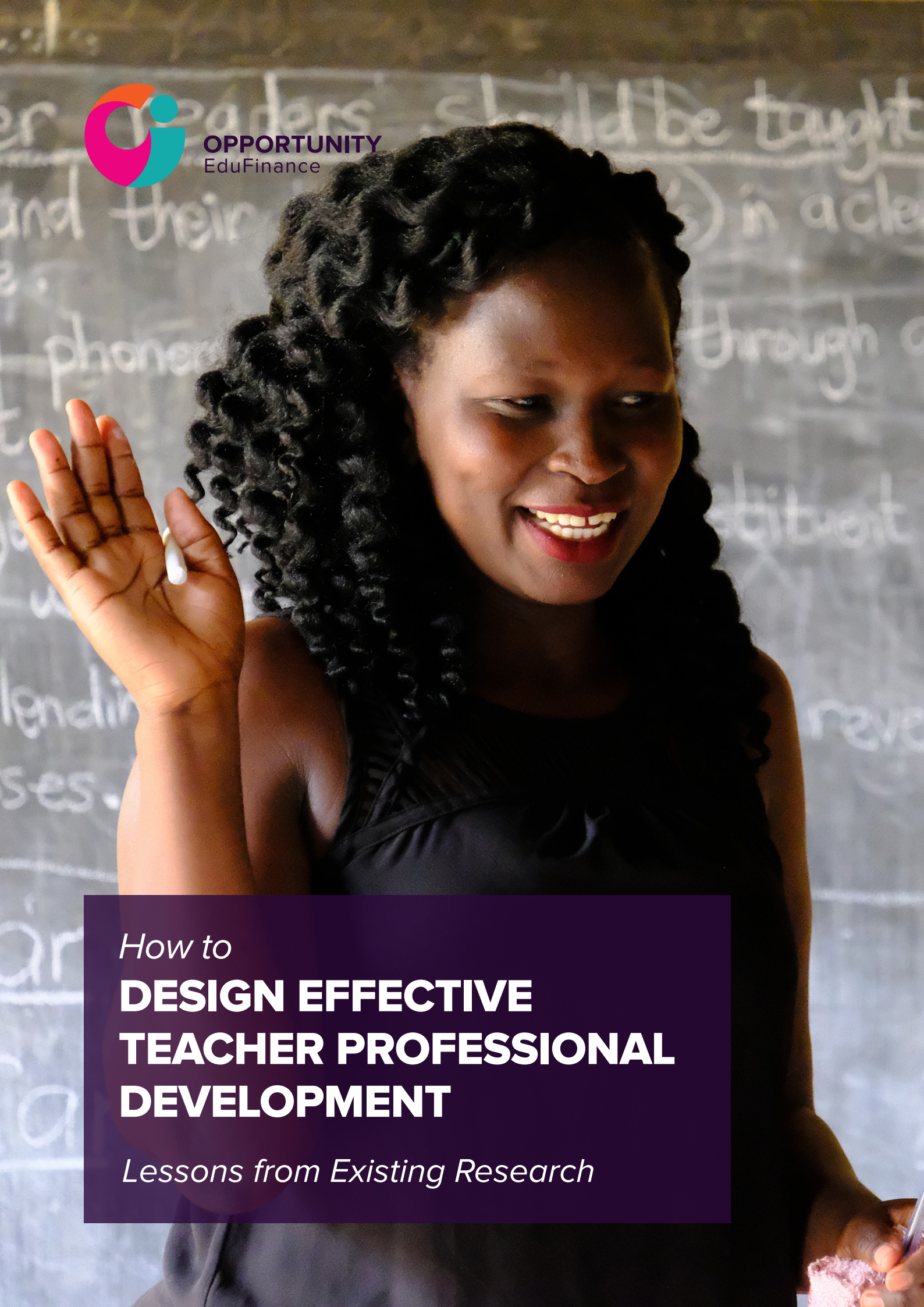

OPPORTUNITY
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How to

DESIGN EFFECTIVE TEACHER PROFESSIONAL DEVELOPMENT

Lessons from Existing Research

How to

DESIGN EFFECTIVE TEACHER PROFESSIONAL DEVELOPMENT:

Lessons from Existing Research

What are the necessary design considerations for teacher training programs to improve student learning outcomes?

Despite the positive impact that capable, qualified teachers have on learning outcomes in low- and middle-income countries (LMICs), many teachers lack the training and support necessary to develop their capacity. Through its holistic three-year EduQuality program, Opportunity EduFinance delivers school leader and teacher professional development and peer coaching to approximately 1,900 schools annually.[1] Over the years, EduQuality has made continuous efforts to ground its program in best practices and lessons learned from other contexts. This evidence brief sets out to answer these critical questions on teacher training and professional development in LMICs. What can we learn from existing research on successful teacher training programs? What makes these programs effective, and how can these lessons be applied in practice to ensure EduQuality continues to improve learning outcomes for disadvantaged students?

