



EDUCATION ANALYTICS SERVICE: TEACHER DEVELOPMENT MULTI-YEAR STUDIES



MULTI-COUNTRY REPORT

Hilary Hollingsworth, Debbie Wong, Elizabeth Cassity and Payal Goundar



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Teacher Development Multi-Year Study Series. Multi-country Report

The Australian Council for Educational Research Ltd
19 Prospect Hill Road
Camberwell VIC 3124
Phone: (03) 9277 5555
ABN 19 004 398 145

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Abbreviations and acronyms

ACER	Australian Council for Educational Research
ALMA	Apoio Lideransa liuhusi Mentorina no Aprendizajen
BEQUAL	Basic Education Quality and Access in Laos Program
CDU	Curriculum Development Unit
DFAT	Department of Foreign Affairs and Trade
EAS	Education Analytics Service
GEDSI	gender equality, disability and social inclusion
GTP	Gruppu Traballu ba Professor (peer learning groups)
ICT	information and communications technology
LMIC	low- and middle-income countries
PA	Pedagogical Adviser
PILNA	Pacific Island Literacy and Numeracy Assessment
PT	Provincial Trainer
TTC	Teacher Training College
VANSTA	Vanuatu Standardised Test of Achievement
VESP	Vanuatu Education Support Program

1. Introduction

The Teacher Development Multi-Year Studies were initiated by the Australian Government's Department of Foreign Affairs and Trade (DFAT) to provide evidence about the impact of DFAT's investments in teacher development and how teacher development investments can be more effective. This Multi-Country Report is the culmination of five years of research across three countries, Timor-Leste, Vanuatu and Lao PDR (Laos), involving in-depth interviews, observations and learning assessments.

Teacher development is at the heart of many education systems' policies and programs aiming to improve teaching and student learning. The Multi-Country Report highlights how teacher professional learning can work together with system and contextual factors to lead to better outcomes. It provides a set of strategies for future thinking related to teacher development investments, and highlights how these investments need to be underpinned with sustained investment and robust systems to capture evidence of quality and impact.

2. The teacher development challenge

Despite significant investments in teacher development by the Australian Government through the Australian aid program, little was known about the impact of these investments on teaching and learning. In 2015, the Australian Government's Department of Foreign Affairs and Trade (DFAT) published an evaluation of Australia's investments in teacher development called *Investing in Teachers*. Informed by a literature review, interviews, and desk reviews of 27 investments in 17 country programs, the evaluation sought to answer two questions:

1. What are the conditions of success for teacher professional development investments, and how can lessons learned inform future programming?
2. To what extent have Australian investments in professional development of teachers contributed to improved outcomes?

Investing in Teachers put forward findings on conditions of success for teacher professional development investments. These included that support for teacher development works best when negotiated within a government-owned and led education quality improvement agenda, and that successful investments have clear and realistic objectives. However, *Investing in Teachers* could not evaluate the extent to which such Australian investments contributed to improved outcomes. There was "almost no data on outcomes that could be attributed to DFAT's teacher development investments" such that "in most cases it was impossible to judge whether teacher development had led to improved teaching practices or improved learning outcomes for pupils" (DFAT, 2015, p.2). Even when investments had outcome-orientated indicators, few teacher professional development investment program reports and reviews included data on these, and no programs had been rigorously evaluated.

In response to these evaluation findings, the Teacher Development Multi-Year Studies were initiated in three countries, Timor-Leste, Vanuatu and Lao PDR (Laos), to examine the following investment programs:

- **Timor-Leste:** Apoio Lideransa liuhusi Mentoria no Aprendizajen (ALMA)

- **Vanuatu:** Vanuatu Education Support Program (VESP)
- **Laos:** Basic Education Quality and Access in Laos Program (BEQUAL).

A series of reports from the study series can be accessed here: <https://research.acer.edu.au/eas/>

In each program, an investment in teacher development is part of the overall strategy to improve student learning. DFAT's investments support rollouts of new primary level curricula in Timor-Leste, Vanuatu and Laos. Each country's curriculum represents a significant shift in content and pedagogies with a focus on improving literacy and numeracy outcomes. The investments include inputs such as teacher in-service support, teacher guides, textbooks and classroom resources, scripted or structured lesson plans and mentoring. Research indicates that such inputs of support at the primary level are cost-effective interventions (see for example Angrist, N. et al, 2023).

The teacher development initiatives are primarily designed to support the implementation of the new curriculum. However, while each teacher development investment has a similar intention, the approaches to support teachers, including application and effectiveness, are different in each system.

Typically, DFAT's investments in teacher development involve either pre-service or in-service education, or a mix of both. The *Conceptual Framework* (2017) developed for this study series outlines the rationale to focus on in-service teacher professional development approaches, and therefore only the in-service elements are described below.

DFAT's education programs in Vanuatu and Laos cover the development of the new curriculum materials and provide support and funding for accompanying in-service training programs. Whereas in Timor-Leste, DFAT support is focused on supplementing the education ministry's investment in new curriculum materials and in-service training with follow-up school-based professional learning support. Table 1 provides a brief overview of the curriculum reform and the DFAT investment in each country.

This paper seeks to answer the original two questions put forward by DFAT in 2015. It provides a description of insights generated from this study series, written against the backdrop of evidence about the impact of each investment, and the system and contextual factors that contribute to or hinder the effectiveness of each teacher professional development investment. In putting forward conditions for success, this paper provides an opportunity to also present an updated review of the literature on teacher professional development in low- and middle-income country (LMIC) contexts.

The overall aim of each study was to investigate the following overarching question:

To what extent does the Australian investment produce improved teaching quality and improved student learning?

Specific questions related to this broad overarching question were designed for each study, to reflect each unique context. Each of the three country studies used a mixed methods approach. Case studies across the studies included 437 in-depth interviews with a range of school level stakeholders including principals and teachers, sub-national and national government stakeholders, and donor partners. The Vanuatu study also included 45 focus group discussions with parents and communities. One hundred and ninety classroom observations of teachers were conducted using a purpose-built tool. The Laos study also included a purpose-designed assessment to collect student learning outcomes data, while the Timor-Leste and Vanuatu studies conducted secondary analysis on student learning outcomes data from project and large-scale assessment programs.

The literature review primarily examined studies dated from 2013, that were grounded in an LMIC context. The literature examined ranged from extensive systematic reviews to smaller case studies. Within the review, there was no identification of large-scale empirical studies that focused teacher professional development simultaneously across multiple countries, as per this study series. Whilst most of the studies sought to explore the relationship between specific design features of teacher professional development and student learning outcomes, limited literature examined factors beyond design, such as the influence of support systems and contextual factors on the effectiveness of teacher professional development. This is of particular interest when considering a systems-thinking approach to investing in teacher professional development.

Table 1: Overview of curriculum reform foci and the accompanying DFAT investment in Timor-Leste, Vanuatu and Laos

		Timor-Leste (ALMA)	Vanuatu (VESP)	Laos (BEQUAL Phase 1)
Curriculum reform	Scope	Phased rollout for pre-school to Grade 6.	Phased rollout for Kindergarten to Grade 6.	Phased rollout for Grade 1 to 5.
	Focus	Introduces new content and pedagogies. Sequenced and scripted lessons for each grade level.	Introduces new content and pedagogies. Implements Vanuatu’s National Language Policy which provides the option of using Bislama or vernacular languages in the early grades. Subject content is sequenced for each grade level.	Introduces new content and pedagogies. Subject content is sequenced in prescribed lessons for each grade level.
	Principles¹	Promotes new student-centred pedagogies, including holistic learning outcomes.	Promotes teaching practices that support inclusive education, student-centred learning, local connections, language transition and classroom-based assessment practices.	Promotes teaching practices that support, active learning (i.e., student-centred learning and localised curriculum) inclusive education and formative assessment.
Teacher development	Scope	Phased expansion by municipality, 2016-2026.	National, 2013-2026.	National, with additional support for 32 Phase 1 BEQUAL target districts, 2015-2022.

¹ The terms ‘student-centred pedagogies’/‘holistic learning outcomes’ (Timor-Leste), ‘student-centred learning’ (Vanuatu) and ‘active learning’ (Laos), while similar, are anchored in government policy and terminology published in each country’s national curriculum. For example, in the Laos curriculum ‘active learning’ is defined as students being actively engaged in the learning process. In Timor-Leste’s ALMA program the overall goal of ‘holistic learning’ refers to a focus on students’ wellbeing, social skills, self-confidence, critical thinking and creativity.

		Timor-Leste (ALMA)	Vanuatu (VESP)	Laos (BEQUAL Phase 1)
	DFAT investment	Supplements the education ministry's teacher training on the new curriculum with Leaders of Learning program (for school leaders), school-based peer professional learning groups, mentor support, and educational technology.	Implements a series of in-service training modules closely linked to the roll-out of the new curriculum, delivered by provincial master trainers to provinces. Design, development, and distribution of teaching and learning materials.	Implements in-service training focused on orientation on the new curriculum materials, delivered by master trainers to districts. Design, development, and distribution of teaching and learning materials. Additional grants in 32 BEQUAL target districts to support strengthening communities of practice, teacher use of self-access learning, and school-level implementation (e.g. monitoring visits, teacher clusters).

3. Teacher development insights

3.1 To what extent have Australian investments in professional development of teachers contributed to improved outcomes?

The following section provides a high-level summary of the impact of DFAT's teacher development investments in Timor-Leste, Vanuatu and Laos on teaching quality and student learning.

3.1.1 To what extent have Australian investments in professional development of teachers contributed to improved teaching quality?

The DFAT's three teacher development investments have supported improvements to teaching quality, however, to maximise effectiveness they need to be part of a sustainable system for continuous professional learning. This is critical to improving the effectiveness and sustainability of the investments.

Each country study investigated changes to teachers' knowledge, attitudes and practices, and the effectiveness of implementation of their new curriculum.




DFAT investments have contributed to improving teaching quality and the implementation of each country's new primary curriculum. In each country there has been some shift from teacher-directed to student-centred approaches, which was the primary focus of their curriculum reforms. With the support of each investment, teachers have strengthened their knowledge, attitudes and practices in line with the curriculum intentions. However, the study evidence suggested that the impact on teaching quality varied widely, and much could be done to improve the effectiveness of the






investments. Nevertheless, it is important to acknowledge that each curriculum reform involved significant change for teachers and teaching practices, and these reforms were rolled out during times of immense school disruptions that affected continuity of teaching and learning. These included the COVID-19 pandemic, and in Vanuatu Tropical Cyclone Harold. The improvements evidenced in each study therefore need to be considered as incremental markers of change, particularly in the context of a long-term reform process.



In Vanuatu and Laos, a consistent message from teachers and principals was the need for more comprehensive training, refresher training and ongoing professional learning support. While DFAT's investment in Timor-Leste presents a model that supported a system for ongoing professional learning, it relied heavily on donor-resources. Addressing challenges to institutionalising the approach into Timor-Leste government systems remains ongoing.

