that teachers struggled the most in providing students with opportunities to think and apply what was learned. Over 90% of teachers had the lowest score on this practice.

The study from Afghanistan revealed low quality of teaching in the country, which is confirmed by the high learning poverty score. Evidence suggests that whole-class approaches were generally used and that teaching was not fostering higher-order skills.

However, this evidence comes from only one high-rigor study, and additional research with nationally representative samples and minimal bias would be valuable.

3.2 Australia

Unlike their counterparts in other economies in Asia and the Pacific, teachers in Australia used more interactive approaches. In a comparative study, Aldridge et al. (2000) noted that students in Australia had more opportunities to discuss ideas and explain their learning to peers, compared with students in Taipei, China. The reduced competition in Australian schools gives teachers more time for classroom activities that encourage student negotiation. The authors note that in contrast to the teacher-centered lessons prominent in Taipei, China, science lessons in Australia encouraged students to engage at different levels. Aldridge et al. (2000: p. 21) also observed “more opportunities to invite students to share control with the teacher, including the articulation of learning goals and the design of learning activities.” This feature of shared control is corroborated by another comparative study by Tao et al. (2013) who reported student presentations of their work in Australia but not in schools in the PRC.

There is evidence that teaching approaches in Australia are effective at developing higher-order thinking skills. Roth et al. (2006: p. 195) noted that during science lessons, “making connections among ideas, facts, and evidence in Australian lessons was most often accomplished through an inquiry/inductive approach” and that “students’ work on independent practical activities was linked to the development of ideas.” Hiebert et al. (2003) reported that grade 8 Mathematics in Australia and indeed in all the countries they investigated was taught predominantly through problem-solving; however, they noted that teaching in Australia was less likely than in other countries examined to focus on making connections.

The low level of learning poverty and the relatively high scores in PISA indicate that teaching in Australia is generally effective. Teaching appears to be relatively interactive in Australia.

3.3 Bangladesh

All studies identified for Bangladesh showed that teachers used whole-class approaches, mainly teaching from the blackboard or in front of the class (EIA 2009). Haider and Chowdhury (2012) noted that pair works and group works were rarely practiced in class. Rahman (2018) states that teachers taught primarily through lectures (Rahman 2018) while Rahman and Sarker (2019) also report traditional teaching-learning methods.

Studies suggest that practices were unlikely to foster higher-order thinking skills. EIA (2009) indicates that teachers only asked closed questions and that the teaching did not use a communicative approach to learning English. Rahman (2018) notes that teachers did not encourage students to interact. Both Rahman (2018) and Rahman and Sarker (2019) suggest that the observed teaching promoted rote learning.

The low learning outcome scores suggest that teaching in Bangladesh is relatively ineffective. Teaching generally uses whole-class approaches and is relatively unlikely to foster higher-order thinking skills.

Table 2: Summary of Direct Classroom Observation Studies for 18 Economies in Asia and the Pacific

Economy	Study	Rigor	Description
Afghanistan	Molina et al. 2018c	High	Investigated 200 primary schools across 21 provinces, of which 170 constitute a nationally representative sample of public schools and the remaining 30 are Community Based Education (CBE) schools managed by nongovernment organizations. The authors used the Systems Approach for Better Education Results (SABER) Service Delivery Tool and the Classroom Assessment Scoring System (CLASS).
Australia	Aldridge et al. 2000	Low	Examined practice of four high school science teachers in each of two locations: Australia and Taipei, China. Data from classroom observations was analyzed alongside data from a survey of students of 50 classes in each location.
	Hiebert et al. 2003	High	Focused on teaching mathematics among Grade 8 students using the 1998–2000 Third International Mathematics and Science Study (TIMSS) Video Study
	Tao et al. 2013	Low	Investigated the teaching and learning approaches in science lessons among Chinese and Australian elementary students focusing on three Grade 6 teachers per country.
	Roth et al. 2006	High	Focused on teaching science among Grade 8 students using the 1998–2000 Third International Mathematics and Science Study (TIMSS) Video Study
Bangladesh	EIA 2009	Low	Carried out classroom observations of English lessons in 252 primary and secondary schools in Bangladesh. Approach to observation not clearly described.
	Haider and Chowdhury 2012	Low	Investigated English Language teaching in eight secondary schools
	Rahman 2018	Low	Examined 30 science teachers in secondary schools in Dhaka city
	Rahman and Sarker 2019	Low	Focused on English writing lessons in five randomly selected primary schools.
Brunei Darussalam	Botty and Shahrill 2014	Low	Focused on mathematics teaching in three classes, each from the Year 7, Year 8, and Year 11 in a single secondary school
	Salam and Shahrill 2014	Low	Analyzed video recordings of three consecutive lessons for each of three mathematics classes in a single secondary school
	Shahrill and Clarke 2014	Low	Analyzed video recordings of two mathematics teachers from each of two secondary schools
Cambodia	Benveniste et al. 2008	High	Examined teaching practice in 210 primary schools from 23 provinces and 150 lower secondary schools from 16 provinces drawing on approaches developed by Bloom (1964) and Stallings and Kaskowitz (1974)
	Tandon and Fukao 2015	Low	Examined teaching practice of teacher trainers in two classrooms for each of the 10 teacher training college and the teaching practice of teachers in 226 classrooms (mainly Grade 4). Also tested the mathematics knowledge of teachers.
	Sokha and Prudente 2012	Low	Examined the learning and teaching beliefs of 13 lower secondary Biology teachers and used classroom observation to assess whether these were translated into practice
Hong Kong, China	Hiebert et al. 2003	High	Focused on teaching mathematics among Grade 8 students using the 1998–2000 Third International Mathematics and Science Study (TIMSS) Video Study
	Li, Rao, and Tse 2012	Low	Investigated how “Western” ideas were used or translated into teaching practices through observation of six randomly chosen kindergarten classrooms in one school for each of three locations: Hong Kong, China; Shenzhen; and Singapore.
	Yiqi 2012	Low	Classroom observation of a single class of lower secondary school with a focus on enhancement of critical thinking skills.
India	Sankar and Linden 2014	High	Investigated 100 government schools each in the states of Andhra Pradesh, Madhya Pradesh, and Uttar Pradesh during 2006–2007. In each state, 1,680 classrooms were observed using the Stallings Snapshot Observation Schedule (SOS) method.
	Sinha et al. 2016	High	Investigated elementary level education in 400 schools in Bihar.

