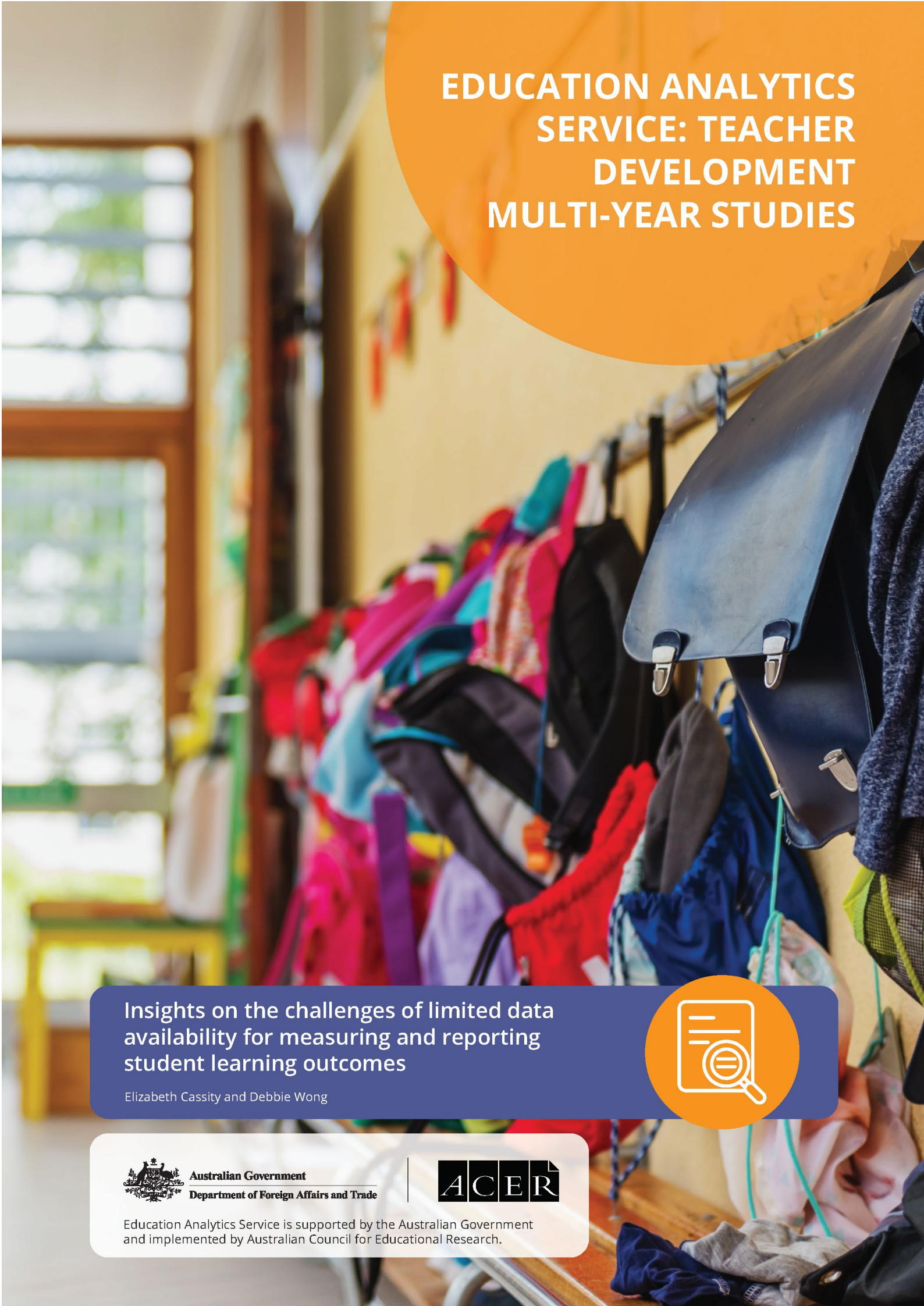

EDUCATION ANALYTICS SERVICE: TEACHER DEVELOPMENT MULTI-YEAR STUDIES

Insights on the challenges of limited data availability for measuring and reporting student learning outcomes

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Executive Summary

Student learning outcomes are an important source of evidence regarding improved teaching quality. A multi-year teacher development study series was commissioned by the Australian Government's Department of Foreign Affairs and Trade (DFAT) to investigate teacher development initiatives in Lao People's Democratic Republic (Laos), Timor-Leste and Vanuatu. The overall aim of the study series is to understand the extent to which the Australian investment has improved teaching quality and student learning. This paper outlines the different approaches to sourcing and using data in each country context, and then presents initial insights about the challenges associated with the limited availability of data for measuring and reporting student learning outcomes, as a measure of teacher effectiveness. It presents key lessons learned about conducting research with limited existing student learning outcomes data and offers some solutions to inform programs in other contexts.