Table 2 summarises the key findings from each study country related to teaching quality and curriculum implementation.

Table 2: Overview of key findings for each country study related to teaching quality and curriculum implementation

To what extent has the investment improved teaching quality?			
	Timor-Leste	Vanuatu	Laos
<p>TEACHER KNOWLEDGE AND ATTITUDES</p> 	Peer learning groups (known as Grupu Traballu ba Professor (GTPs)), mentor and school leader support strengthened teachers' knowledge about the curriculum. The process of observation, feedback, peer learning and advice contributed to increased teacher confidence and motivation.	Training improved teacher knowledge about the content and pedagogies in the curriculum and associated curriculum resources. Training, teacher guides and resource kits improved teacher confidence and motivation.	Orientation training and resources increased teachers' knowledge and confidence about the content and repertoire of strategies for Lao language teaching. Teachers highlighted areas of difficulty for which they need more support.
<p>TEACHING PRACTICE - PREPARATION</p> 	Feedback and support from ALMA mentors, school leaders and GTPs helped teachers improve elements of their teaching practice, particularly in lesson planning and classroom management.	Curriculum and training supported teachers to improve lesson planning, including incorporating learning indicators to align activities and monitor student learning.	Resources provided strong support for lesson preparation, but further training is required (especially for multigrade teachers). There is a need for coherent and aligned requirements.
<p>TEACHING PRACTICE - STRATEGIES</p> 	Teachers used a variety of student-centred activities in their classrooms, including pair and group work and encouraging more student talk, but practices varied across municipalities.	Teachers shifted teaching practice towards more student-centred methods, but uptake varied across locations.	Teachers reported a wider range of student-centred strategies, but limited conceptions of these methods persisted. Uptake of new strategies varied.

<p>TEACHING PRACTICE - ASSESSMENT</p> 	<p>GTPs and mentors supported teachers' understanding about using assessment to monitor student learning. Teacher capacity and knowledge to interpret and use data was not evident from data.</p>	<p>Teachers and principals reported a shift towards using more regular classroom-based assessment and using data to monitor student learning and identify supports needed. Teacher capacity and knowledge to interpret and use data was not evident from data.</p>	<p>Teachers demonstrated a shift towards more formative assessment practices and increasing awareness and use of rubrics. More support is needed to understand methods, rubrics and how to interpret and use data.</p>
<p>GENDER EQUALITY, DISABILITY AND SOCIAL INCLUSION GEDSI</p> 	<p>Teachers improved awareness of inclusive education and identifying particular needs but were less aware of specific classroom practices to ensure wide participation of all students.</p>	<p>While there was a change in positive awareness of inclusive education, there was not a significant shift in classroom practice. Those who participated in specialist courses were able to implement inclusive strategies in their classrooms.</p>	<p>While there was a policy shift to strengthen inclusive education awareness, understanding and practices, this may not have been translated into classroom practice.</p>
<p>To what extent has the investment supported effective implementation of the new curriculum?</p>			
	<p>Timor-Leste</p>	<p>Vanuatu</p>	<p>Laos</p>
<p>CURRICULUM RESOURCES AND MATERIALS</p> 	<p>Tablets facilitated classroom observations, access to teaching guides and curriculum content, and reporting. Some ongoing technical challenges persisted.</p>	<p>Teacher guide and curriculum resources provided support for lesson planning and teaching. Some teachers reported challenges related to limited access to resources and gaps in types of resources which was adding to teacher workload.</p>	<p>High reliance on curriculum resources (teacher guide and student textbook) which give clear instructions about techniques, activities, materials and teaching time. These resources were particularly important given the limited training available.</p>
<p>SCHOOL LEADERSHIP</p> 	<p>Leaders of Learning program contributed to improved leadership capacity including an observable shift to instructional leadership. School leaders improved ability to action change and support teacher learning and practice.</p>	<p>Principal support was valued in a range of areas, but principals have had limited involvement in training and awareness. Many were not able to effectively support teachers.</p>	<p>Principal support was valued in a range of areas, but capacity could be limited. Many principals recognised more training is needed for principals to be effective in their support roles.</p>
<p>TEACHER PROFESSIONAL LEARNING</p> 	<p>Teachers participated in classroom observations and peer learning. GTPs provided teachers with a forum to learn from each other through peer learning, sharing of ideas and reflection about practice. Consistent facilitation of GTPs across locations was uneven.</p>	<p>Teachers highlighted specific training courses as valuable. Training has varied in quality and participation is uneven. Lack of follow up training and support for teachers and principals needs addressing.</p>	<p>Orientation training provided crucial introductory information on the new curriculum, but this was considered too limited. Communities of practice and self-access learning were valued, but opportunities to participate were inconsistent.</p>

<p>TEACHER SUPPORT</p> 	<p>Teachers were supported through observations, feedback and GTP sessions. Peer learning and school leader support helped teachers address difficulties and challenges with curriculum implementation. But there were challenges to the sustainability of ALMA support activities, particularly GTPs, after the initial rollout was completed.</p>	<p>Peer support was highly valued, but availability varied by location. Teachers were previously supported by provincial trainers and school improvement officers, although this was constrained by budget and expertise. Dissolution of in-service training unit and provincial support structures presents significant risks for how the system will support professional learning of teachers and principals into the future.</p>	<p>Teachers valued support from principals, colleagues and pedagogical advisers (PAs). Data indicated an increase in frequency and range of PA support. But the effectiveness of support was constrained by budget and expertise.</p>
<p>LANGUAGE</p> 	<p>Language barriers were a key challenge to teaching literacy in certain locations. <i>[Not a focus of investigations]</i></p>	<p>How language is used in classrooms varied widely. Language policy was unevenly articulated to schools and communities. Variable levels of training on language transition resulted in difficulties for teachers in implementing the policy.</p>	<p>Student ethnicity and non-Lao home languages presented challenges for teachers to teach Lao language. Many teachers used local languages to provide explanations and connections for non-Lao speakers. Visual aid curriculum resources helped. Extra-instruction for non-Lao speakers was varied across schools.</p>

3.1.2 To what extent have Australian investments in professional development of teachers contributed to improved student learning?

The study data indicates that DFAT’s investments in teacher development have supported changes in student participation, interest and engagement. However, it is not possible to report whether DFAT’s investments have contributed to improvements in student literacy and numeracy outcomes due to challenges related to data availability (scope, timing), and the impact of COVID-19 and natural disasters. Teachers are one of the most important in-school factors influencing student learning outcomes, and valid and reliable learning data are critical to understanding correlations between teaching and student learning.

The experience of collecting existing and new data in the Multi-Year Teacher Development Studies confirmed the importance of having access to quality, timely and reliable student outcomes data. In Timor-Leste, the absence of any systematised learning assessment has meant it was not possible to say whether the ALMA program had improved student learning outcomes. The Vanuatu study benefited from the opportunity to incorporate secondary analysis of two large-scale assessments – the Vanuatu Standardized Test of Achievement (VANSTA) and the Pacific Islands Literacy and Numeracy Assessment (PILNA). However, this evidence was also inconclusive given widespread differences in literacy and numeracy achievement, and some evidence of learning loss since 2021 possibly due to COVID-19 or Tropical Cyclone Harold. In Laos, due to the lack of existing assessment data at the system level, a fit-for-purpose student learning assessment was designed and



administered. While this assessment indicated some positive changes in student learning, the assessment was administered early in the reform process and during the pandemic.


Student learning is not only about academic outcomes and myriad in- and out-of-school factors impact student achievement including student engagement and teacher engagement, as well as classroom management, peer support and family background (see for example, Kraft & Hattie, 2021; Hattie & Zierer, 2019). These factors were explored across the three country studies.

Case study data in all three countries indicated positive changes to student participation, interest and engagement in learning, and wellbeing. There is a significant body of international research that associates engagement with a range of desirable outcomes, including achievement, academic success and wellbeing (Lawson & Lawson, 2013; Christenson, et al, 2012; Klem & Connell, 2004). It is important to recognise and foster increased student engagement, to support active engagement and therefore progressive improvements in learning (Berry, 2022). Student engagement requires a collaborative and targeted approach involving education systems, schools, parents and community to provide consistent expectations and supports for learning (Christenson, et al, 2012). A key part of this is continuing to support teachers along their learning pathway to build their confidence, skills and knowledge to target their teaching to the needs of learners. The studies highlight the need for a systematic approach to monitoring learning achievement over time, and recognition that data about teaching and learning needs to come from a range of sources.

Table 3 summarises the key findings from each study country related to student learning.

Table 3: Overview of key findings for each country study related to student learning

To what extent has the investment supported student learning?			
	Timor-Leste	Vanuatu	Laos
ACADEMIC OUTCOMES 	Evidence was inconclusive given no systematic learning assessment data. Some teachers perceived changes in student interest and engagement to improve academic outcomes.	Evidence was inconclusive. VANSTA and PILNA indicated widespread differences in literacy and numeracy achievement, and some evidence of learning loss since 2021, possibly due to COVID-19 or cyclone. Wide range of perceptions about academic outcomes, with differences between lower primary teachers and those in upper primary.	2021 assessment results indicated slight improvement in Lao language literacy, but there was wide variation and a large proportion of students with very limited Lao Language skills. Perceived improvement in Lao language performance attributed to changes in content, pedagogies and teaching time.
STUDENT PARTICIPATION, INTEREST AND WELLBEING 	Perceived improvement in student interest, engagement, and wellbeing. Attributed to shift towards student-centred approaches.	More supportive classroom culture, student-centred practices and use of Bislama and vernacular in lessons was perceived to contribute to higher levels of student engagement and interest in school.	Perceived improvement in student participation, interest and engagement in learning, and wellbeing. Attributed to new curriculum content and pedagogies.

<p>PARENT AND COMMUNITY SUPPORT</p> 	<p><i>[Not investigated]</i></p>	<p>Many parents reported they help with children’s homework and attendance, but some struggle with understanding how to support their children.</p>	<p>Parental involvement in supporting student learning and attendance was limited.</p>
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3.2 What are the conditions of success for teacher professional development investments, and how can lessons learned inform future programming?

Evidence from this study suggested that the impact of DFAT’s teacher development investments on teaching quality varied widely, and much could be done to improve the effectiveness of each of the investments. The success of each teacher development investment was enabled and constrained by both the program design and by government systems and contextual factors. Research in the field of effective and sustainable teacher professional development has produced a range of studies that focus on the effective design of programs for teachers. Section 3.2.1 discusses ‘best practice’ program design factors. However, the role that systems and contextual factors (including teacher background, in-school support, families and communities, and policy alignment) play is particularly relevant when examining the effectiveness of teacher professional development delivered in LMICs. Section 3.2.2 discusses system and contextual factors that impact teachers and students. In addition to this, program design should include targeted, fit-for-purpose assessments that measure the effectiveness of specific interventions and inform program improvement.

This section first examines the evidence related to effective teacher professional development program design before moving on to examine the impact of systems and contextual factors that underpin the success of programs. It provides findings from the international literature, observations gained from each country study, and lessons learned.