Studies agree that one of the most important elements of any education intervention is the capacity of its teachers (Conn 2017, Glewwe and Muralidharan, 2015; Evan and Popova, 2016). As Conn (2017) finds, it is essential that teacher training be implemented alongside any other type of educational intervention, as teachers are important drivers of improvements to student learning. Interventions such as reducing class size or textbook provision presume that teachers know how to best take advantage of these changes. Likewise, teacher pay-for-performance schemes are known to be effective in many cases (Muralidharan and Sundararaman, 2011; Duflo, Hanna, & Ryan, 2012), but they assume that teachers know *how* to improve the performance of their students.

[1] Opportunity International Impact Report, 2022.

Effective teacher training and professional development is therefore critical to ensuring education interventions achieve their objectives. Despite this necessity, many teacher training programs do not ultimately result in improved learning outcomes. This evidence brief reviews the literature to synthesize the conditions necessary for teacher training and professional development to improve student learning outcomes. It discusses three considerations for teacher training interventions and the implications for applying these findings to policymaking and program design in practice.

1. **Guarantee training includes practical components and applications**
2. **Train teachers in teaching to student learning levels**
3. **Utilize peer-to-peer approaches**

1. Guarantee training includes practical components and applications

Research indicates that teacher training programs are most effective when they allow teachers to see, test, and apply new teaching practices in the context of their own classroom (Allier-Gagner, 2020; Popova, 2018; World Development Report 2018; Cimini et al, 2020; Evan and Popova, 2016; Haßler, 2017). The most effective program designs build in significant opportunities for teachers to visualize and experience the training content in a real classroom setting (Allier-Gagner, 2020; Popova, 2018). There are multiple ways to design programs that allow teachers to apply their training to practice. Effective teacher training generally incorporates many, if not all, of the following strategies within the same intervention:

- **Offer school-based training programs,** rather than trainings at external venues, so that teachers can more easily understand training content in the context of their own schools (Allier-Gagner et al, 2020; Popova, 2018).
- **Ensure teacher training programs are ongoing,** rather than one-off sessions, as this gives teachers the opportunity to test, practice, and reflect on new techniques over time (Allier-Gagner et al, 2020; Popova, 2018; World Development Report 2018; Evan and Popova, 2016).
- **Incorporate interactive participation and active group work in training sessions** rather than passive lectures (Popova and Arancibia, 2016; Allier-Gagner et al, 2020). Some studies have found training programs that allow time for trainees to practice their new skills in small group settings have the greatest impact on changing teacher practices and learning outcomes (Allier-Gagner et al, 2020).
- **Link training content to a specific method, task, or activity,** rather than strictly theoretical content (Evan and Popova, 2016). Studies find that "generic" guidance has very little impact on learning outcomes, whereas training that provides explicit instructions in how to implement a tool or activity has much larger effects (Evan and Popova, 2016; Murnane and Ganimian 2014; He, Linden, and MacLeod 2009).

- **Provide accompanying instructional materials.** In addition to linking training content to specific in-class activities, studies have shown that providing accompanying step-by-step teacher guides, instructional materials, and tools for lesson planning can help teachers better understand how to use the new techniques they are trained in (Angrist et al, 2020; Allier-Gagner et al, 2020; Haßler et al, 2020; McEwan, 2013).
- **Accompany training with classroom observations** from a trainer or mentor, who visits a trainee in their classroom and discusses their teaching in action (Orr et al, 2013; Popova, 2018). Follow-up visits should focus on reviewing the material that was learned during the training session, rather than monitoring (Popova, 2018).
- **Provide opportunities for mentorship and coaching** in which experienced teachers pass on real-world techniques and strategies they have used successfully. Effective mentorship programs include classroom observation to tailor feedback to a teacher's classroom experience (Cimini et al., 2020; Sharma et al, 2013; Haßler et al, 2020).

There is extensive research demonstrating how the above strategies have been deployed to successfully improve teaching quality and learning outcomes. In one qualitative study, Mukeredzi (2016) finds that most teachers consider the "experiential domain" and "learning by doing" as one of the most effective approaches to training, most often achieved through interactive group work and hands-on activities. Likewise, in a large-scale study covering 139 teacher training programs in 14 countries, Popova (2018) finds that professional development activities that included lesson enactment saw a 0.10 standard deviation increase in student learning. Linking training content to specific tasks and providing accompanying instructional materials is also important. For example, He et al. (2009) explore a successful program in Mumbai that trained teachers to use a specific literacy methodology, as well as providing accompanying activities and step-by-step instructions on how to use them.