Each study used a different approach to sourcing and using data:

- **Laos:** The design of a fit-for-purpose student assessment linked to the new Lao language curriculum. A one-on-one Lao language literacy test was developed to collect a snapshot of a few key literacy skills for Grade 1 students near the end of their school year. This was intended to track student performance over a period of four years to coincide with the gradual rollout of the new primary curriculum. This was supplemented by surveys, stakeholder interviews and classroom observations, which provided a deeper understanding of teaching practice and stakeholder experiences with the new curriculum and associated professional learning support.

- **Vanuatu:** The use of existing national and regional student assessment data as a reference point for student learning in literacy and numeracy. This was supplemented by stakeholder interviews, which enabled a deeper insight into the complexities of teachers' experience of the new curriculum, as well as professional learning and support related to the new curriculum.

- **Timor-Leste:** An adjustment to the study design to respond to gaps in student datasets. A study-specific classroom observation tool will collect evidence of changes in teaching practice, which will supplement stakeholder reports.

Three key lessons learned from this research are elaborated:

- A systematic approach to monitoring learning achievement over time is important for any education and learning system. Monitoring learning outcomes are important for education systems because such data enables governments make requisite changes to curricular, teaching, assessment and resourcing to lift student achievement levels and equity. Collecting and monitoring learning outcomes data is also critical to achieving the education targets outlined in Sustainable Development Goal (SDG) 4.

- Sustained support is needed for the development of system-level capacity and resourcing to implement consistent cycles of collection of student outcomes data.

- Data about teaching needs to come from a range of sources. Using a range of approaches including classroom observation data, teacher and education stakeholder data, and fit-for-purpose student assessments, provide a more holistic view of teaching quality. Importantly, these approaches acknowledge the complex nature of teacher learning and that sustained change in teaching practice and student learning takes time.

Introduction

Detailed information about what students know and can do is fundamentally linked to systems support of teaching quality. The DFAT is supporting a number of education reform initiatives in the Indo-Pacific, with a focus on strengthening teaching practices to support improved student learning outcomes. This includes a multi-year teacher development study series that investigates to what extent Australia's investments in teacher development initiatives in Laos, Timor-Leste and Vanuatu has improved teaching quality and student learning.

Data on student learning outcomes is frequently referenced as an indicator of teaching quality. The *2030 Agenda for Sustainable Development,* for example, states that:

> *Quality, accessible, timely and reliable data will be needed to help with measurement and progress to ensure that no one is left behind. Such data is key to decision-making. Data and information from existing reporting mechanisms should be used where possible. (UN General Assembly, 2015).*

Data is critical to achieving the education targets outlined in Sustainable Development Goal (SDG) 4, to "Ensure inclusive and equitable quality education and promote lifelong learning". Specifically, target 4.1 refers to equitable and quality education that leads to relevant and effective learning outcomes, and target 4.C refers to increasing the supply of qualified teachers. However, there is a gap in the availability of valid and reliable student learning outcomes data in a number of low-income countries. In fact, some countries do not yet have the system capacity to implement consistent cycles of learning assessments; and in many countries, funding commitments for such data collection is not prioritised. A key question for government and development partners is: how can student learning outcomes data be used to inform teaching quality when it is either non-existent or not fit-for-purpose?

The heart of the issue is addressed in the United Nations report *A World that Counts* (2014), which highlights the significant inequalities in access to data and the ability to use data. The report notes that important outcomes are often not measured – with whole groups of people sometimes left out. In exploring the use of data in measuring the SDGs, MacFeely (2018) raises the issue of ownership of source data, which can have implications the availability of collected national student learning outcomes data to either government or research organisations.