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Table 2: Continued

Economy	Study	Rigor	Description
	Kothari et al. 2016	High	Examined teaching in 75 secondary government schools each from the states of Madhya Pradesh and Tamil Nadu using the Stallings Snapshot Observation Schedule.
Indonesia	Azkiyah and Mukminin 2017	Low	Investigated the teaching quality among student teachers in Indonesia.
	Harjanto et al. 2018	Low	Investigated 193 teachers in 350 schools across provinces in Indonesia namely North Sumatera, Riau, and Jambi. All teachers had previously carried out in-service training designed to improve teaching and learning.
Japan	Hiebert et al. 2003	High	Focused on teaching mathematics among Grade 8 students using the 1998–2000 Third International Mathematics and Science Study (TIMSS) Video Study
	Roth et al. 2006	High	Focused on teaching science among Grade 8 students using the 1998–2000 Third International Mathematics and Science Study (TIMSS) Video Study
	So et al. 2010	Low	Compared teaching practice in one elementary school in the Republic of Korea and one in Japan
Malaysia	Sidhu and Fook 2010	Low	Four classroom observations were carried out of one primary-level Teaching English as a Second Language (TESL) teacher in each of five randomly selected primary schools in state of Selangor.
	Hardman and A-Rahman 2014	Low	Four lessons were observed for each of eight primary school English teachers who had all carried out in-service training on the new curriculum.
	Ong et al. 2018	Low	Examined the teaching practice of 20 lessons taught by 13 lecturers in a teacher training college.
New Zealand	ERO 2018a	Low	Summarizes research (including classroom observations) on mathematics teaching
	ERO 2018b	Low	Summarizes research (including classroom observations) on senior secondary schools
	Almutairi 2019	Low	Used classroom observation of technology teaching in a single New Zealand primary school and compared with practice in Saudi Arabia
	ERO 2019	Low	Summarizes research (including classroom observations) on the introduction of New Zealand's new curriculum
People's Republic of China	Hu et al. 2016	High	Examined teaching practice in a random sample of 180 kindergarten classrooms across three municipalities in Guangdong using the CLASS™ tool.
	Li and Ni 2011	High	Investigated primary mathematics teaching in matched groups of 33 teachers from an area which had not yet introduced new curriculum and 25 teachers from area which had introduced new curriculum. Each teacher was filmed for three of his or her classes within a 3-day period and analyzed using the authors' own coding system.
	Yan 2012	Low	Investigated teaching practice of three teachers (representative of early, middle, and late career stages) in a single secondary school.
	Tao et al. 2013	Low	Investigated the teaching and learning approaches in science lessons among Chinese and Australian elementary students focusing on three Grade 6 teachers per country.
	Li, Rao, and Tse 2012	Low	Investigated how “Western” ideas were used or translated into teaching practices through observation of six randomly chosen kindergarten classrooms in one school for each of three locations: Hong Kong, China; Shenzhen; and Singapore.
Philippines	Molina et al. 2018b	High	Investigated teaching practice in Mathematics, English, and Science classes in 45 public primary schools across the Mindanao region using the TEACH methodology.
	Pouzevara et al. 2014	High	Investigated teaching practice in G1 and G2 language and non-language classrooms of 40 randomly selected schools in each of four regions.

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Table 2: Continued

Economy	Study	Rigor	Description
Republic of Korea	Campbell et al. 2010	Low	Investigated secondary science teaching practice in 26 Korean classrooms and 40 United States classrooms using the Reformed Teaching Observation Protocol.
	Grift et al. 2017	High	Investigated secondary school teaching by 375 teachers in the Republic of Korea and 289 teachers in the Netherlands
	So et al. 2010	Low	Compared teaching practice in one elementary school in the Republic of Korea and one in Japan
	Lee and Sriraman (2013)	Low	Examined teaching practice of two middle school mathematics teachers
Singapore	Curdt-Christiansen and Silver 2012	Low	Examined teaching in 10 primary 1 classrooms and 10 primary 2 classrooms
	Li, Rao, and Tse 2012	Low	Investigated how “Western” ideas were used or translated into teaching practices through observation of six randomly chosen kindergarten classrooms in one school for each of three locations: Hong Kong, China; Shenzhen; and Singapore.
Taipei,China	Aldridge et al. 2000	Low	Examined practice of four high school science teachers in each of two locations: Australia and Taipei,China. Data from classroom observations was analyzed alongside data from a survey of students of 50 classes in each location.
	Liaw 2012	Low	Examined practice of four student teachers carrying out their practicum in an elementary school
Thailand	Tayjasanant and Barnard 2010	Low	Examined the practice of eight English language teachers—four from a private school and four from a public school
Viet Nam	Hoang et al. 2018	Low	Examined practice of 60 primary school teachers using the CLASS™ tool
	Cao 2018	Low	Examined practice of 60 secondary school mathematics teachers across three provinces (Thai Nguyen, Quang Ninh, and Bac Giang)

Source: Authors.

3.4 Brunei Darussalam

Evidence suggests that secondary school mathematics teaching in Brunei Darussalam mainly uses whole-class approaches. Shahrill and Clarke (2014: p. 7) describe that “students were busy copying the notes written on the whiteboard whilst the teacher was discussing or explaining to the whole class, the teachers were not dialoguing with the students, the students were passive, the teachers did most of the talking in the classroom, when the teachers did ask students mathematical questions or whether students understood the topic... the students typically gave chorused answers (of a few words) or a short reply of “yes” or “no”, and in many cases, teacher questions were almost always rhetorical.” The authors also mention that the questions posed by teachers were of “low cognitive level.” Salam and Shahrill (2014) report that the majority of class time is spent on teachers reciting to students with little interaction and involvement of students.

The use of closed questions and chorused responses suggests that practice is not optimized to foster higher-order thinking skills. However, there is evidence that students were engaged in problem-solving, rather than just being passive learners. For example, Salam and Shahrill (2014: p. 97) report that “the students paid close attention to the teacher’s discourse during the lesson whilst learning what they have done wrong or how best to solve the math exam question.”

It is also apparent that students ask questions but that they prefer to do this in one-to-one interactions with the teachers. Shahrill and Clarke (2014) report that teachers stated that students prefer to interact with teachers through private conversations rather than in front of the class. This is corroborated by Botty et al. (2014), who report that interaction does occur between teachers and students, but that it is mainly on a one-to-one basis.

The three studies identified for Brunei Darussalam, all focusing on a small sample of secondary school mathematics teachers, describe a mainly whole-class teaching approach that is not optimized to foster higher-order thinking skills. PISA results suggest that teaching in Brunei Darussalam is relatively ineffective in developing learning outcomes.