Coaching and mentorship have also been shown to be an effective model for teacher professional development. Similar to teacher training workshops, **mentorship programs are most effective when they include a classroom observation component**, in which

Incorporating practical applications of professional development is a key part of the EduQuality program through the use of structured lesson plans and materials, classroom observation, and teacher mentors.

mentors observe teaching to understand a trainee's strengths and weaknesses and provide individualized feedback specific to their classroom experience (Wilichowski and Popova, 2021). For example, in Brazil, Bruns et al. (2018) conducted a randomized experiment in which teachers received expert coaching paired with classroom observation feedback. The program had a positive impact on learning outcomes, with treatment schools performing significantly better than control group schools on math, literacy, and national high school exit exams. There are several other examples of effective teacher mentorship programs that include regular coaching and classroom observations,

for example in Kenya (Ochanji et al. 2017) and Pakistan (Hussain and Ali 2010; Rizvi and Nagy, 2015) and Peru (Majerowicz and Montero, 2018).

Important to all these examples of training programs is an emphasis on explicitly guiding teachers in how to apply their learnings to real-world classroom scenarios. Further, many studies show clear evidence that combining a variety of the above practical techniques and strategies may have the greatest impact (Sharma et al. 2013; Orr et al, 2013). For example:

> "After every teacher mentor training, once we learn a strategy there, we come and share it with other teachers. As a result we have really improved on discipline and the level of the learners"
>
> **– Yvonne Ochieng**
> School Leader & Teacher Mentor

- One pilot project in Pakistan incorporated a multi-pronged approach involving interactive workshops, follow-up visits, in-classroom support from mentors, and peer-to-peer cluster meetings, all of which combined to result in positive impacts for inclusive education (Awan et al., 2010; Sharma et al. 2013).
- Likewise in Kenya, Ochanji et al. (2017) highlights that teacher mentorship programs function best when used to supplement existing training content with in-classroom individualized feedback.
- Another study in Kenya found that teacher professional development activities that were not accompanied with structured teacher guides for lesson-planning had a relatively low impact compared with those with accompanying materials (Haßler et al, 2020; Piper et al., 2018).

Implications for policy and practice

- **Consider the ongoing costs of training, mentorship, and classroom observation during program design:** Ongoing professional development has been found to be significantly more effective than one-off teacher training programs because it allows more time for teachers to test and practice new techniques (Allier-Gagner et al, 2020). However, ongoing training, mentorship, and classroom observation are likely to be more expensive than one-off workshops that have a single fixed cost. As such, practitioners and funders should build these ongoing costs into program design from the outset. If cost-saving mechanisms are needed, they should maintain a continuous approach (such as using train-the-trainer models to reduce training costs) rather than resorting to one-off programs that are less effective.
- **Pair teacher training programs with support for school leaders:** Despite coaching and mentorship being successful strategies to build teacher capacity, not all school leaders have the tools to provide teachers with effective mentorship (Conn, 2017). As such, studies show that teacher training programs should be implemented alongside training for school leaders, giving leadership the tools to provide effective feedback and coaching for their teachers (Sampat et al., 2020; World Development Report, 2018; Cimini et al., 2020).

2. Train teachers in teaching to student learning levels

In addition to using a practical approach to training, research shows that the content of the teacher training also matters in improving learning. Studies have found that effective teacher training includes content in how to understand student learning and tailor teaching to student learning levels (Sharma et al, 2013; Ulla et al, 2017; Angrist et al, 2020; Haßler, 2017; Allier-Gagner et al, 2020; Popova, 2018). This includes training programs focused on Teaching at the Right Level (Angrist et al, 2020), student-centered teaching (Ulla et al, 2017), and creating inclusive environments (Sharma et al, 2013; Haßler, 2017). Training teachers in how to implement student-centered pedagogies is essential, as teachers must know how to assess and understand how their students learn to target instruction and tailor content to their educational needs (Angrist et al, 2020; Allier-Gagner et al, 2020).

Teaching at the Right Level (TaRL)

"Teaching at the Right Level" (TaRL) is an approach developed by the Indian NGO Pratham that focuses instruction based on student learning levels rather than age or grade. It can be used by NGO staff, volunteers, paid tutors, and teachers in both public and private schools (Banerjee et al. 2007; Banerjee et al. 2010; Duflo 2017; Banerjee et al. 2016). Evaluations of this approach have shown that it is consistently effective when implemented systematically. For example, it allowed learning camps in Uttar Pradesh to double the number of children who could read within 40 days after teachers received support from government resource persons trained by Pratham, while in Haryana, there was an improvement in language skills within 40 days (Banerjee et al, 2016).