3.2.1 Program design factors

Much emphasis has been given in the research literature to program design of teacher professional development and the features that can contribute to program effectiveness (see for example, Allier-Gagneur et al., 2020; Darling-Hammond et al., 2017; McAleavy et al., 2018; Popova et al., 2021; Sims & Fletcher-Wood, 2018). These ‘best practice’ design features, as summarised in Table 4, are suggested as baseline features that provide a foundation to the development of contextually appropriate professional learning. Each of the three DFAT investments investigated had a different design, and the teacher development approaches incorporated these features to varying extents either intentionally or organically.

Table 4: Summary of ‘best practice’ design features for teacher professional development

Factors	Features
Quality of instruction	<ul style="list-style-type: none"> • Uses an approach and design that caters for the targeted teacher group’s needs (e.g. novice vs senior teachers), building on existing knowledge, expertise and practices. • Uses approaches that can have a positive impact on instructional quality, such as coaching. Cascade models can jeopardise the quality of instruction.
Mode and frequency	<ul style="list-style-type: none"> • Involves sustained and regular face-to-face contact as opposed to one-off workshops to support teachers to follow up their initial learning with re-consolidation and support. • Uses an ‘active learning’ approach that incorporates an interactive and highly contextualised approach to teacher professional development (e.g. using artefacts from their own classroom). • Provides opportunities for teachers to model new practices which enables teachers to increase the habit and skill of the new practice. • Incorporates the practice of monitoring, evaluation, and feedback.
Practical subject pedagogy	<ul style="list-style-type: none"> • Is grounded in a subject-specific context and linked to current classroom content and practices, as opposed to teacher professional development that is more general in nature (e.g. formative assessment, group work).
Teaching and learning materials	<ul style="list-style-type: none"> • Ensures alignment between teacher professional development and the learning materials that are used in the classroom.
Location of instruction	<ul style="list-style-type: none"> • Is school-based, as practicing new techniques in the expected environment (i.e. the classroom) supports teachers to change their behaviours.

3.2.2 System and contextual factors

The literature featuring system factors for teacher professional development is far and few, with relatively little attention paid to the impact of system and contextual factors on the effectiveness of teacher professional development.

Factors such as ensuring alignment with wider education policies and the role of middle tier leaders are identified as system-level factors that are considered to impact the sustainability and effectiveness of the program. Contextual factors can include school leadership support and time. Teacher professional development is more likely to be implemented effectively when the intervention design, systems supports and context work together (Sims et al., 2021).

For the purposes of this report, we have grouped the factors according to the different levels within an education system – system level, parent and community level, school level, and teacher level (see Figure 1). The following sections are structured to outline links with the international literature, observations from each country study, and lessons learnt to inform future programming.

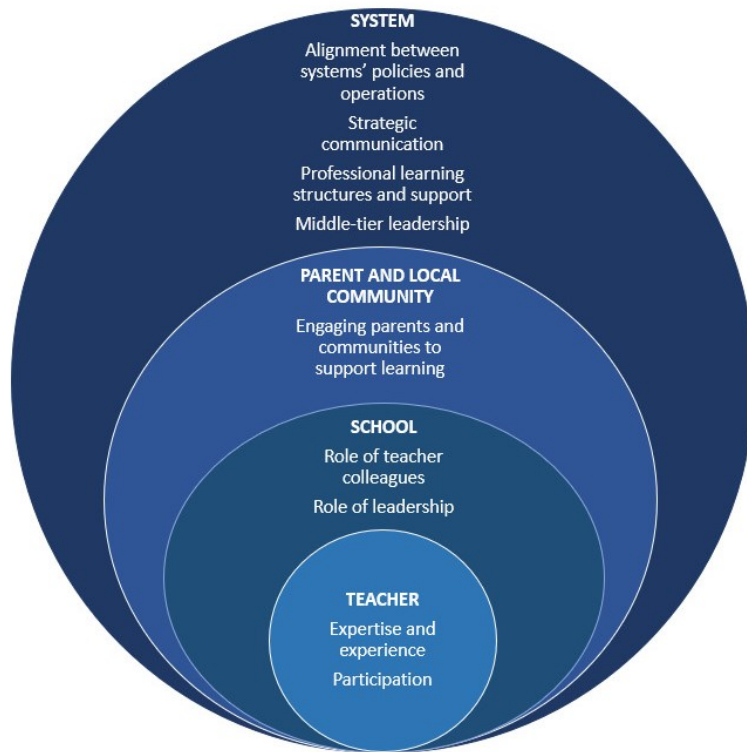


Figure 1. Different levels within an education system

A. SYSTEM LEVEL

To be effective, teacher professional development needs to be bolstered by a coherent system of support. This includes alignment between policies and operations, a clear understanding of the changes by all education stakeholders and the roles they play, and putting in place the right structures and resources to effect the changes envisioned.

1. Alignment between systems' policies and operations

Literature connect: The alignment of the teacher professional development content with a country's wider education policies and operations in curriculum and assessment is argued to contribute to the effectiveness of the program (Hardman et al., 2011, 2015; Hennessy et al., 2022; Timperley, 2007; Westbrook et al., 2013). This is particularly relevant when considering a systems approach to implementing education initiatives such as teacher professional development (Kaffenberger & Spivack, 2023). For example, misalignment may occur when there is the inclusion of examination policies that include high-stakes examination processes and then curriculum reforms that introduce student-centred pedagogies and formative assessment practices. This may produce conflicting messaging for teachers when engaging in teacher professional development as high stakes testing often requires teachers to adopt a teacher-directed approach to ensure coverage of the curriculum, with limited time to engage in a student-centred approach (Hardman et al., 2011, 2015; Westbrook et al., 2013).

Observations: An important feature of the teacher professional development programs in each study country was that they were designed to support the implementation of curriculum reform processes. Each provided support to teachers to build their knowledge and practices related to new curriculum content, pedagogies, and assessment practices, which contributed

to alignment and effectiveness of these programs. However, misalignment between different parts of the education systems' policies and operations presented challenges.

In Vanuatu, DFAT's initial strategy for teacher professional development involved leveraging provincial level staff to provide in-service training on the new curriculum and ongoing support to schools. However, dissolution of the in-service training unit and provincial support structure left gaps in how the system would support professional learning of teachers and principals into the future. While some responsibilities shifted to the National University of Vanuatu's School of Education, it remained primarily focused on upgrading teacher qualifications through accredited training. The curriculum development unit (CDU) filled this operational gap and continued its role in curriculum development while also providing in-service training on the new curriculum. Some study participants questioned whether filling the gap was an appropriate and sustainable role for CDU.

In Laos, the study evidence indicated there was misalignment in policy and operations in several areas that related to implementation of the new curriculum introduced in teacher professional development, including lesson plan requirements, instructional language, and supports to non-Lao speakers. For example, the new requirements for lesson plans do not align with formats expected by the teacher monitoring unit. However, efforts by teacher training colleges (TTCs) to align education programs (pre-service and in-service) with the new curriculum were underway. Further, going forward TTCs will take a lead role in in-service professional learning, promoting greater coherence across the teacher career pathway.

In Timor-Leste, while ALMA presented a model of continuous professional learning, efforts were needed to ensure its approaches were reflected within the government's policies and systems of operations, such as the role of mentors, ongoing funding for peer learning, and the integration of ALMA's information and communications technology (ICT). A key challenge for ALMA was the Timor-Leste government's policy regarding the posting of school leaders, which led to a turnover of school leaders involved in the ALMA program.

Across the three countries, there was a clear need for policy and operational coherence in key areas related to professional learning including workforce management (such as teacher/leader deployment, career pathways and wellbeing) and professional learning resources and supports (including teaching materials, infrastructure, expertise and budget). There were indications that investments were built around units in a ministry of education and with partners who were 'on board' rather than professional development systems supported at all levels.

Lessons learned to inform future programming: Examples from the country studies point to the importance of coordinated policies and operations between different areas within a ministry of education, national and sub-national actors, those that deliver pre-service and in-service teacher professional development, and between the investments and government policies and operations. Investments in professional learning need to be grounded in a clear understanding of education systems, including areas of policy and operational alignment, gaps and conflict. There is a clear role for active policy dialogue to maximise coordination and coherence, and a clear vision of reform.

II. Strategic communication

Literature connect: A lack of communication across and between key actors undermines efforts to sustain new education initiatives that are the foci of teacher professional development, particularly when they are misunderstood or not considered popular (Schleicher, 2018; World Bank, 2018). Relevant strategic communication about teacher professional development is required across the broad range of actors to establish appropriate translation of new initiatives and to ensure an understanding of the different roles each will need to play in the implementation process (Schleicher, 2018; Viennet & Pont, 2017; Burns et al., 2016). These actors include education agencies, aid agencies, tertiary education services, ministry of education units, principals, teachers, students, and parents and communities.

Communication to students, parents and local community members about changes to learning approaches (e.g., curriculum, pedagogical and assessment changes) is considered an important factor in the support of new teacher professional development (World Bank, 2018). It is argued that if parents and the local community have a negative view of the new practices or lack of awareness of the practices promoted by the teacher professional development in question, teachers will find it increasingly difficult to implement the new practices (Holland et al., 2012; Sharma, 2013; Westbrook et al., 2013).

However, strategic communication and transparency is also required within stakeholder groups particularly at the government-level. When considering the introduction of new teacher professional development, communication across relevant government agencies and units requires consistent messaging and transparency to ensure they are not operating in silos but rather working in tandem to achieve effective and sustainable implementation of initiatives. This element becomes particularly salient when considering the delivery of teacher professional development during times of crisis (e.g., COVID-19 pandemic) (Fernandez & Shaw, 2020; Carvalho et al., 2020; Gouédard, Pont & Viennet, 2020).

Observations: The Vanuatu and Laos studies highlighted that community engagement and outreach needs to be part of any investment focused on large-scale curriculum reform. The significant changes to pedagogies and assessment means that communities need to understand the reforms and be part of the change process. Both studies identified the need for a clear and well-resourced communication strategy around the purposes and objectives of the new curriculum, and the importance of education more broadly. In Vanuatu, uneven articulation to schools, parents and communities about the changes in language policy resulted in confusion and created challenges for widespread support for the language policy.

The Laos study also highlighted the importance of strategic communication between aid agencies. Given there was an increasing number of agencies working on teacher development initiatives in Laos, greater coordination of projects was needed to minimise overlap and maximise harmonisation, and to reduce conflicting messages.

In Timor-Leste, communication about ALMA was found to be uneven between ministry units due to differing expectations of the curriculum by ministry staff. The distribution of tablets to school leaders and government officers was found in the study to aid the sharing of information and reporting.