3.5 Cambodia

Studies indicate that teaching in Cambodia is highly teacher-centered and rarely uses interactive approaches. Benveniste et al. (2008) report that the majority of class time is used for instruction or recitation with little time for group work and applied individual work. Similarly, Tandon and Fukao (2015) report that for most of the lesson teachers are dictating or students are copying off the board and there is little opportunity for feedback or applied activities. Tandon and Fukao (2015) also examine pedagogical approaches exhibited by the

teacher trainers in the country's 10 Teacher Training Colleges and conclude that teacher training is also highly teacher-centered with little interaction. Interestingly, Sokha and Prudente (2015) revealed that most of the teachers examined supported the concept of learner-centered teaching but report that this belief is generally not converted into practice.

Studies suggest that teaching practice does not foster higher-order thinking skills. Tandon and Fukao (2015) found that only one in five classes did teachers ask questions that would require imagination or creativity. Similarly, Benveniste et al. (2008: p. 74) report there are "... at best limited opportunities for open interaction, creative thinking or exploratory exchanges."

In addition to poor-quality pedagogy, Tandon and Fukao (2015: p. 106) also reported low levels of subject knowledge in mathematics among both teacher trainers and teachers in service. They conclude: "Overall, mathematics knowledge is alarmingly low. On average, trainers score roughly the same as an average grade 9 Cambodian student on mathematics knowledge; trainees score slightly higher. A significant portion of trainers, trainees, and teachers in service lack the skills to diagnose the mistakes students make and propose adequate solutions, raising concerns about classroom effectiveness."

Learning outcome data suggests that teaching practice in Cambodia has generally low levels of effectiveness. Teaching appears to be low quality, lacking in interactivity, and unlikely to foster higher-order thinking skills.

3.6 Hong Kong, China

Studies suggest that teaching in Hong Kong, China tends to use whole-class approaches. Li et al. (2012) state that "Teacher-directed explicit instruction" was used 59.8% of the time. Hiebert et al. (2003) report that of the seven economies they examined, Hong Kong, China had the lowest proportion of lesson time devoted to pair or group work at only 5%. Yiqi (2012) reports that the teacher is the main distributor of content knowledge.

There is evidence that teaching attempts to foster higher-order thinking skills. Hiebert et al. (2003) report that mathematics was taught mainly through problem-solving in all the economies examined (including Hong Kong, China) and Li et al. (2012) state that they frequently observed strategic questioning of group children. However, Yiqi (2012: p. 390) concludes that generally, teachers do not directly enable critical thinking stating that "students can obtain basic facts and content knowledge from the teacher, which serves as the basis for development of higher-order thinking."

PISA scores for Hong Kong, China are high, suggesting that teaching is highly effective in developing learning outcomes. The qualitative data suggests that whole-class approaches are typical and that there is a mixed picture in terms of fostering higher-order thinking skills.

3.7 India

Whole-class teaching is dominant in many schools in India. Sinha et al. (2016) described elementary school students in Bihar as sitting in rows and working individually; it was uncommon for teachers to ask children to do group work or use materials other than their textbooks. Kothari et al. (2016) observed almost no instances of cooperative learning in their study. However, there are signs that more interactive teaching is emerging in at least some schools. Sankar and Linden (2014) report that while teacher-centered approaches were dominant, there was evidence of more student-centered approaches and higher-order activities in around 24% of classroom observation time. Kothari et al. (2016) report that the use of interactive approaches differs by subject and that teachers spend more time on discussion in Language than in Mathematics classrooms.

Descriptions of teaching suggest it may not be effectively fostering higher-order thinking skills. For example, Sinha et al. (2016) report that the most common teaching practices were reading from a textbook, asking oral questions from the textbook, or student recitation. These types of teaching approaches are not likely to foster higher-order thinking skills. Similarly, Sankar and Linden (2014) report that the vast majority of teaching time uses methods that do not require higher-order thinking skills.

There is evidence that many teachers themselves have poor levels of subject knowledge. Kothari et al. (2016: p. 8) noted that "while teachers were able to identify errors made by students correctly for some of the questions of lower class levels, there were cases where most teachers missed fundamental conceptual errors made by students."

India is a huge country with decentralized education provision. Therefore, evidence from one state may not necessarily reflect the situation in another. Data suggests that teaching is, on average, relatively ineffective in developing learning outcomes. Evidence from a range of states suggests that whole-class approaches to teaching are dominant but that more interactive approaches are emerging in some schools. In general, the teaching approaches are poorly suited to fostering higher-order thinking skills.

3.8 Indonesia

Evidence on teaching practice in Indonesia is scarce. Only two relevant studies were identified, one of which focused on student teachers, while the other focused on teaching practice after an in-service teacher training intervention. The findings from these two studies may not be generalizable to the general population. Having said that, it is unlikely that the subjects in these two studies, who have recently received training, are using less learner-centered approaches than the general population, and therefore the findings could be seen as a "best-case scenario."

The results from the studies suggest that whole-class teaching approaches remain prevalent even among the teachers who had received training designed to increase the interactivity of their teaching; Harjanto et al. (2018) report that teachers had started to make use of a few components of the new techniques but mainly still used more traditional teacher-centered approaches.

Azkiyah and Mukminin (2017) also report that trainee teachers mainly used whole-class approaches but did reveal that some student teachers were starting to introduce group work.

Both studies suggest that teaching practices are unlikely to foster higher-order thinking skills. Azkiyah and Mukminin (2017: p. 118) reported: “The student teachers, for instance, raised some questions to discuss students’ homework or to review previous materials. However, the questions did not promote students’ critical thinking. The questions raised, for instance, were related to who, what, when, and where, the answers to which could be easily found in the text. Questions concerning why and how, which are expected to encourage students’ critical thinking, were not really introduced.” When asked what they sought to achieve, teachers expected learning outcomes that were mostly lower-order thinking or simply remembering and understanding (Harjanto et al. 2018). They concluded that teachers’ knowledge of student-centered approaches and how to encourage higher-order thinking skills needed to be improved.

Learning outcome data suggests that teaching is relatively ineffective in achieving learning outcomes in Indonesia. There is little evidence on teaching practice, but two small studies suggest that whole-class teaching is likely to be dominant, with some potential signs of more interactive approaches being attempted. Teaching described in these studies appeared to be relatively poor in fostering higher-order thinking skills.