Further, Pritchett (2015) raises that in many education systems, "There is often no delegation, finance, information or motivation connected with student learning at all" (p. 33). The implication of this lack of data is the absence of any feedback loop on student learning to inform what is or what is not working in a system.

The larger question, then, is how to frame a research agenda into the impacts of system reform, and one that includes data about student learning that is useful for policymakers, teachers and principals.

The experience of collecting existing and new data in the multi-year teacher development studies confirms these challenges. While Timor-Leste currently does not have a national assessment strategy in place, the goals of ensuring quality and equitable access to education for all is central to the country's *National Education Strategic Plan 2011-2030*. In the absence of an assessment system being in place, efforts have been made in Timor-Leste by development partners to collect project-based student learning outcomes data (Wong, 2018).

In Laos, the lack of existing assessment data at the system level, provided an opportunity for the teacher development study to design a fit-for-purpose student learning assessment. In this way, the Laos study essentially fills a gap in information about student learning outcomes.

In Vanuatu, the multi-year teacher development study demonstrates how the country's implementation of a nationally standardised assessment, as well as its participation in a regional assessment, can provide much needed valid and reliable learning outcomes data to inform policy and programming choices.

The need for systemic collection of student learning outcome data

Overview of the Timor-Leste study

The Timor-Leste teacher development study is a multi-year study, investigating DFAT's support to the Ministry of Education, Youth and Sport (MoEYS) through building leadership and teacher capacity to implement the *National Basic Education Curriculum* as part of the Apoio Lideransa liuhusi Mentoria no Aprendizajen (ALMA) program.[1]

The overall aim of the study is to investigate the extent to which the investment has improved teaching quality and student learning.

A key feature of the study is its multi-year duration. This feature acknowledges the complex nature of teacher learning and that sustained change in teaching practice takes time, and enables an agile and adaptive research approach that is responsive to context. It also recognises the scale of the ALMA program taking into account the plan for phased national implementation over a period of several years (possibly to 2025). It is designed both as a study of the impact of the first five-year implementation of ALMA, and as research to inform the ongoing development and implementation of ALMA.

This study uses a mixed methods approach. A scoping visit to review the teacher development programs and the planned data collection suggested there were existing student learning outcome data sets collected and analysed as parts of various development projects. However, further analysis of these datasets in 2017-2018 by the study team found the following challenges:

- Lack of government ownership and archiving of data sets. Data sets were not stored properly, they were difficult to obtain from consulting organisations, and they were incomplete.
- Validity of datasets. Data from one study was unable to be sourced, while data for another study used a different methodology which did not fully align with the teacher development study purposes.
- Planned data collection did not take place. There was confirmation that there would be no collection of the planned 2019 Early Grade Reading Assessment (EGRA) and no collection of the planned 2019 Curriculum Based Assessment (CBA); and, there was no intent to administer a national student assessment in the near future.

The impact of these data collections being cancelled for the foreseeable future meant there was a much smaller evidence base to report on the third research question related to student learning outcomes.

Implications of lack of systemic data

The challenge for the Timor-Leste study is that there is very little valid and reliable data on student learning outcomes. Since 2017, during the early stages of ALMA there have been no subsequent collections of student achievement data.

[1] In 2019, the Professional Learning and Mentoring Program (PLMP) was renamed Apoio Lideransa liuhusi Mentoria no Aprendizajen (ALMA) to align with its ownership by Timor-Leste's Ministry of Education.

The student achievement data analysed for the first year of the ALMA study included the CBA and EGRA data collected as part of the DFAT-funded *Lessons learned an early assessment (2017) of two innovations in basic education in Timor-Leste* (World Bank, 2018). The CBA assessed students on basic reading, mathematics, and Tetun and Portuguese language, to measure the extent to which the content of the new curriculum had been mastered by Grade 3 students. The EGRA implemented in 2017 used selected components of the EGRA which had been used previously in 2009 in Timor-Leste, to allow the examination of differences between 2009 and 2017. However, there have been no further EGRA or CBA data collections since those conducted in 2017, and it is unlikely that these will be administered in the near future.

While this has immediate implications for the multi-year study, more broadly, it highlights the constraints to the ability of governments and education stakeholders to monitor changes to student achievement levels over time.