The section on ‘alignment between systems’ policies and operations’ (3.2.2.A.1) discussed some challenges, many of which were also brought about by communication challenges between different areas within a ministry of education, between national and sub-national actors, and with schools. COVID-19 brought to the fore challenges related to consistent strategic communication, as schools grappled with how to implement pandemic measures and transition to remote learning. Exchange of information was highlighted as an urgent concern by participants across the three study countries. A key issue identified was the lack of ongoing communication between ministries, local administrators and schools on teaching and learning during COVID-19. While most participants reported that their governments provided advice on health and safety measures, they noted the lack of advice and support on teaching and learning continuity. But it was also equally important for local administrators and ministry officials to receive feedback from teachers and principals on difficulties and successes of the home learning strategy. Clear exchange of information between the government and educators at the local level may enable teachers the ongoing improvement of strategies to support learning during crises.

Lessons learned to inform future programming: As part of any reform process, there needs to be a well-planned strategy that communicates the intents of the reform, key changes, and benefits to a broad range of actors at the national, sub-national and community levels. Feedback loops at each of these levels ensures gaps can be rectified and supports ongoing improvement of initiatives.

III. Professional learning structures and support

Literature connect: The ‘best practice’ program design features outlined above in section 3.2.1 need the right structures and support to ensure assistance provided to teachers are systematic and systemic. This includes a long-term investment commitment, budget, human resources, and supporting resources including materials and technology.

- **Mode:** The need for a teachers to have sustained and regular engagement in professional development programs poses issues when limited budgets are often allocated to teacher professional development (Allier-Gagneur et al., 2020; Hennessy et al., 2022; Popova et al., 2022). Additional time and interaction with quality trainers, mentors, and colleagues needs human and financial resourcing, and this requires alternative methods for achieving sustained engagement (examples include opportunities through technology and self-directed learning). Historically, the cascade model of teacher professional development has been relied upon as a cost-effective model for teacher professional development in LMICs (Revina et al., 2020), which has been largely contested as an effective teacher professional development approach (Popova et al., 2022; Bett, 2016).
- **Materials:** The provision of quality teaching and learning materials (e.g., teacher guides, textbooks, workbooks, structured lesson books, storybooks) as part of a broader program of teacher professional development is viewed to have positive learning gains for the student (Allier-Gagneur et al., 2020; Orr, 2013; Piper et al., 2018; Popova et al., 2021; Power et al., 2012, 2019). Coherence between teacher professional development and teaching and learning materials is important. The learning materials need to be aligned to the curriculum, related to the day-to-day experiences of teachers, and should be written in

the language that is familiar to teachers and not necessarily the official or foreign language (Allier-Gagneur et al., 2020; Altinyelken, 2010; Lall, 2011; Orr, 2013; Power et al., 2012).

- **Technology:** The role of technology in effective teacher professional development is discussed widely in the literature. Technology is suggested to provide teachers with the opportunity to have access to: a range of learning materials that support previous training, including quality video demonstrations (McAleavy et al., 2018; Shohel & Power, 2010; Wolfenden et al., 2017; Woodward et al., 2014); learning platforms that enable self-directed learning; and communication platforms which encourage discussion amongst professional learning groups (The British Council, 2015). One example of a communication platform is the use of WhatsApp groups to support teacher and school leader peer learning networks (McAleavy et al., 2018.)

Observations:

- **Mode:** A key issue across LMICs and the three study countries was the paucity of government budget for teacher professional development once teacher salaries were considered. Given the time and resource pressures associated with each curriculum reform process, cascade training models were initially used in each study country, largely to ensure some level of familiarity with the new curriculum and the teaching and learning resources ahead of distribution. It was evident in the study findings that teachers and school leaders found these trainings useful, however there was clear demand for more follow-up support.

In Timor-Leste ALMA supplemented the ministry's cascade training by providing follow-up support to principals and teachers in the form of school-based mentoring, observation and feedback, and peer learning. The resourcing for these supports was intensively supported by DFAT. In Laos, in addition to orientation training, BEQUAL Phase 1 provided district-level grants to facilitate communities of practice and self-access learning and study evidence suggested these grants supported these activities, but they were inconsistent. A clear focus of BEQUAL Phase 2 is on school-based systems of continuous professional development with the support of internal pedagogical support teams made up of self-nominated principals and teachers. In Vanuatu, follow-up and school-based support was not a focus of VESP and there was a reliance on existing (and now defunct) provincial structures to provide ongoing support to teachers and principals.

- **Materials:** In each study country, teacher professional development was designed to align with the provision of teaching and learning materials. In-service training was in a staged process to align with the year-on-year rollout of the new curriculums and accompanying resources. That is, grade 1 teachers would be targeted for training with the introduction of the grade 1 curriculum. These resources were demonstrated through the studies to be valuable supports for teachers in their delivery of the curriculum, particularly those with less experience.

A key part of the orientation training in Laos was to introduce teachers and principals to the new resources including the teacher guide. Teachers found the teacher guide and student textbook extremely useful for improving their understanding of the curriculum and how to prepare and implement lessons. It is possible that these core resources have

become proxies for teacher professional development, given the limited amount of training teachers and principals have received.

In Vanuatu VESP supported training of teachers and principals along with the distribution of teaching materials and resources. Overall, the study found that curriculum materials and resources accompanied by training supported knowledge about the new curriculum and some pedagogies. However, the study also found that teachers need more guidance on using resources to enable their full use.

In Timor-Leste an important consideration of the new curriculum was designing the lesson plans to be in Tetum – a language teachers were more fluent in – rather than Portuguese as per the previous curriculum. This was also the case in Vanuatu where the materials were in Bislama, rather than French or English.

- **Technology:** While technology had been a core component of ALMA in Timor-Leste since inception, the integration of technology to support Laos teacher professional development was accelerated with COVID-19 and is likely to become more important for internal pedagogical support teams given limited budgets for travel. In Vanuatu, although remote training was used during the pandemic, the use of technology was not a focus of teacher professional development.

As part of the ALMA program each school leader was provided with a tablet which included the new curriculum resources, including lesson plans, and access to the online platform Eskola.TL² enabling uploading of observations. The study found that these tablets were an important part of classroom resourcing, observation, and teacher support, but there were also challenges including access to electricity and the internet.

The global pandemic accelerated development of online platforms and resources, and in Laos this included Kampanya, YouTube teaching videos, and WhatsApp groups. While these are important developments towards increasing access and equity for professional learning, some study participants, particularly those in rural and remote areas, signalled difficulties with accessing and using these for learning. Stakeholders raised challenges related to access to ICT tools (including the internet) and support to develop knowledge and skills to use these ICT tools.

In Vanuatu, very few schools have access to online communications or technologies, and using ICT was not a focus of VESP. The School of Education at the National University of Vanuatu has proposed delivering online programs via Moodle to support the upgrade of teachers who are underqualified or unqualified, however there are immense challenges associated with the need for teachers to have access to computers as well as ICT knowledge and skills to navigate the programs.

Lessons learned to inform future programming: Programs that aim to transform teaching and learning need commensurate investments in teacher development. One-off investments are unlikely to be effective to support change in teaching quality, particularly given the complexity

² The Eskola platform was designed by Catalpa International with DFAT support and in partnership with the Ministry of Education, Youth and Sport (MoEYS). Eskola is an online platform accessed on tablets distributed to school leaders and MoEYS officers. Eskola enables school leaders to upload classroom observations, peer learning activities, and literacy and numeracy results with the purpose of improving communication and information sharing between schools, principals and MoEYS staff.

of the changes expected, but also due to the high variability in the teacher workforces. Realistically, for teachers to be supported in an ongoing way, professional learning systems need to be supported by a long-term investment, with commitment and resourcing that is aligned to quality teacher professional development. This includes ways to support quality instruction, school-based support, and regular and sustained contact. It is possible that investments that put continuous professional learning at the heart of their programming (rather than broader programs), may be able to provide the focused support needed.

Curriculum resources such as teacher guides play an important role in supporting teacher learning, particularly for less experienced teachers. Technology can connect teachers with peer support and resources and should be considered given time and budgetary constraints associated with face-to-face meetings and challenges with access for teachers in rural and remote areas. However, for technology to be effective and to avoid inequalities being exacerbated (particularly for teachers in rural and remote schools), teachers need to be supported with access to ICT and with opportunities to develop the knowledge and skills to use these tools well.

IV. Middle-tier leadership

Literature connect: ‘Middle tier’ leaders refers to instructional leaders from the sub-district, district or regional levels of education systems. The role of middle tier leaders is relevant for education systems that have employed a decentralised approach to education delivery – an approach that is becoming popular across the LMIC context (Asim et al., 2023). They are often positioned at the nexus of policy makers, schools and teachers, aiming to facilitate the transition of policy to the classroom. Tournier et al.’s (2023) report examined case studies of middle tier leadership across five countries. They identified that middle-tier instructional leaders provide support in a range of ways, including: coaching teachers and head teachers; conducting lesson observations; role-modelling effective practices; delivering needs-based and practical professional development; and providing non-judgmental feedback. Alim et al. (2023) however argues that of these various roles, middle tier leaders are predominantly monitoring, supervising, collecting data and enforcing school accountability. A major challenge to middle tier leader practice is lack of adequate human, material and financial resources to do their role effectively. Other challenges include the limited use of data for decision making and the lack of alignment between different actors (Alim et al., 2023).

Observations: Across the three study countries, middle tier leaders had been recognised as crucial conduits for ongoing professional learning opportunities for teachers and school leaders. Consistent challenges related to how to ensure these middle tier leaders had the right expertise and financial resources to undertake their roles.

In Timor-Leste, external mentors were recruited and trained for a targeted coaching role, with each mentor responsible for supporting school leaders in a cluster of schools through activities including observation, feedback, and peer learning groups. The study found mentors provided consistent support to school leaders and teachers which enabled implementation of the curriculum through addressing challenges faced by teachers. While mentors originally consisted of personnel contracted by DFAT and government officials, there has been a gradual transition towards greater government contracting of mentors.

In Laos, the Ministry of Education and Sports had in place Pedagogical Advisers (PAs) who were tasked with supporting principals and teachers in allocated schools. This has since transitioned to internal pedagogical support teams. The study found that support from PAs was highly valued by teachers and principals, and study participants identified a wide range of ways that PAs have assisted them. However, their ability to provide support was often constrained by budget and capacity challenges.

In Vanuatu, there is a vacuum in middle tier leadership. Previously, provincial trainers (PTs) were trained to provide teacher training and some school-level follow up support, but the quality of support and regularity of visits was inconsistent. The role of PTs was disbanded in 2021.

Lessons learned to inform future programming: Technical support for teachers as they are learning to implement new curriculum, new content or new teaching strategies needs to be systematic and systemic. All teachers need to be given opportunities to get quality technical support. This means that people supporting teachers have appropriate expertise and are supported with adequate infrastructure (e.g. budget, tools, ICT). For example, middle tier leaders need expertise, time, and money to visit schools and support teachers on a regular basis. There is a recognition by governments that middle-tier leaders are valuable in the role they can play in supporting the professional learning of teachers, and therefore there are steps being undertaken in Timor-Leste and Laos towards providing more emphasis and resourcing for these roles.