3.9 Japan

Evidence on interactive teaching in Japan is very mixed. Whole-class teaching was reported to be common in Japanese mathematics teaching, with Hiebert et al. (2003: p. 65) noting that problem-solving was carried out “mostly as a whole class.” However, Roth et al. (2006) note that in science lessons an average of 36% of teaching in Japan used group or pair work with around half of class time in Japanese classrooms using whole-class approaches. The authors note that, during whole class teaching periods, students spoke less often than in other countries. So et al. (2010: p. 278) noted that teachers were keen to support students to make connections and discoveries themselves by “supporting active discussion and interaction among students.”

Evidence from Japan suggests that teaching is particularly focused on fostering higher-order thinking skills such as problem-solving and critical thinking. Hiebert et al. (2003) note that problems that ask students to decide how to use procedures rather than just execute them were very common in Japanese lessons (74% of problems per lesson). Similarly, Roth et al. (2006: p. 189) note that in Grade 8 Science lessons a “large percentage of lessons [were] organized primarily to make connections among ideas, evidence, and experiences rather than presenting facts and definitions” and that “fifty-seven percent of Japanese lessons made connections through an inquiry approach, using data to build ideas inductively.”

The identified evidence for Japan was relatively old. In the studies identified, there was mixed evidence on the interactivity of lessons and a strong focus on fostering higher-order thinking skills. Results from the PISA test demonstrate that teaching in Japan is highly effective in developing learning outcomes.

3.10 Malaysia

From the limited evidence available, it seems that teaching in Malaysia mainly uses whole-class approaches. Sidhu and Fook (2010) noted that teachers spent 78% of classroom time addressing the class and only 7% doing interactive activities that require students to work in pairs or groups. Teachers spent just a quarter of their lesson time interacting with pupils; lessons often began with action-based classroom activities such as songs and games, then proceeded with lectures and individual seat work based on tasks taken from the chalkboard or textbook, with no collaborative group work in any of the classes (Hardman and A-Rahman 2014).

Practice did not appear to support development of higher-order thinking skills. Sidhu and Fook (2010) state that teachers spent most of their time on comprehension rather than higher-order thinking skills. Similarly, Hardman and A-Rahman (2014: p. 265) noted that it was “rare for teachers to share the learning objectives with the pupils and to use a discussion to draw the whole class together at the end of the lesson to summarize, consolidate and extend what had been covered, and direct pupils to the next stage of learning.”

In addition to these studies of teaching practice, Ong et al. (2017: p. 38) examined the practices of lecturers in a teacher training college and report that: “...it was a prevalent practice for students to do small group presentations..., to complete a problem solving activity..., to assign students into small discussion groups..., and subsequently to present their work in class... Additionally, it was observed that the teaching and learning did provide students the opportunity to discuss real-life situations related to the topics at hand...” However, Ong et al. (2017: p. 38) suggest that the teaching approaches were not optimized to foster higher-order thinking skills stating “there was a scarcity from the observed practices which foster critical evaluation such as critically evaluating the work or ideas of their peers..., challenging the ideas proffered by their lecturers or by their peers..., and debating on an issue.” Thus, while there are signs that new trainee teachers are being exposed to more interactive approaches, these may still not be adequate for fostering higher-order thinking. Furthermore, it is unknown to what extent new teachers put these approaches into practice once they start working in schools that may generally use more traditional approaches.

Malaysia scores in the low range for the PISA test, although it does perform significantly better than some of its Southeast Asian neighbors. This suggests that teaching is more effective in Malaysia than in some nearby countries, but that there is still a great deal of room for improvement. The limited evidence on teaching practice in Malaysia suggests that teaching mainly uses whole-class approaches, but that some more interactive practices are being introduced. In addition, the evidence suggests that practices are relatively poor at fostering higher-order thinking skills.

3.11 New Zealand

Reviews by New Zealand’s Education Review Office (ERO) suggest that group work and interactive teaching are commonplace in New Zealand classrooms and that attention is focused on optimizing these approaches to maximize learning gains.

ERO (2018a) highlights the example of one school that was assessing the impacts on learning of ability grouping versus multi-ability groups. The report implies that group work is standard practice but that some schools are actively exploring how group work can be optimized to deliver the best results.

In some New Zealand schools, interactive practice goes beyond the classrooms, with students being active participants in the planning of teaching and learning. For example, in a report on what drives learning in secondary schools, ERO (2018b: p. 24) stated: “In some cases, the school made good use of these reflections: responses and information gathered from students were acted on by teachers to improve their delivery and to improve aspects of the school. Students were able to contribute to course planning, to their own progress and pathways and, in some cases, to designing their own assessments, because they knew what was expected and were encouraged to have a say in decisions affecting them.” ERO (2018c) describes how children were involved in planning the focus of their learning: in a focus group discussion, teachers shared their initial ideas but the children proposed an entirely different direction. As part of the unit plan, teachers integrated the students’ ideas into the teaching. Almutairi (2019) describes how teachers applied various teaching methods and strategies for technology education in classrooms, including problem-based learning, discussion, student self-assessment, and other collaborative and individual learning approaches.

Various ERO reports suggest that New Zealand has good practice in fostering higher-order thinking skills. ERO (2019) noted how well teaching was building competencies such as thinking, participating, and contributing. Most schools were already integrating the use of these key competencies in learning, with examples of good teaching practices that encourage critical engagement, self-directed learning, and the use of a variety of thinking tools. The ERO urged schools to continue to improve its key competencies and promote higher-order skills such as critical thinking and problem-solving.

Learning outcome data suggest that teaching in New Zealand is effective in developing learning outcomes. Extensive studies of teaching practices indicate that interactive teaching is commonplace; in some cases, teachers even involve students in the broader strategy for curriculum and assessment design. New Zealand appears to be good at stimulating higher-order learning, however its policy makers are not complacent as demonstrated by their continuing focus on this issue.

3.12 People’s Republic of China

Whole-class teaching is prevalent in classrooms in the PRC. Hu et al. (2016) report that whole-group instruction was the main approach they observed. Yan (2012) states that although teachers stated their support for the idea of developing student autonomy, collaboration, and inquiry skills, in practice the teaching observed was centered on teachers, textbooks, and tests. Yan (2012: p. 437) goes on to state: “The teacher talked to the whole class, and if any interactions occurred, they were generally between the teacher and one student.

The class was generally quiet. Most of the time students kept on looking at their textbooks with little eye contact with the teacher and with each other.” Li, Rao, and Tse (2012) also report that teaching was mainly teacher-delivered, direct instruction however they did observe some large group teaching and observed some more interactive practices (Listen-and-Play, shared-reading approach, and theme-based integrated teaching) in Shenzhen. Tao et al. (2013: p. 13) report that interactive teaching approaches were observed in Science classes in wealthier areas stating that “Group work was a common feature in the lessons observed in high and medium socioeconomic case studies in both China and Australia” and “students worked in small groups to conduct an experiment on the expansion and contraction of air.”