While project-driven data collections provide important snapshots of learning at particular points in time and for particular student cohorts, the ability to monitor the longer impact of teaching and learning reforms, like that of Timor-Leste's new curriculum and ALMA program, is constrained.

Different approaches to sourcing and using data to inform teaching quality

Consideration of factors that influence the complex context of teaching

Student learning outcomes are only one source of data that provide insight into how a teacher development initiative like ALMA, for example, might have on teaching quality overall. There are a wide range of contextual factors that enable and constrain productive investments in teachers, teaching and education communities.

It is difficult at the best of times to identify a direct relationship between the influence of a teacher and gains in student learning outcomes. Teaching is complex. Darling-Hammond et al (2012) suggest that gains in student achievement are influenced by much more than an individual teacher. The attribution between student achievement and teacher effectiveness assumes that student learning is measured *well* by any given test, and is independent from classroom context and peers, and other factors related to home, community, previous learning experiences and learning loss experienced by events such as extreme weather, a pandemic, and so on. While there may be relationships between various factors associated with student learning outcomes, direct causal relationships are difficult to determine.

Student learning is not only about academic outcomes. There is a significant body of research in the international literature that explores the relationship between student engagement (including well-being and interest in lessons), learning and achievement. Some key findings include the following (Lawson & Lawson, 2013; Christenson, et al, 2012; Klem & Connell, 2004):

- Student engagement is a robust predictor of student achievement and behaviour in school, regardless of socioeconomic status.
- Students who perceive teachers as creating a caring and well-structured learning environment are more likely to be engaged in school.
- Links between teacher support, student engagement, and academic performance are important predictors of student success.
- Assessment and monitoring is important and needs to be available and interpretable to understand what students know and can do, but classrooms and teachers have to respond to many other challenges. Learning is holistic.

The multi-year studies series in Timor-Leste, Laos and Vanuatu are all designed with the recognition that data about teaching needs to come from a range of sources to address the factors discussed above. With this in mind, the methodological approaches used in the studies are designed to gain a more holistic insight into teaching quality in each of these contexts. As highlighted both in the experience of these study designs and the emerging literature, the challenge of finding relevant student learning outcomes data is significant. Critically, causal relationships between teaching quality, teachers' experience of a new curriculum and student achievement are difficult if not impossible to determine. Data collection tools, therefore, need to be aligned to the study objectives to explore the relationships of teachers, curricula and their students. The following section discusses different approaches to sourcing and using learning outcomes data.

Fit-for-purpose data collection in Laos

The Laos study was the third to commence in the teacher development study series and as such it benefited from the lessons and experiences gained through the Timor-Leste study which was the first in the series. In Laos, DFAT placed an emphasis on ensuring that a measure of student learning was funded and integrated as part of the study design.

The study team focused on designing a student assessment that was valid and reliable, linked to the new curriculum, and could be administered efficiently. A one-on-one Lao language literacy test was developed to collect a snapshot of a few key literacy skills for Grade 1 students near the end of their school year. It is acknowledged that this collection of student learning data is study-driven, rather than integrated as part of a broader assessment system.

The Laos study is also designed to be longitudinal, to follow teachers and principals over the course of the study period as the new Lao language curriculum is rolled out in stages by grade level. This enables the study to investigate change in teaching quality before and after the in-service support. It additionally collects data about the literacy outcomes of students studying under the former curriculum and the new curriculum. Hence, there is the ability to monitor changes to teaching quality and student learning over time, connected to the rollout of the curriculum reform and associated teacher development initiatives. The student assessment data is supplemented by surveys, stakeholder interviews and classroom observations, which enables a deeper understanding of teaching practice and stakeholder experiences with the new curriculum and associated professional learning support.

Existing national and regional data in Vanuatu

There is opportunity to learn from existing national and regional data in Vanuatu. The Pacific Islands Literacy and Numeracy Assessment (PILNA) is a regional assessment of literacy and numeracy in Years 4 and 6. In addition to PILNA, the Ministry of Education and Training administers the Vanuatu Standardized Test of Achievement (VANSTA) in Years 4 and 6.