Middle tier leaders also need to understand which areas of content and pedagogy teachers find challenging. Supporting the collection and use of evidence to inform the design of professional learning needs to be part of any continuous professional learning system.

B. PARENT AND LOCAL COMMUNITY LEVEL

1. Engaging communities and parents to support learning

Literature connect: The importance of supporting parents and local communities to understand new practices and content introduced in teacher professional development is noted across the literature (Akyeampong et al., 2023; Hardman et al., 2011; Maruyama, 2022; Westbrook et al., 2013). More broadly, the practice of providing information to parents and community on the income-earning benefits of education, the quality of local schools and potential sources of funding are all identified as highly cost-effective interventions for LMICs (Akyeampong et al., 2023). Furthermore, it is suggested that consideration for the local cultural norms and community expectations is important when designing teacher professional development (Hardman et al., 2011; Westbrook et al., 2013; Allier- Gagneur et al., 2020). Efforts to assist communities and families in supporting new teaching initiatives have taken various forms. For example, introductory training for representatives of parent associations to strengthen family support for students' study at home was included as a part of a structured pedagogy approach to teacher professional development initiative in El Salvador (Maruyama, 2022). The program yielded positive outcomes for learning over a 2-year period.

Observations: Each country study found that parents and communities were considered important supports for a student's learning journey and engagement in school. But a range of contextual challenges limited parents' ability to support children, including work

commitments, having low levels of literacy themselves or being absent for other reasons. These challenges became particularly evident during COVID-19.

Only Vanuatu had specific inputs to assist communities and families to support learning as part of its program design. As part of VESP, community advocacy campaigns (e.g., 6 Via Klas 1 to promote primary school enrolment at the right age) aimed to encourage parents to become aware of the importance of their children's learning. The new curriculum also encouraged the involvement of members of the community in learning about local culture, values and the environment.

Lessons learned to inform future programming: Parents and communities are important stakeholders in any education reform process and require engagement and support, not only on key changes to policy, but also on how they can support their children's learning effectively. This means it is critical to support ongoing engagement with parents and communities about the curriculum and their children's learning. Finding ways of actively engaging communities and parents in students' learning is an important area of support. Areas of success include well-targeted community advocacy campaigns and programs that support parents in providing a stimulating learning environment for their children prior to starting school and in the development of early literacy and numeracy skills. New curricula that encourage active community involvement in local culture and the environment provide one framework for including communities in learning.

C. SCHOOL LEVEL

The school context plays a key role in how teacher professional development can be successfully implemented by teachers within their classrooms. Two important factors identified in the literature for creating a supportive and reflective environment when teachers aim to implement new practices as suggested in the teacher professional development are the role of teacher peers and the role of school leadership.

1. Role of teacher colleagues

Literature connect: Teacher and school leader peer learning groups require relatively few resources, but can yield high value for professional learning³. An enabling factor identified for effective teacher professional development is the provision of support from teachers' peers (Allier-Gagneur et al., 2020; Haßler et al., 2018; Popova et al., 2021; Sims et al., 2021; Westbrook et al., 2013). Support of peers can be in the form of 'communities of practice', structured peer observation, the sharing of learning and assessment resources, and reflective discussion of joint practices. Rossignoli et al. (2020) identified that the success of utilising peer support in teacher professional development is dependent on several factors, including: provisions of venue and regular time slot; providing a time that is a part of the school timetable rather than outside school time; and the monitoring of progress by school leaders.

Hennessy et al. (2023) highlighted the value of exposing teachers to external expertise to bring new ideas and challenge pre-existing norms and values but also noted the importance of

³ Peer learning groups can have different names such as peer-to-peer networks or learning groups, Communities of Practice, Teacher Learning Circles, etc. It is important to note that peer learning groups have an emphasis on collegial dialogue and support, and self-reflection. Teachers and/or school leaders make a commitment to work together to share experiences and concerns as well as ask questions in a safe and supportive environment focused on teacher and student learning.

recognising teachers as professionals capable of critiquing and developing their own practice in response to challenges in their own needs and contexts.

Observations: Establishing peer learning groups was a key part of DFAT’s teacher development investments in Timor-Leste and Laos. In Timor-Leste and Laos these peer learning groups were both school cluster-based and within schools.

In Timor-Leste, the establishment of peer learning groups provided potential for a continuous professional development approach. Peer learning groups provided teachers an opportunity to discuss and learn from each other about new pedagogical approaches, as well as practice new skills through lesson simulations. A peer learning process supported teachers to prepare, review and present lessons, provide feedback, share challenges, and workshop solutions. Peer learning provided support in terms of planning and preparation for lessons and teachers reported this improved their confidence and motivation as they implemented the new curriculum. A challenge in some school cluster contexts was sustainability of peer learning sessions once active ALMA support for a cluster wound down, given these sessions were facilitated with the assistance of mentors, school leaders and associated resources.

In Laos, the study found that receiving support from teacher colleagues was highly valued by teachers, whether through formal or informal mechanisms. A key focus of BEQUAL Phase 1 was to strengthen communities of practice. Participating in communities of practice was highly valued by teachers, but the opportunity to participate in these as well as more formally organised meetings was inconsistent. The study identified the importance of having access to colleagues with expertise and experience to support teaching improvement.

In Vanuatu, teacher peer learning was recognised as an activity that could support a shift in teaching practice to being more student-centred. Receiving support from principals and teacher peers was reported to be critical to helping teachers effectively implement the new curriculum. Principals and teachers valued peer support in planning and discussing pedagogies at the school level, and this became even more important given the gap in provincial support structures that included the discontinuation of PTs and school-improvement officers. However, the extent of peer support varied by location.

Lessons learned to inform future programming: A key challenge is to continue to improve effectiveness and sustainability of peer learning groups. This requires having access to colleagues with expertise and experience that others can draw on. For more formalised peer learning opportunities to be sustainable, these need to be supplemented with resources, including budget and time.

II. Role of leadership

Literature connect: The literature identifies that school leadership plays an important role in implementing teacher professional development (see for example, Comba, 2021; McAleavy et al., 2018; Nooruddin & Bhamani, 2019; Power et al., 2019; Woodward et al., 2014). Creating an appropriate teaching environment and learning culture to enable the use of new practices is an important role of school leaders – ensuring that teachers have the appropriate time, space, and direction to explore how the new practice may work within the context of their school. McAleavy et al. (2018) suggest that leaders can help to create a ‘rhythm’ for teacher professional development.

A report by Global School Leaders (2020) advocates for a focus on improving the ability of school leaders to influence teacher practice through teacher professional development, but concludes that school leaders in LMICs currently lack leadership skills (Lemos et al., 2021) and access to opportunities to develop those skills (Mangaleswarasharma, 2017; Vaillant, 2015). They suggest that often the school leaders in the LMICs are tasked with activities that lead them away from engaging in practices that support their teachers, such as being expected to be classroom teachers themselves (Pont et al., 2008; Vaillant, 2015). The report cautions against increasing the role of school leaders without the appropriate support mechanisms in place to avoid increasing burden. They suggest that redefining the role of school leadership, with the appropriate support mechanisms is necessary.

Observations: The role of leadership was acknowledged across the country studies as a key part of teaching quality and support. In Timor-Leste the importance of instructional leadership was acknowledged through leadership and mentoring in ALMA. Evidence from the Vanuatu and Laos studies also acknowledged the contribution of school leaders to teaching quality, but building school leadership capacity was not a focus of the VESP and BEQUAL programs.

In Timor-Leste, the Leaders of Learning program directly contributed to an improvement in school leader knowledge, particularly instructional leadership. The establishment of peer learning groups for both teachers and leaders provided potential for a continuous professional learning approach. A key finding was that as a result of focused professional development support, school leaders improved their ability to action change and support teacher learning and practice, including an observable shift to instructional leadership. Core principles of instructional leadership included supporting teachers through classroom observation, peer learning, and a focus on student learning. A challenge, however, was when school leaders moved and a new school leader may not have benefited from ALMA support.

In Vanuatu, many teachers said they valued the support of school leaders. Principals who had participated in in-service instructional leadership training were able to yield positive results in their schools, but the opportunity to participate in this training was not widespread. Teachers said they valued principals' support in a range of areas, such as providing access to teaching materials and classroom resources, facilitating professional learning opportunities, strengthening collaboration with other schools, and taking time to observe teaching practice and give feedback to teachers. A challenge was that not all principals participated in training on the new curriculum and therefore some were not able to effectively support their teachers.

Similarly in Laos, teachers reported also valuing the support of school leaders and the study evidence indicated that the level of support teachers received from their principals increased over time. The types of support included assistance with lesson planning, advice about teaching methods and assessment, monitoring teaching and learning, classroom observations, and conducting teaching demonstrations. However, many participants recognised that more training is needed for these principals to be effective in their support roles. While principals in Laos attended orientation training on the new curriculum, there was not a dedicated program of support to principals to build their instructional leadership capabilities.

Lessons learned to inform future programming: Investing in systems that can provide school leaders with expertise in school leadership is a step towards ensuring school leaders can focus on creating an enabling environment for continuous professional learning, supporting

teachers with implementing quality teaching practices, and addressing issues that impact student learning. This is particularly important in resource-constrained environments where middle-tier leadership supports are inadequate and infrequent. Given school leaders in LMICs are often teachers themselves, it is important to not increase the role of school leaders without the appropriate support mechanisms in place (Global School Leaders, 2020).

D. TEACHER LEVEL

Teacher professional development is more likely to be effective when it meets the needs of teachers and their schools. This section explores the importance of catering to the expertise and experience of teachers, and how active participation of teachers in teacher professional development might be supported.

1. Expertise and experience of teachers

Literature connect: The teacher professional development approach and design should aim to cater for the targeted teacher group's needs by considering factors such as teacher expertise and experience. Consideration needs to be given to teachers' current understandings relevant to the content or skills that are to be learnt, and whether their foundational understandings are sufficient for effective participation in the program. This is particularly salient when comparing the needs of a novice teacher, compared to that of more experienced teachers (McAleavy et al., 2018; Popova et al., 2021; Sims & Fletcher-Wood, 2018). For example, when considering adequate adaptation of instruction for novice teachers, recognition of the increased cognitive load of the training and the provision of appropriate scaffolding would be required (Sims & Fletcher-Wood, 2018, 2021). Awareness and catering for the varying levels of training of the teacher are suggested to be particularly important in the LMIC context, where there are often large variations in pre-service teacher training (Orr et al. 2013).

Observations: As might be expected, the qualification and experience levels of teachers varied in each country. While there were standards specified in each country, there existed a mix of permanent teachers and – depending on the country's classification system – temporary, untrained, contract, and/or volunteer teachers in schools. Given the varying levels of teacher education and experience in each country, each program was challenged to provide ongoing training and support to effectively implement new curriculum and pedagogies.

In Vanuatu, training was rolled out targeted to specific teacher grade cohorts, but not according to teacher backgrounds. This training and resources were particularly valued by temporary and untrained teachers, as well as new teacher graduates in terms of supporting knowledge and confidence about the new curriculum. Throughout the course of the study, participants identified areas in which they need more support, including those related to language transition and assessment.