The descriptions of teaching practice suggest that much of the teaching practice focuses more on lower-order skills such as understanding and remembering and that more could be done to foster higher-order thinking skills. Hu et al. (2016) report that activities generally focus on repetition, recitation, and memorization and suggest that teachers do not have a good understanding of the strategies needed to develop critical thinking skills and creativity including through play. Tao et al. (2013) also report recitation in science classes.

Having said all that, the PRC has been through an unprecedented period of change, and thus it is unclear whether studies from even just a few years ago will provide an accurate picture of practice today. One study that provides an interesting insight into the developments in teaching practice in recent years is Li and Ni (2011), which compared teaching practice among teachers who had adopted the new curriculum and those who had not yet. This study suggested that teachers where the reforms had already been rolled out had shifted their practice significantly. For example, they report that 77% of instructional tasks in the non-reform group involved memorization or procedures that did not create connections, whereas such tasks had dropped to 50% in areas where the reform had been rolled out; that there was more opportunity for students in the reform areas to discuss and evaluate ideas and to ask questions; and that teachers in the reform areas were significantly more likely to use instructional tasks with higher cognitive demands. Nonetheless, the authors conclude that there continued to be scope to improve development of higher-order thinking skills even in the reform schools, noting that discussions were often still quite dominated by teachers.

The PRC is an enormous country, and while its education system is more centralized than is the case in India (Bingman 2010), caution must still be observed in generalizing evidence on education practice from one region to the rest of the country. Four provinces in the PRC took part in the recent round of PISA testing and scored higher than any other country, suggesting that teaching approaches, at least in those provinces, are highly effective in developing learning outcomes. The available evidence suggests that there is a tradition of whole-class teaching approaches, but that these are gradually shifting (at least in some areas) to approaches that are more interactive and more effective in fostering higher-order thinking skills.

3.13 Philippines

Teaching in the Philippines appears to use mainly whole-class approaches. Molina et al. (2018b: p. 34) report that “students either do not collaborate with one other (46%) or they collaborate in a brief and superficial way (35%).” Pouezevara et al. (2014) note that teachers generally use whole-class instruction and that student interaction is limited to students reading out loud or answering teacher questions. They report that students were engaged in productive speaking, listening, or writing in only 10% of the observed lessons.

Evidence suggests that the teaching practice in the Philippines is generally poor at fostering higher-order thinking skills. Instead of requiring students to identify and synthesize relevant information, analyze problems, or evaluate solutions, teachers generally only provide superficial thinking tasks (Molina et al. 2018b).

The recent PISA test results demonstrate that teaching in the Philippines is relatively ineffective in developing learning outcomes. Evidence suggests that teaching mainly uses whole-class teaching and is unlikely to foster higher-order thinking skills.

3.14 Republic of Korea

Teaching in the ROK appears to use mainly whole-class approaches. So et al. (2010) describe highly teacher-led instruction and discussion. Lee and Sriraman (2013) describe practice as “teacher-directed.” Similarly, Campbell et al. (2000) report that teachers dominate the classroom and that there is little chance for students to share with peers. Campbell et al. (2000) also report that observers scored teachers in the ROK significantly lower than teachers from the US on a number of criteria related to the interactions between teachers and students.

There were mixed findings in terms of fostering higher-order thinking. Campbell et al. (2000) found that teachers in the ROK and the US demonstrated similar levels of constructivist practice and that in both countries this could be considerably strengthened. They stated that although “there are some signs of constructivism underpinnings in the lessons observed, for the most part, significant room still exists for improvement in both countries.” So et al. (2010: p. 279) state that “As teachers often interrupted the flow of students’ creative thought on the text and pushed them toward a certain conclusion, the process of sharing and discussing opinions was not fully carried out.” Lee and Sriraman (2013: pp. 159–161) specifically sought to understand the “paradoxical” finding that teaching in the ROK is highly teacher-centered but also develops high learning outcomes. They hypothesize that while Korean teachers teach in a non-interactive way, they do cultivate higher-order thinking skills by modeling problem-solving and encouraging students to engage with new concepts. For example, they noticed that teachers encouraged students to “recall or restructure prior knowledge in order to construct something new”; that “teachers were exceptional at guiding students towards the investigation of a proposed construct by pretending to be genuinely excited at their proposals”; they “[encouraged] students to be persistent in thinking, finding patterns, ideas, and structures and practicing conceptual analysis and applications” and that they “tried to extend students’ space of knowledge so that it was not limited to the concepts learnt in the lesson.”

This phenomenon of teachers leading students through processes of higher-order thinking and learning may underlie the finding by Grift et al. (2017) that, in comparison to teachers in the Netherlands, teachers in the ROK were found to perform significantly better on teaching-learning strategies.

High scores in PISA tests indicate that teaching is generally effective in developing learning outcomes in the ROK. Studies suggest that whole-class teaching is the dominant approach. The evidence on stimulating higher-order thinking skills is less conclusive. There is evidence that higher-order thinking skills are being fostered but in a far more teacher-led manner.

3.15 Singapore

Evidence suggests that teaching in Singapore tends to use whole-class approaches. Curdt-Christiansen and Silver (2012) investigated primary schools and saw that instruction was mainly teacher-directed, and that there was hardly any peer work. Li, Rao, and Tse (2012) made a similar observation: teacher-directed explicit instruction was the main approach observed in the early childhood classrooms in Singapore. Even where more interactive approaches were attempted, they tended to become more teacher-directed. Teachers did little to encourage independent learning, promote collaboration, or stimulate creativity and problem-solving. Nevertheless, Li, Rao, and Tse (2012) noted that some more interactive approaches were being introduced in Singapore and that the teaching practice was more “Western” (a description that they characterize elsewhere as synonymous with child-centeredness) than that observed in Hong Kong, China or Shenzhen, People’s Republic of China (Li, Rao, and Tse 2012).

The limited evidence available for Singapore suggests that teacher-centered approaches are prevalent but interactive approaches to stimulate higher-order thinking are emerging. PISA test results demonstrate that Singaporean teachers are highly effective in developing learning outcomes.