While the focus of study in Vanuatu is on Year 1-3 teachers, VANSTA and PILNA provide a reference point for student learning in literacy and numeracy. VANSTA assesses students' understanding of the Vanuatu national curriculum, while PILNA is a regional survey that assesses students' general skills in literacy and numeracy. PILNA also administers questionnaires to Year 4 and Year 6 teachers (in addition to students and principals), and as such provides some insight into general practices in primary schools.

Importantly, the evidence presented from VANSTA and PILNA is supplemented by stakeholder interviews, which enable a deeper insight into complexities of teachers' experience of the new curriculum, as well as professional learning and support about the new curriculum.

The use of classroom observation tools in Timor-Leste

A hallmark of the teacher development study series is that the design for each country adopted an agile and adaptive approach responsive to country context. As a solution to the data gap that existed in Timor-Leste, the study design was reconsidered and adjusted using lessons learned from the Laos study.

A review and analysis of the existing dataset in Timor-Leste led to a shift in the design methodology to include methods that were more aligned to collecting information about teaching quality. These include a study-specific classroom observation tool administered by the research team from year 3 of the study to provide evidence of changes to teaching practice. Classroom observations enable examination of targeted teaching practices to supplement the accounts of teaching that are reported by teachers, principals and other participants in interview responses, providing further evidence of changes to student performance and engagement. Classroom observations can provide insights into how

teachers are using practices that are learned through ALMA.

The study team also has been provided with access to ALMA program datasets, including principal and mentor observations, from the period when the teaching investment was established. In 2020, additional ALMA datasets were made available, including collections of principal and mentor observations from 2016-2019; literacy and numeracy outcomes from a 2019 ALMA rollout in one municipality; and, other program-based inquiry data. The historical observation data from ALMA will allow the study to 'track back' from principal and mentor observations and feedback, and explore that existing data alongside the new classroom observation instruments.

Reframing the data sources and the study's methodologies have resulted in making the best possible use of available data to inform the research, and to supplement these with new, fit-for-purpose tools such as the customised classroom observation tool. This addition of classroom observations in the study in Timor-Leste has been extended to the Vanuatu study, which will also benefit from these additional insights.

Considerations for other programs and contexts

As highlighted throughout this paper the teacher development studies in Laos, Timor-Leste and Vanuatu are designed with the recognition that data about teaching needs to come from a range of sources. While student learning outcomes data can provide insight into teaching quality, the lack of systematic collection in many countries makes this approach unreliable. Using a range of approaches including classroom observation data, teacher and education stakeholder data, and fit-for-purpose student assessments, provide a more holistic view of teaching quality.

If gathering student learning outcomes data is a priority, how will funding support a valid and reliable collection that has the potential to provide insight into teaching quality? An important factor in all three studies was that flexibility was built into the design of each plan. Relevance of student learning outcomes data to a study is always a risk if not purpose-built for that study. Darling-Hammond (2012) emphasises that there is an assumption that student learning is measured *well* by any given test, and is independent from classroom context and peers, as well as other factors. In Timor-Leste, for example, the 2017 World Bank Study (World Bank, 2018) measured student learning outcomes but there is scant ability to link those outcomes to the ALMA investment. On the other hand, in Laos, emphasis was placed on ensuring that a measure of student learning was funded and integrated as part of the study design.

While each of the country studies was designed based on the funding and teaching investment context, they have informed each other in terms of improving data that can support insight into teaching quality. For example, the classroom observation tool prepared for the Laos study is used as the basis for classroom observations in the Timor-Leste and Vanuatu studies. The observation tool is adapted and customised for each country's context. Many components of the Laos tool are applicable in these contexts with slight adjustments in response to specific aspects of curriculum and pedagogies, and cultural nuances. In addition to adapted tools, other strategies were used to ensure quality and relevance of the data, for example drawing on the local knowledge and experience of in-country researchers in the development and testing of tools and training in data collection and analysis.

It is clear that any investment in teaching quality and student learning needs a long-term commitment and resourcing to support rigorous monitoring of outcomes. However, budgetary constraints, and changing political priorities within schools and the larger national context can facilitate or impede the collection (and use) of student learning outcomes data. Hence, there remains a role for education stakeholders to support the development of system level capacity to implement consistent cycles of learning outcomes data collection, and advocate for multi-year funding commitments to secure this.

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