Similarly in Laos, the orientation training provided did not take into account different teacher backgrounds. The study evidence pointed to challenges related to Lao language fluency with some ethnic teachers experiencing difficulties with Lao language knowledge and pronunciation, which impacted their Lao language teaching. There were also large variations in classroom contexts, with teachers reporting students' low Lao language skills as one of the key challenges to Lao language teaching.

In Timor-Leste, teachers' confidence in their practice was a result of increased knowledge about teaching provided through ALMA, specifically about new pedagogies and implementing the curriculum. Mentoring and peer learning approaches provided the opportunity for support to be better targeted to teachers' individual expertise and experience, for example through feedback after classroom observations and the opportunity to ask questions.

Lessons learned to inform future programming: Given the highly varied levels of experience and qualifications of teachers, a shift towards professional development that is more targeted to the needs of each teacher and the particular challenges they face in their classroom contexts (for example, a high number of ethnic students in Laos) is needed. Teacher professional development should be adaptable to support teachers to gradually adjust certain aspects of their practice once they have achieved initial mastery, without compromising core components of programs (Darling-Hammond et al., 2017). School-based support systems provide the opportunity for adaptive and ongoing support to enable customisation and deep learning, if leaders or peers have the knowledge and skills to provide quality instruction.

II. Participation

Literature connect: Acknowledging teachers' experiences, pre-existing ideas, values and attitudes is considered an important factor in teacher participation in teacher professional development. It is argued that teachers will often have a certain set of attitudes and beliefs about the training topic and thus will most likely reject new or conflicting ideas unless their pre-existing ideas are challenged through the teacher professional development (Allier-Gagneur et al., 2020; McAleavy et al., 2018; Orr et al., 2013; Popova et al., 2018; Westbrook et al., 2013). McAleavy et al. (2018) suggest that teachers may need to try out new approaches multiple times before they can be translated into their long-term teaching practice.

The role of motivation in effective teacher professional development is also considered within the broader teacher professional development literature. Allier-Gagneur et al. (2020) identified that the relationship between effective teacher education and teacher motivation is likely to be bidirectional. Teachers are considered to be more motivated to participate if they can see a demonstrated positive impact on student learning (Sims & Fletcher-Wood, 2018). Sims et al. (2021) identified three motivational mechanisms for effective teacher professional development, including setting a goal for the teacher professional development that can be achieved, presenting a credible argument for the change in behaviour, and reinforcing and praising behaviour if there is progress. They also suggested the importance of making it easy and convenient for teachers to participate. It is suggested by Bainton et al. (2016) and Popova et al. (2018) that motivation for teachers can be increased by linking the completion of teacher professional development to incentives such as financial rewards, awards upon completion, and clear links to career progression.

Observations: In Vanuatu, teachers and principals reported increased confidence and motivation to engage students during lessons. They attributed this change to specific training supported by the VESP investment, as well as provision of teachers' guides and resource kits. Teachers reported positive changes in student engagement also increased their confidence in teaching the new curriculum. While teachers valued the training and resources, they reported follow up support as helpful to their ongoing confidence and motivation in applying new pedagogies. At the same time, some teachers were sceptical of the benefits of using the new curriculum, particularly in relation to use of language. PILNA data indicated teachers also

reported experiencing a high amount of stress in their jobs, which may affect their attitudes towards reforms or new initiatives.

In Timor-Leste, teachers reported an increase in confidence and motivation because of observation, feedback and general support for planning and preparation from school leaders and mentors through ALMA, in addition to participation in peer learning groups. Teachers said that confidence in their practice resulted in part from increased knowledge about teaching provided through ALMA. A key risk factor, however, was for teachers and school leaders to maintain motivation to continue program activities and pedagogies after the period of active implementation by mentors.

In Laos, the study evidence pointed to a positive shift in levels of teachers' confidence and awareness of the new curriculum pedagogies, and this was attributed to the BEQUAL-supported orientation training and teacher guide. Some teachers also linked their increased confidence to a perception that students were learning more effectively. While many teachers generally had a positive view of the new curriculum and showed enthusiasm about implementing it, there were examples of teachers who showed resistance to the changes or reverted to their old teaching practices. The mindset of teachers to adapt to the new curriculum was reported as a key challenge, which contributed to a lack of teacher motivation for self-development and adaptability. Some participants raised other issues affecting teacher attitudes to the new curriculum, including teachers' limited knowledge and capacity, access to resources and support, and encouragement from their principal.

Lessons learned to inform future programming: A key finding from each study is that while teacher knowledge and teaching practices have improved, teachers need to be encouraged to continue along their learning pathway and provided with ongoing support to do so. These include further opportunities for professional learning, reinforcement and praise from principals, and a school culture that prioritises improving teaching and learning. Aligning policies to completing teacher professional development, such as financial rewards and career progression opportunities can assist. This area also brings to fore the importance of 'strategic communication', to ensure teachers themselves understand the reform, the link to learning, and their role in the change process.

4. Teacher development in the future

This study series has explored the conditions of success and challenges to success for teacher professional development programs in three countries. At the heart of these investments in teacher professional development is the notion of systemic reform – doing things better in a way that will improve teaching and teachers' experiences with reform – with improving student learning at the centre. While investments in teacher professional development have improved teaching and learning in some school communities, a key question is how to improve outcomes at scale.

Approaching teacher professional development with systems thinking encourages considering how teacher professional development, system and contextual factors can work together, rather than constrain each other. The international literature and the study findings suggest coherence between different parts of the education system are critical to effective and sustainable teacher professional development: "Any reform has different components that need to be in sync in order to make

change effective and sustainable” (Steiner-Khamsi, NORAAG, 2023). Indeed, a reform should not only be scaled up but scaled deep, such that gaps and conflicting policy and operational areas are identified and addressed (McLean and Gargani, 2019; Steiner-Khamsi, 2023).

Further, the international literature points out the importance of teacher professional development being designed to be adaptable and flexible to context (Sims et al, 2021; Henessy et al, 2022). A one-size-fits-all perspective is not adequate to address the complexity of learning and equity crises learners face (Faul and Savage, 2023). Moreover, as Sims et al. (2021) observed, in practice teacher professional development is often implemented with low fidelity and adapted to local needs and constraints. For example, teachers may adapt the new curriculum and pedagogical approaches in ways that are more familiar and require less effort to implement (King and Gove, 2023). This observation certainly aligns with the those garnered from each country study. How to ensure these adaptations are effective and beneficial needs to be considered. Such approaches need to consider moving from ‘best practice’ to ‘best fit’ whereby ‘best fit’ programs are optimally adapted to different educational, political, social and economic contexts with local actors who lead and sustain change (Faul and Savage, 2023). One example of this is ALMA in Timor-Leste where existing GTP mechanisms were a platform for more resourced peer learning within schools and school clusters.

“While tempting to package work into a series of ‘best practices’ that could be replicated, the primary lesson illustrates that successful work with systems is guided by a series of principles, while choice of actions and processes is thoroughly adaptive over time” (Liposek et al, p. 42, 2023 in Faul and Savage). One of the key lessons learned from the teacher studies is that complex problems require local engagement, and sensitivity to local context is critical for interventions to have a chance of being successful (Faul and Savage, p. 10, 2023).

In summarising the findings and lessons learned from these country studies, Table 5 presents a strategy for future thinking in program design. It is recognised that the education system in each country presents its own challenges in terms of budget, implementation, and political, social, cultural and economic context. However, it is also recognised that learning from shortcomings provides an opportunity to move toward more effective teacher learning and professional practice in the future. Table 5 depicts a state of ‘moving away from’ the accepted or current way of doing things to a state of ‘moving toward’ change that might impact system coherence, motivation and a mindset that considers the local and specific experiences of teachers, leaders and their schools. While there are many characteristics that are common among teacher professional development programs, a key consideration is how such programs are a ‘best fit’ within a particular context.

Table 5a: Strategies for future thinking in teacher development investment – System level

Moving away from	Moving toward
System level	
<ul style="list-style-type: none"> Alignment between systems’ policies and operations 	
Operating a ‘best practice’ program to demonstrate what it can do but not engaging with all units in a ministry of education or working only with those who are ‘on board’.	Co-designing and collaborating with representatives across a system to develop and implement a strategy that embeds a vision for reform across a ministry of education and education system actors, and endeavours to align policies and operations across the teacher professional development program.
Implementing reform interventions that do not seek to address gaps and conflicting policy and operational systems.	

<ul style="list-style-type: none"> Strategic communication 	
Implementing a large-scale reform that is not thoroughly communicated to actors at all levels of the system.	Implementing a well-planned strategy that communicates intent and highlights key changes and benefits of a new reform through engaging with national, local and community levels, as well as encouraging feedback loops at each level.
<ul style="list-style-type: none"> Professional learning structures and support 	
Providing one-off training and resource provision (due to limited budgets) for teachers and school leaders that signify a change in pedagogies and curriculum.	Working with government to commit to long-term resourcing and budgeting for a system that supports continuous and ongoing professional learning, reflecting an understanding that teachers and school leaders need to have sustained follow up about new pedagogies and curriculum to fully adapt to new practices.
Providing resources as part of a program to support teacher professional development and curriculum reform.	Providing high quality teaching and learning resources that are supported with aligned teacher professional development to ensure teachers understand how to draw on and use the resources well.
Rolling out technology supported professional learning initiatives.	Investing in technology as part of a broader strategy that: gives access to technology (hardware and software); complements curriculum, resources, training and peer learning initiatives; and provides appropriate and sustained support for teachers to develop confidence and skills in using technology.
<ul style="list-style-type: none"> Middle-tier leadership 	
Incentivising leaders/advisers to focus on monitoring and supervising schools and teachers.	Incentivising instructional leaders/advisers to mentor or coach teachers and school leaders, role-model good practices, and provide constructive feedback that builds the professional skills of teachers, and providing them with appropriate skills and adequate supporting infrastructure to do this well.
Encouraging leaders/advisers to focus on collecting student learning data and enforcing schools' accountability.	Encouraging instructional leaders/advisers to collect and use evidence, such as student learning data, to target interventions and inform teachers' professional learning needs especially content and pedagogies teachers are struggling with.

Table 5b: Strategies for future thinking in teacher development investment – Parent and community level

Moving away from	Moving toward
Parent and community level	
<ul style="list-style-type: none"> Engaging communities and parents to support learning 	
Assuming that parents know how to and are able to provide support for student learning.	Actively engaging parents and communities as key stakeholders in any education reform process, showing them how they can support their children's learning.