3.16 Taipei, China

The small amount of evidence that could be found on teaching approaches in Taipei, China describes mainly whole-class teaching approaches with relatively little interaction. Aldridge et al. (2000) indicate that, compared to students in Australia, science classes in Taipei, China were more teacher-centered with less opportunity for students to negotiate, discuss ideas, and explain learning to their peers. Aldridge et al. (2000) imply that the focus of teaching was more on learning facts rather than fostering higher-order skills. They state that teachers believe that teacher-centered approaches are necessary to cover the textbook content and to efficiently develop academic abilities.

A study by Liaw (2012) reveals that student teachers also have concerns about adopting what they see as Western methods, such as group work or communicative approaches, and that observations of these trainees also revealed mainly teacher-centered pedagogy.

The two studies identified for Taipei, China describe teaching using whole-class approaches that are more focused on academic achievement than fostering higher-order thinking skills.

However, more evidence from more recent time points would be needed to understand current practice. PISA results demonstrate that teaching in Taipei, China is highly effective in developing learning outcomes.

3.17 Thailand

Tayjasanant and Barnard (2010) reported that teachers' lectures dominated classes in the two secondary schools they examined. As in many other countries, teachers in Thailand stated favorable views on student-centered approaches but did not apply this in practice and instead interaction with students was mainly only via closed questions which resulted in limited responses.

The only study identified for Thailand described teacher-centered approaches, but more recent evidence is needed to understand current practice. Results from the PISA 2018 test suggest that teaching in Thailand is relatively ineffective in developing learning outcomes.

3.18 Viet Nam

Evidence suggests that teaching in Viet Nam mainly uses whole-classroom approaches. In their study of primary school practice, Hoang et al. (2018) found teacher-centered pedagogy and large class sizes, with little interaction between teachers and children. Hoang et al. (2018: p. 398) observed that "teachers were highly controlling of children's behaviours and did not support children's autonomy." However, teachers also effectively facilitated the children's learning and their involvement in activities, indicating that students were not merely passive recipients of knowledge.

There is mixed evidence on practices to support higher-order thinking skills. On the one hand, teachers rarely asked questions that required students to share their perspectives and viewpoints or to examine the consequences of concepts, formulas, or theorems (Cao 2018). Hoang et al. (2018) also noted that teachers tended to ignore their students' ideas. However, Cao (2018) indicates that teachers often asked students to distinguish between concepts and that they explained new concepts and gave examples to illustrate them. They also observed some instances of teachers asking students to apply concepts to new situations.

Overall, the evidence on teaching practices in Viet Nam is limited and presents a somewhat mixed picture. One study in primary schools describes whole-class approaches but also indicates that children are actively involved in learning. Another study in secondary schools suggests that some practices to foster higher-order thinking are present but limited. Viet Nam's low levels of learning poverty suggests that teaching is relatively effective in developing learning outcomes.

3.19 Discussion

Based on the qualitative information presented above—and in keeping with the notation used in the traffic light assessment—economies in the Asia and Pacific region were divided into three categories for each of the two aspects of teaching practice. In Table 3, the low category, represented by a red light, includes economies where teaching appeared to almost never use interactive approaches/stimulate higher-order thinking; the intermediate category, indicated with an amber light, includes economies where

Table 3: Summary of Qualitative Assessment of Teaching Practices in Asia and the Pacific

Economy	Abbreviation	Group work and interactive learning	Stimulation of higher-order thinking
Afghanistan	AFG	●	●
Australia	AUS	●	●
Bangladesh	BAN	●	●
Brunei Darussalam	BRU	●	●
Cambodia	CAM	●	●
Hong Kong, China	HKG	●	●
India	IND	●	●
Indonesia	INO	●	●
Japan	JPN	●	●
Malaysia	MAL	●	●
New Zealand	NZL	●	●
People's Republic of China	PRC	●	●
Philippines	PHI	●	●
Republic of Korea	KOR	●	●
Singapore	SIN	●	●
Taipei, China	TAP	●	●
Thailand	THA	●	●
Viet Nam	VIE	●	●

Notes: Based on the qualitative research presented in section 3 of this report, economies in the Asia and Pacific region are divided into three categories of interactive teaching practice: 'low,' represented by a red light; 'intermediate,' indicated by an amber light; and 'high,' represented by a green light. Economies were classified as low where evidence suggests that most or all teaching relies on whole-class teaching. Economies were classified as intermediate where evidence suggests that teaching mainly uses whole-class approaches but that some interactive approaches are used in some cases or where there is conflicting evidence about interactive teaching. Economies were classified as high where the evidence suggests that teaching routinely uses interactive approaches.

Source: Authors.

there was evidence that approaches that were more interactive/stimulating of higher-order thinking were being introduced, at least in some schools/areas; and the high category, represented by a green light, includes economies where interactive teaching approaches/stimulating higher-order thinking were common. Economies were excluded from analysis if there was insufficient qualitative data to categorize them.

Table 3 shows that teacher-led approaches dominate in many economies. However, there are also some interesting nuances. There are signs that the significant policy drives to improve critical thinking and problem-solving in countries such as the PRC are leading to shifts in practice. Furthermore, teaching that mainly uses whole-class approaches but appears to be effective at fostering higher-order thinking skills, particularly in Japan and the ROK, highlights that there is not one universal approach to effective teaching.

Given the interest in teaching practices in different countries and the difficulty in obtaining reliable comparative data, we believe that the above collection of qualitative descriptions of teaching approaches based on classroom observations is a valuable resource for researchers and policy makers. The data reveal generally poor teaching practices in developing Asia, in line with evidence on low learning outcomes in these economies. The data also show huge gaps in our knowledge. For some countries, no evidence on teaching practice was available and in other cases the evidence was very old.

4. STUDENT-REPORTED PRACTICE

The previous section summarized qualitative reports of teaching practices from multiple studies. Clearly, there are limitations to this approach to describe teaching practices across countries. A particular concern is that the diverse methods used by the studies may reduce comparability. We considered whether student surveys would be a reliable alternative source of data on teaching practices. This would be an attractive option since there are existing sets of student survey data from many countries and because gathering additional data using standardized student surveys would be cheaper than carrying out large-scale, multi-country classroom observation studies.

The PISA 2018 assessment includes a student questionnaire that was administered after the cognitive session in Reading, Mathematics, and Science, and lasted 30 minutes. We selected six indicators from the questionnaire that are proxies for interactive teaching approaches. The score for each question is given as the proportion of students from a given economy that scored their teachers highly on the following: asks to discuss in small groups with other students who read the same book/chapter; asks questions to check whether students have understood what was taught; listens to students' views on how to do things; adapts the lesson to the needs and knowledge of the class; provides individual help when a student has difficulties understanding a topic or task; and tells students how to improve their performance.

Each of the six charts in Figure 1 plots an indicator of interactive teaching approaches from the PISA 2018 student questionnaire on the Y-axis; the three categories of interactive teaching from the qualitative assessment summarized in Table 3 are on the X-axis. If student assessments of teaching approaches aligned with classroom observation studies, we would expect data points to cluster around the 45-degree line. Instead, Figure 1 shows that students' perceptions of a range of interactive teaching approaches do not correspond to the degree of interactive teaching revealed by the qualitative descriptions from classroom observation studies.

One possible interpretation of these findings is that the responses from students are a good indication of actual teaching practices whereas the categorization of economies according to qualitative data is not. However, the evidence does not appear to support this. There are, of course, significant gaps in the qualitative evidence analyzed because few economies have large nationally representative classroom observation studies. But even if we focus the analysis only

on economies where the qualitative data is strongest, there are still significant discrepancies between the qualitative data and the data from the student questionnaires. For example, there is strong evidence that whole-class teaching is commonplace in the Philippines and yet students from the Philippines rate their teachers higher than almost all other economies when it comes to the question of using group work to discuss a text. We therefore conclude that gathering data from students on their perceptions of teaching practices may not be a reliable way to assess such teaching practices, and several potential biases should be considered when examining this kind of data.

First, there is evidence that students in economies with relatively high power distance may be less likely to assign scores that could be interpreted as a criticism of teachers. In economies where there is more deference toward teachers, it may not occur to students to report anything that could be seen as critical. This phenomenon was observed in a comparative education study of Taipei, China and Australia, in which students from Taipei, China revealed they were less likely to say anything critical of their teachers (Aldridge et al. 2000).

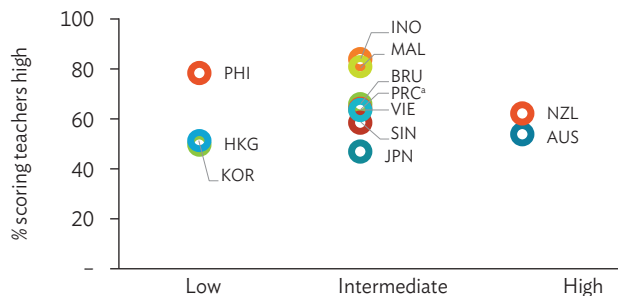
Second, it is possible that students are scoring teachers relative to their expectations. For example, students coming from a context where interactive teaching is commonplace may expect a high degree of interaction and therefore score moderate levels of interaction as low compared to their expectations. On the other hand, students from contexts where interactive teaching is rare may rate even modest levels of interaction as high because it exceeds their prior experiences and expectations. This phenomenon was apparent in the study by Aldridge et al. (2000), where students from Australia were more likely than students from Taipei, China to complain that they wanted more activities, even though observation revealed their lessons were already more activity-based.

Third, students in different contexts may understand the questions differently. This discrepancy between the understanding of teaching approaches has been observed in surveys of teachers about their own practices. In the TEACH study in Mindanao in the Philippines, teachers' self-assessment was very different from the assessment by independent observers. For example, 72% of teachers rated themselves as effective in adjusting their teaching to the level of the students, but only 10% were rated highly by independent observers, suggesting that the two groups may have different conceptions of this practice. Similarly, Sinha et al. (2016) reported that Indian teachers' self-assessment differs substantially from independent observers' assessment of their practice, e.g., 81.4% of teachers said they often use small-group activities, but this was not reported by observers at all. A discrepancy between students' perceptions of practice compared to observers' perceptions was also confirmed by Aldridge et al. (2000). When students from Taipei, China were asked whether teachers gave them control over learning, they answered yes, but further questioning revealed that they had never experienced this and therefore did not really know what it meant. Similarly, when students are asked in the PISA questionnaire whether teachers check if they have understood, students from some contexts may be answering based on the frequency of in-depth questioning that truly reveals whether students have understood whereas students from other contexts may be thinking about surface-level questions with chorused responses.

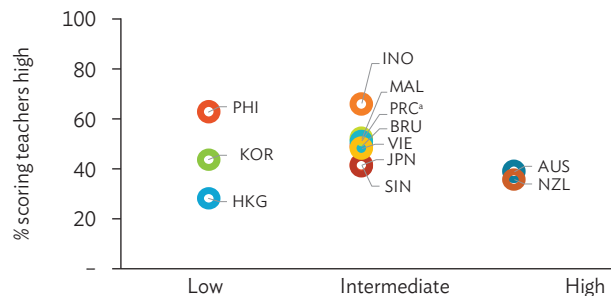
Figure 1: Student Perceptions versus Qualitative Assessment of Teaching Practice

The teacher...