Table 5c: Strategies for future thinking in teacher development investment – School level

Moving away from	Moving toward
School level	
<ul style="list-style-type: none"> • Role of teacher colleagues within and across schools 	
Recognising that peer learning groups and communities of practice are important for teachers and leaders to learn from one another.	Bolstering peer learning groups as relatively low resource and high value interventions to support learning, by establishing them at regular time slots and ensuring teachers can access colleagues with expertise and experience.
<ul style="list-style-type: none"> • Role of leadership 	
Recognising that school leaders manage activities, implement new curriculum and reform, and distribute resources and materials to teachers.	Investing in school leaders' leadership skills to facilitate a shift towards instructional leadership that embraces core principles that facilitate teaching quality and student learning through facilitation of professional learning opportunities, strengthening collaboration within and between schools and ensuring teachers have the time to learn new practices.

Table 5d: Strategies for future thinking in teacher development investment – Teacher level

Moving away from	Moving toward
Teacher level	
<ul style="list-style-type: none"> • Expertise and experience of teacher 	
Distributing resources and one-off training to support teachers regardless of their experience, levels of qualification, or classroom context.	Designing teacher professional development that is adaptive and ongoing to take into account the highly varied levels of experience and qualifications of teachers, and contexts in which they work.
<ul style="list-style-type: none"> • Participation 	
Assuming that a new teacher professional development program will provide a welcome opportunity for change in teaching and learning.	Acknowledging that teachers bring a range of experiences, values and attitudes to their work, and that clear messaging, opportunities for professional learning, reinforcement and incentives can help motivate teachers to continue learning.

The study findings also point to important lessons for DFAT in how its investment strategies in teacher professional development are underpinned. These are outlined in Table 6.

Table 6: Strategies to underpin DFAT investments in teacher development

Moving away from	Moving toward
Investments that include short-term teacher development initiatives only.	An understanding that changes to teaching quality and student learning requires sustained and focused investment over multiple years.
Assuming that teacher professional development will improve teaching quality and student learning.	Investing in robust M&E systems at the program and systems level that systematically capture outcomes-level data to provide evidence of quality and impact (including changes to teacher knowledge, attitudes and practices, and changes to student learning), and using that evidence to feed back into better targeted continuous professional learning.
Scaling up ‘best practice’ approaches.	Considering ‘best fit’ approaches which entail supporting program revisions informed by ongoing M&E, and facilitating adaptations to local contexts in ways that are effective and beneficial.
Considering teacher development investments as isolated investments.	Considering the wide range of policies and operations that intersect with teacher development investments, understanding areas of alignment and conflict and actively engaging in those policy areas.

The global learning crisis and the urgent need for quality education has been highlighted by education stakeholders in recent years and reflected in Sustainable Development Goal 4 of the *2030 Agenda for Sustainable Development*. COVID-19 disruptions have placed even greater focus on the learning improvement agenda, and the need to ensure disadvantaged children are not further left behind. Teacher development, and improving teaching quality, therefore is at the heart of many education systems’ policies and programs. Teaching is complex and demanding, and there is a need to understand how teachers can be better supported to improve teaching quality, and ultimately improve student learning.

This study series provides evidence about the impact of DFAT’s investments in teacher development and contributes to insights in LMICs about how teacher development investments can be more effective. It highlights how teacher professional learning can work together with system and contextual factors to lead to better outcomes and acknowledges the importance of local engagement and sensitivity to local context as critical to the effectiveness of investments and their sustainability. It provides a set of strategies for future thinking related to teacher development investments, and highlights how these need to be underpinned with sustained investment and robust systems to capture evidence of quality and impact.

References

- Akyeampong, K., Andrabi, T., Banerjee, A., Banerji, R., Dynarski, S., Glennerster, R., Grantham-McGregor, S., Muralidharan, K., Piper, B., Ruto, S., Saavedra, J., Schmelkes, S., & Yoshikawa, H. (2023). *2023 Cost-Effective Approaches to Improve Global Learning—What does recent evidence tell us are “Smart Buys” for improving learning in low- and middle-income countries?* FCDO, the World Bank, UNICEF, and USAID. <https://thedocs.worldbank.org/en/doc/231d98251cf326922518be0cbe306fdc-0200022023/related/GEEAP-Report-Smart-Buys-2023-final.pdf>
- Allier-Gagneur, Z., McBurnie, C., Chuang, R., & Haßler, B. (2020). *Characteristics of effective teacher education in low- and middle-income countries: What are they and what role can EdTech play?* <https://doi.org/10.5281/ZENODO.4762301>
- Altinyelken, H. K. (2010). Pedagogical renewal in sub-Saharan Africa: The case of Uganda. *Comparative Education*, 46(2), 151–171. <https://doi.org/10.1080/03050061003775454>
- Angrist, N., Aurino, E., Patrinos, H.A., Psacharopoulos, G., Vegas, E., Nordjo, R. & Wong, B. (2023). Improving learning in low- and lower-middle-income countries. *Journal of Benefit-Cost Analysis*, 10(S1). <https://doi.org/10.1017/bca.2023.26>
- Asim, M., Mundy, K., Manion, C., & Tahir, I. (2023). The “Missing Middle” of Education Service Delivery in Low- and Middle-Income Countries. *Comparative Education Review*, 67(2), 353–378.
- Bainton, D., Barrett, A. M., & Tikly, L. (2016). *Improving Secondary School Teacher Quality in Sub-Saharan Africa* (No. 3; Bristol Working Papers in Education). University of Bristol.
- Berry, A. (2022). *Reimagining Student Engagement: From disrupting to driving*. USA: SAGE Publications Inc.
- Bett, H. K. (2016). The cascade model of teachers’ continuing professional development in Kenya: A time for change? *Cogent Education*, 3(1), 1139439. <https://doi.org/10.1080/2331186X.2016.1139439>
- British Council. (2015). *Technology for professional development: Access, interest and opportunity for teachers of English in South Asia*. British Council. https://www.britishcouncil.in/sites/default/files/digital_teachers_report_final_low_res.pdf
- Carvalho, S., Rossiter, J., Angrist, N., Hares, S., & Silverman, R. (2020). *Planning for School Reopening and Recovery after COVID-19: An Evidence Kit for Policymakers*. Center for Global Development. <https://www.cgdev.org/sites/default/files/planning-school-reopening-and-recovery-after-covid-19.pdf>.
- Cassity, E., Chainey, J. & Rothman, S. (2019). *Teacher development multi-year study series: Timor-Leste: Interim Report 1*. Department of Foreign Affairs and Trade (DFAT) Education Analytics Service. <https://research.acer.edu.au/eas/54>
- Cassity, E., & Chainey, J. (2020). *Teacher development multi-year study series: Timor-Leste: Interim report 2*. DFAT Education Analytics Service. <https://research.acer.edu.au/eas/54>
- Cassity, E., Chainey, J., & Wong, D. (2022). *Teacher development multi-year study series. Timor-Leste: Final Report*. DFAT Education Analytics Service. <https://research.acer.edu.au/eas/54>
- Cassity, E., Cheng, J., & Wong, D. (2021). *Teacher development multi-year study series. Vanuatu: Interim report 1*. DFAT Education Analytics Service. <https://research.acer.edu.au/eas/54>

- Cassity, E., Chainey, J., Cheng, J., & Wong, D. (2022). *Teacher development multi-year study series. Vanuatu: Interim report 2*. DFAT Education Analytics Service. <https://research.acer.edu.au/eas/54>
- Christenson, S.L., Reschly, A.L. & Wylie, C. (2012). *Handbook of Research on Student Engagement*. New York, Dordrecht, Heidelberg, London: Springer.
- Cilliers, J., Fleisch, B., Prinsloo, C., & Taylor, S. (2018). *How to Improve Teaching Practice? Experimental Comparison of Centralized Training and In-classroom Coaching*. Research on Improving Systems of Education (RISE). <https://www.riseprogramme.org/publications/rise-working-paper-18024-how-improve-teaching-practice-experimental-comparison>
- Comba, R. (2021). *School Principals in Highly Effective Schools – Who are they and which good practices do they adopt?*, Policy Brief. UNICEF Office of Research - Innocenti, Florence. https://www.unicef-irc.org/publications/pdf/DMS_Lao_PDR_School-principals-in-highly-effective-schools-who-are-they-and-which-good-practices-do-they-adopt.pdf
- Darling-Hammond, L., Hyler, M. E., & Gardner, M. (2017). *Effective Teacher Professional Development* (p. 76) [Research Brief]. Learning Policy Institute. https://www.yu.edu/sites/default/files/inline-files/Effective_Teacher_Professional_Development_REPORT.pdf
- DFAT. (2015). *Investing in Teachers*. DFAT. <https://www.dfat.gov.au/sites/default/files/teacher-development-evaluation.pdf>
- Faul, M. & Savage, L. (2023). *Systems Thinking in International Education and Development*. Norrag Series on International Education and Development.
- Fernandez, A., & Shaw, G. (2020). Academic Leadership in a Time of Crisis: The Coronavirus and COVID-19. *Journal of Leadership Studies*, 14(1), 39–45. <https://doi.org/10.1002/jls.21684>
- Global School Leaders. (2020). *A review of Empirical Research on School Leadership in the Global South*. <https://static1.squarespace.com/static/58af429103596eb1eb5acace/t/5f20710484df25368418907b/1595961610688/GSL+Evidence+Review+Report.pdf>
- Gouëdard, P., Pont, B., & Viennet, R. (2020). *Education responses to COVID-19: Implementing a way forward* (OECD Education Working Papers 224; OECD Education Working Papers, Vol. 224). <https://doi.org/10.1787/8e95f977-en>
- Hardman, F., Ackers, J., Abrishamian, N., & O’Sullivan, M. (2011). Developing a systemic approach to teacher education in sub-Saharan Africa: Emerging lessons from Kenya, Tanzania and Uganda. *Compare: A Journal of Comparative and International Education*, 41(5), 669–683. <https://doi.org/10.1080/03057925.2011.581014>
- Hardman, F., Hardman, J., Dachi, H., Elliott, L., Ihebuzor, N., Ntekim, M., & Tibuhinda, A. (2015). Implementing school-based teacher development in Tanzania. *Professional Development in Education*, 41(4), 602–623. <https://doi.org/10.1080/19415257.2015.1026453>
- Haßler, B., Hennessy, S., & Hofmann, R. (2018). Sustaining and Scaling Pedagogic Innovation in Sub-Saharan Africa: Grounded Insights For Teacher Professional Development. *Journal of Learning for Development*, 5(1), 58–78.
- Hattie, J. & Zierer, K. (2019). *Visible Learning Insights*. London and New York: Routledge.
- Hennessy, S., D’Angelo, S., McIntyre, N., Koomar, S., Kreimeia, A., Cao, L., Brugha, M., & Zubairi, A. (2022). *Technology Use for Teacher Professional Development in Low- and Middle-Income*