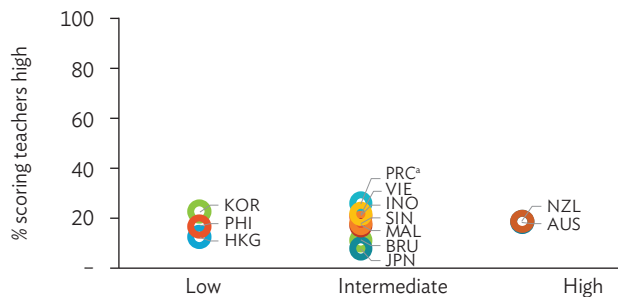
■ Asks us to discuss in small groups



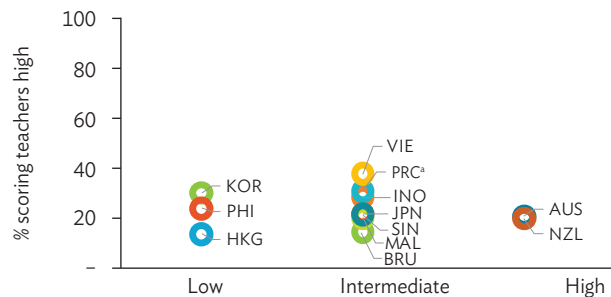
■ Checks understanding



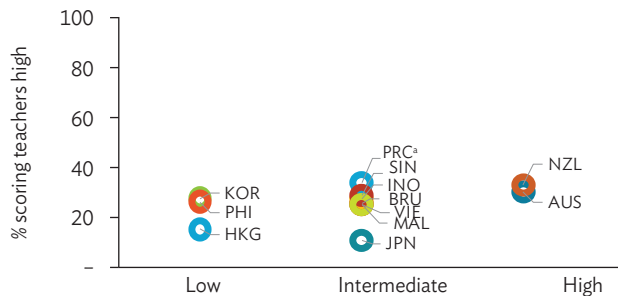
■ Listens to my views



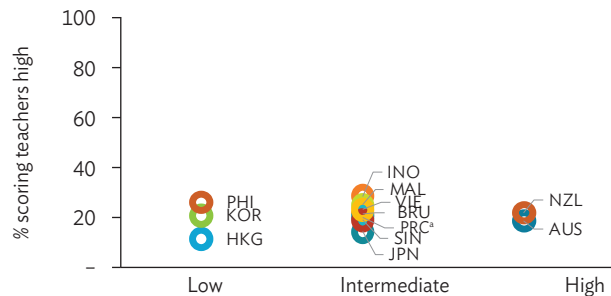
■ Adapts to class's needs and knowledge



■ Provides help to students having difficulties



■ Tells me how I can improve



AUS = Australia; BRU = Brunei Darussalam; HKG = Hong Kong, China; INO = Indonesia; JPN = Japan; KOR = Republic of Korea; MAL = Malaysia; NZL = New Zealand; PHI = Philippines; PRC = People's Republic of China; SIN = Singapore; VIE = Viet Nam.

Notes: The X-axis shows students' perceptions of interactive teaching approaches for economies classified as low, intermediate, or high as shown in Table 3. The Y-axis shows the percentage of students assigning the highest score to the teaching practice in the 2018 PISA questionnaire. The first graph shows the proportion of students in a given economy who answered that their teacher usually asks them to discuss texts they have read (possible answers yes or no). All other graphs show the proportion of students who either strongly agree that their teacher displays the practice or indicate that the practice occurs in every lesson or almost every lesson (highest possible answers on a four-point scale).

^a The average reading, math, and science score at age 15 for the People's Republic of China is not representative of the country because only Beijing, Shanghai, Zhejiang, and Jiangsu participated in the Programme for International Student Assessment (PISA) 2018.

Source: Authors.

The potential biases listed above are not mutually exclusive; indeed, all three were noted in the study by Aldridge et al. (2000) comparing practices in Taipei, China and Australia. We do not have sufficient data to ascertain exactly what underlies the discrepancy between the student questionnaire data and the qualitative data described in section 2. However, the findings are sufficient to raise questions about the reliability of using student reports of teaching practice to compare teaching practices in different locations.

5. CONCLUSIONS AND POLICY IMPLICATIONS

This study has drawn together qualitative evidence on teaching practices in Asia and Pacific economies and compared the findings from these qualitative studies with student perceptions of interactive teaching practices as measured by the student questionnaires of the PISA 2018 test. Overall, the study demonstrates that, except for New Zealand and Australia, teaching practices in the Asia and Pacific region tend to use more teacher-centered, whole-class approaches. It also reveals that student perceptions of teaching practices may not be a reliable indicator of actual practice.

A striking finding from direct observation studies is that the quality of teaching practices in developing Asia is low. It is widely accepted that increasing teachers' subject knowledge and supporting them to develop more effective pedagogical approaches are critical to tackling the learning crisis (World Bank 2018, DFID 2018). In particular, there is an urgent need to improve the development of foundational skills that are a prerequisite for all future learning (Abadzi 2008, Belafi et al. 2020). What is far less clear is how this can be achieved sustainably and at scale. A first step may be to acknowledge the painful truth that the traditional approaches to professional development of teachers in developing economies, which often involve cascading in-service teacher training, have not achieved their intended impacts (Hayes 2000, Dichaba and Mokhele 2012). Once we acknowledge this, we can move forward with more detailed discussions of project design to identify approaches that will lead to real change. There are examples of teacher professional development interventions that work, but we need to understand the design and implementation features that lead to success (Snilstveit 2016). Some key questions that need to be considered include:

- What quality of training is required to develop pedagogical skills among teachers?
- How early in their career do teachers need to be exposed to effective practices if they are to adopt these?
- What level of subject knowledge and aptitude for teaching is necessary in newly recruited student teachers?
- What incentives and drivers within the system are fueling the status quo, and what would need to change to ensure that the system is aligned with the aim of achieving learning?
- How can development partners improve the design, procurement and oversight of their education programs in order to support countries to improve teaching practice?

Comparison of the teaching practice evidence with the results from large-scale learning outcomes assessments demonstrates that teaching approaches ranging from the most learner-centered to the most teacher-centered can be effective in developing learning outcomes. For example, both the ROK, which has relatively teacher-centered practices, and New Zealand, which has a more learner-centered approach, achieve high learning outcomes as measured by the PISA 2018 test (OECD 2019). It is conceivable that these different teaching approaches are delivering different results in outcomes that are not being measured by the PISA test—for example, perseverance, creativity, or team-working ability. As discussed elsewhere (Newman et al. 2020), the type of teaching approach adopted by different economies will need to fit with both the cultural context and the skills that will be needed in the future.

While the evidence presented here is sufficient to conclude that there are major issues with teaching quality in many economies, there are still significant gaps in our knowledge. Comparison of practice between countries is hampered by a lack of good quality research examining teaching in multiple countries. Notably absent from the literature is any discussion of inclusive pedagogy, and specifically the needs of children with disabilities. Lastly, the complete lack of evidence on learning outcomes and teaching practice for many developing Asian economies—particularly those in Central and West Asia and the Pacific island countries—makes it impossible to gauge where they stand.

In the absence of large-scale comparative studies, the data presented here suggest that qualitative information on observed teaching practice is useful for understanding what is happening in the classroom. In contrast, data on teaching practice derived from student questionnaires might appear to be an appropriate way to understand teaching approaches—they can also be gathered easily using standardized approaches across countries—but our analysis shows that such data do not appear to be a reliable indicator of actual teaching practice.

While the scale of the learning crisis was shocking even before the COVID-19 pandemic, the direct impacts of school closures and, even more so, the downstream effects of the economic downturn will make the situation even worse. Faced with this emergency, many are pinning their hopes on technology to accelerate progress on learning, but the evidence is clear: technology alone, in the absence of good teaching, does not improve learning (Snilstveit 2015, Global Education Evidence Advisory Panel 2020). Therefore, where technology is used, improving teachers' professional development should be a priority (Save Our Future Campaign 2020).

Investing in effective approaches to improve teaching is the key to tackling the learning crisis. Policy makers and development partners should not be complacent about this issue: shifting teaching practice is challenging and requires knowledge on effective approaches as well as careful consideration of how entrenched systems can be shifted. Nevertheless, it is now more urgent than ever that these issues become the focus of attention if we are to have any hope of tackling the learning crisis.

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