- Countries: A systematic review. *Computers and Education Open*, 3, 100080.
<https://doi.org/10.1016/j.caeo.2022.100080>
- Holland, M., Long, L., & Regan, L. (2012). *Implementing the thematic curriculum in Uganda: Implications for teacher education*. Teacher education in sub-Saharan Africa: Closer perspectives. Oxford: Symposium Books.
- Hollingsworth, H., Cassity, E., Wong, D. & Cheng, J. (2017). *Teacher Development Multi-Year Studies: Conceptual Framework*. DFAT Education Analytics Service.
<https://research.acer.edu.au/eas/54/>
- Hollingsworth, H., Wong, D., Cassity, E., Anderson, P., & Thompson, J. (2022). *Teacher development multi-year study series. Evaluation of Australia's investment in teacher development in Lao PDR: Interim report 1*. DFAT Education Analytics Service.
<https://research.acer.edu.au/eas/54/>
- Kaffenberger, M., & Spivack, M. (2022). *System Coherence for Learning: Applications of the RISE Education Systems Framework*. Research on Improving Systems of Education (RISE).
https://doi.org/10.35489/BSG-RISEWP_2022/086
- King, S. & Gove, A. (2023). Why scaling “What Works” usually doesn’t work for foundational literacy programs. *Education for All Blog*, GPE. <https://www.globalpartnership.org/blog/why-scaling-what-works-usually-doesnt-work-foundational-literacy-programs#:~:text=Findings%20when%20applying%20a%20behavioral%20science%20lens&text=These%20individuals%20had%20personality%20characteristics,works%20usually%20do%20not%20work>.
- Klem, A.M. and Connell, J.P. (2004). Relationships Matter: Linking teacher support to student engagement and achievement. *Journal of School Health* 74(7), 262-273.
- Kraft, M.A. & Hattie, J. (2021). Interpreting education research and effect sizes. *Educational Leadership* 78(8).
- Lall, M. (2011). Pushing the child centred approach in Myanmar: The role of cross national policy networks and the effects in the classroom. *Critical Studies in Education*, 52(3), 219–233.
<https://doi.org/10.1080/17508487.2011.604072>
- Lawson, M.A. and Lawson, H.A. (2013). New conceptual frameworks for student engagement research, policy, and practice. *Review of Educational Research* 83(3), 432-479.
- Lemos, R., Muralidharan, K., & Scur, D. (2021). *Personnel management and school productivity: Evidence from india*. National Bureau of Economic Research.
- Lipovsek, V., Poswell, L., Morrell, A., Pershad, D., Vromant, N., & Grindle, A. (2023). Reflections on systems practice: Implementing teaching at the right level in Zambia. In M. Faul & L. Savage (Eds.), *Systems Thinking in International Education and Development* (pp. 27–46). Edward Elgar Publishing. <https://doi.org/10.4337/9781802205930.00012>
- Major, L., & Watson, S. (2017). Using video to support in-service teacher professional development: The state of the field, limitations and possibilities. *Technology Pedagogy and Education*, 27(1), 49–68. <https://doi.org/10.1080/1475939X.2017.1361469>
- Mangaleswarasharma, R. (2017). Teacher motivation and job satisfaction: A study on teachers in three districts in northern Sri Lanka. *People: International Journal of Social Sciences*, 3(1), 314–323.

- Maruyama, T. (2022). Strengthening Support of Teachers for Students to Improve Learning Outcomes in Mathematics: Empirical Evidence on a Structured Pedagogy Program in El Salvador. *International Journal of Educational Research*, 115, 101977. <https://doi.org/10.1016/j.ijer.2022.101977>
- McAlevy, T., Hall-Chen, A., Horrocks, S., & Riggall, A. (2018). *Technology-supported professional development for teachers: Lessons from developing countries*. Education Development Trust. <https://www.educationdevelopmenttrust.com/our-research-and-insights/research/technology-supported-professional-development-for->
- McLean, R., & Gargani, J. (2019). *Scaling impact. Innovation for the public good*. New York: Routledge. <https://idrc-crdi.ca/en/book/scaling-impact-innovation-public-good>
- Nooruddin, S., & Bhamani, S. (2019). Engagement of School Leadership in Teachers' Continuous Professional Development: A Case Study. *Journal of Education and Educational Development*, 6(1), 95–110. <https://doi.org/10.22555/joeed.v6i1.1549>
- Orr, D. (2013). *What are the impacts and cost-effectiveness of strategies to improve performance of untrained and under-trained teachers in the classroom in developing countries?: Systematic review*. EPPI-Centre, Social Science Research Unit, Institute of Education, University of London.
- Piper, B., Simmons Zuilkowski, S., Dubeck, M., Jepkemei, E., & King, S. J. (2018). Identifying the essential ingredients to literacy and numeracy improvement: Teacher professional development and coaching, student textbooks, and structured teachers' guides. *World Development*, 106, 324–336. <https://doi.org/10.1016/j.worlddev.2018.01.018>
- Pont, B., Nusche, D., & Hunter, M. (2008). *Improving school leadership, volume 1 policy and practice: Policy and practice* (Vol. 1). OECD publishing.
- Popova, A., Evans, D. K., Breeding, M. E., & Arancibia, V. (2018). *Teacher Professional Development around the World: The Gap between Evidence and Practice*. World Bank. <http://elibrary.worldbank.org/doi/book/10.1596/1813-9450-8572>
- Popova, A., Evans, D. K., Breeding, M. E., & Arancibia, V. (2021). Teacher Professional Development around the World: The Gap between Evidence and Practice. *The World Bank Research Observer*, 37(1), 107–136. <https://doi.org/10.1093/wbro/lkab006>
- Power, T., Hedges, C., McCormick, R., & Rahman, S. (2019). *Evidence-based approaches to improving teachers' skills, in schools serving poor and marginalised communities*. Pan-Commonwealth of Learning Forum.
- Power, T., Shaheen, R., Solly, M., Woodward, C., & Burton, S. (2012). English in action: School based teacher development in Bangladesh. *The Curriculum Journal*, 23(4), 503–529. <https://doi.org/10.1080/09585176.2012.737539>
- Revina, S., Putri Pramana, R., Fillaili, R., & Suryadarma, D. (2020). *Systemic Constraints Facing Teacher Professional Development in a Middle-Income Country: Indonesia's Experience Over Four Decades*. Research on Improving Systems of Education (RISE). https://doi.org/10.35489/BSG-RISE-WP_2020/054
- Rossignoli, S., Ameyna, D., Kamana, D., Tiganescu, A., & Kudenko, I. (2020). *Teachers Learning Together: Large-scale approaches to teacher communities of practice*. Education Development Trust.

<https://www.educationdevelopmenttrust.com/EducationDevelopmentTrust/files/7c/7c40a2f7-4fa2-41d6-a21e-6f3635b1a72a.pdf>

- Schleicher, A. (2018). *World Class: How to Build a 21st-Century School System*. OECD.
<https://doi.org/10.1787/9789264300002-en>
- Sharma, N. (2013). An exploration of teachers' beliefs and understanding of their pedagogy. *Unpublished MPhil Dissertation, Tata Institute of Social Sciences, Mumbai*.
- Shohel, M. M. C., & Power, T. (2010). Introducing mobile technology for enhancing teaching and learning in Bangladesh: Teacher perspectives. *Open Learning: The Journal of Open, Distance and e-Learning*, 25(3), 201–215. <https://doi.org/10.1080/02680513.2010.511953>
- Sims, S., & Fletcher-Wood, H. (2018). *Characteristics of effective teacher professional development: What we know, what we don't, how we can find out [Journal Article]*.
<https://improvingteaching.co.uk/wp-content/uploads/2018/09/Characteristics-of-Effective-Teacher-Professional-Development.pdf>
- Sims, S., & Fletcher-Wood, H. (2021). Identifying the characteristics of effective teacher professional development: A critical review. *School Effectiveness and School Improvement*, 32(1), 47–63.
<https://doi.org/10.1080/09243453.2020.1772841>
- Sims, S., Fletcher-Wood, H., O'Mara-Eves, A., Cottingham, S., Stansfield, C., Van Herwegen, J., & Anders, J. (2021). *What are the Characteristics of Teacher Professional Development that Increase Pupil Achievement? A systematic review and meta-analysis*. Education Endowment Foundation. <https://educationendowmentfoundation.org.uk/education-evidence/evidence-reviews/teacher-professional-development-characteristics>
- Steiner-Khamsi, G. (2023). *The System Transformation Turn in international Cooperation*. *Norrag Blog*. <https://www.norrag.org/the-system-transformation-turn-in-international-cooperation/>
- Timperley, H. (2007). *Teacher professional learning and development: Best evidence synthesis iteration (BES)*. Ministry of Education.
https://thehub.swa.govt.nz/assets/documents/42432_TPLandDBESentireWeb_0.pdf
- Tournier, B., Chimier, C., & Jones, C. (2023). *Leading Teaching and Learning Together: The Role of the Middle Tier*. *Education Development Trust*.
- Vaillant, D. (2015). School leadership, trends in policies and practices, and improvement in the quality of education. *Education for All Global Monitoring Report*, 1, 1–15.
- Viennet, R., & Pont, B. (2017). *Education policy implementation: A literature review and proposed framework* (OECD Education Working Papers 162; OECD Education Working Papers, Vol. 162). <https://doi.org/10.1787/fc467a64-en>
- Westbrook, J., Durrani, N., Brown, R., Orr, D., Pryor, J., Boddy, J., & Salvi, F. (2013). *Pedagogy, Curriculum, Teaching Practices and Teacher Education in Developing Countries. Final Report. Education Rigorous Literature Review* (p. 151) [Education Rigorous Literature Review]. Department for International Development.
<https://eppi.ioe.ac.uk/cms/Portals/0/PDF%20reviews%20and%20summaries/Pedagogy%202013%20Westbrook%20report.pdf?ver=2014-04-24-121331-867>
- Wolfenden, F., Adinolfi, L., Cross, S., Lee, C., Paranjpe, S., & Safford, K. (2017). *Moving towards more participatory practice with Open Educational Resources (OER): TESS-India Academic Review*

- (p. 26). The Open University. https://www.oerknowledgecloud.org/archive/TESS-India%20Academic%20Review%20Final%20130617_0.pdf
- Wong, D., Hollingsworth, H., Anderson, P., Weldon, P. R., Ockwell, L., Kwong, R., & Ozolins, C. (2021). *Teacher Development Multi-Year Study Series: Evaluation of Australia's Investment in Teacher Development in Lao PDR: Baseline Report*. DFAT Education Analytics Service. <https://research.acer.edu.au/eas/54/>
- Wong, D., Hollingsworth, H., Anderson, P., Goundar, P., & Mercer, A. (2023). *Teacher Development Multi-Year Study Series. Evaluation of Australia's investment in teacher development in Lao PDR: Final report*. DFAT Education Analytics Service. <https://research.acer.edu.au/eas/54/>
- Woodward, C., Griffiths, M., & Solly, M. (2014). English in Action: A new approach to continuing professional development through the use of mediated video, peer support and low-cost mobilephones in Bangladesh. In *Innovations In The Continuing Professional Development Of English Language Teachers* (pp. 227–248). British Council. <https://linkinghub.elsevier.com/retrieve/pii/S0346251X15000925>
- World Bank. (2018). *World Development Report 2018: Learning to Realize Education's Promise*. World Bank.