In order for TaRL approaches to be effective, the pedagogy must be accompanied with sufficient training for teachers. Banerjee (2016) identifies three key principles in supporting TaRL instructors:

- Conduct a short initial training lasting four days to two weeks to introduce teachers to the necessary skills of how to maximize children's learning and how to utilize TaRL classroom methodologies. The content of these sessions varies across contexts but there is an emphasis on using interactive, engaging, and participatory approaches that are also used in TaRL classrooms.
- Maintain respectful communication and open discussion between trainers and teachers. Trainers must be actively encouraging, understanding, and engaging with participants to allow for training to deepen the grasp on the TaRL approach. Such discussions also allow trainers to create a link between classroom challenges and solutions provided by TaRL.
- Provide instructors with ongoing support to ensure the successful implementation of TaRL. Teachers' learning should not end with initial training; instead, regular feedback and on-site training is required to build trust in this approach and maintain their capacity in maintaining and implementing classroom activities (Banerjee, 2016; Duflo, 2017).

Several governments and NGOs in Sub-Saharan Africa, in partnership with Pratham, have successfully implemented this approach. In Zambia, TaRL has expanded the Ministry of General Education's "Catch Up" program to

1,900 schools while in Nigeria, it was adapted to support home-based learning after the outbreak of COVID-19 from April 2020 to January 2021. In Côte d'Ivoire, TaRL Africa is supporting the Ministry of National Education and Literacy to deliver and grow the Programme d'Enseignement Ciblé [Program of Targeted Instruction] (PEC). Other countries using TaRL-inspired programs are Botswana, Ghana, Kenya, Madagascar, Niger, Sierra Leone, South Africa, Tanzania, and Uganda (Banerjee, 2016).

Student-centered teaching

In addition to TaRL, there are other pedagogical approaches that teachers can be trained in that help them better tailor their instruction to student learning levels. NORC (2019) and Sharma et al (2013) also highlight the importance of training teachers in how to create more inclusive environments in their classrooms, for example by working in small groups in which students are encouraged to participate without fear of making mistakes. This can ultimately ensure lower-level students are engaged. Other programs aim to train teachers in how to better assess student levels so they have the information required to target learning. For example, teachers in Liberia were trained in how to use an initial reading assessment, and then how to continuously assess their students' reading progress (Piper and Korda, 2011). Likewise, programs that introduce adaptive EdTech software and train teachers in how to use it have been effective in improving learning (Muralidharan et. al. 2019). These strategies can help ensure teachers have the tools to tailor their instruction to the varying levels of learning in their classrooms.

Implications for policy and practice

- **Encourage national-level policies to support student-centered teaching:** TaRL and other student-centered approaches often require buy-in at the policy level before they can be implemented in schools. TaRL – in which students are grouped by level rather than age – usually requires that education policymakers spearhead and oversee this approach to classroom organization and instruction. Likewise, other student-centered approaches, such as the use of EdTech for adaptive learning software, also require buy-in from national policymakers if they are to be procured and scaled (Muralidharan et. al. 2019). As such, policymakers should be encouraged to adapt these changes at the national or district level to kickstart TaRL or student-centered efforts for the greatest impact.
- **Consider incentives to motivate teachers to apply new methods:** Practitioners implementing teacher training should consider accompanying training with incentives, such as salary increases or cash grants, to help motivate behavior change (Angrist et al, 2020; Popova and Arancibia, 2016; Muralidharan & Sundararaman, 2011; Duflo, Hanna, & Ryan, 2012). Even when training programs are thoughtfully designed to be practical and applicable, student-centered pedagogical approaches are often very different from what teachers are used to, and some may lack the motivation to make significant changes to their daily practices on top of existing workloads (Haßler, 2017; 2020). Salary incentives or other pay-for-performance techniques can be used alongside student-centered training to help encourage teachers to change their practices.

3. Utilize peer-to-peer approaches

A third necessary condition for effective teacher professional development is to ensure these programs include elements of peer-to-peer learning. Studies have shown that peer-to-peer exchange is essential for teachers to share new techniques and ideas, support one another on challenges to improve morale, develop common goals, and build a culture of shared commitment and motivation (Allier-Gagner et al, 2020; Haßler, 2017; Haßler et al, 2020; Orr et al, 2013; Cimini et al, 2020). Often referred to as cluster-based professional development or professional learning communities (PLCs), peer-based training can also be more cost-effective than one-on-one coaching and is easier to scale for long-term impacts (Ding et al. 2022). As highlighted above, continuous professional development – rather than one-off training – is critical to sustaining positive impacts, and cluster-based approaches ensure that learning continues organically in the daily lives of teachers, rather than only during training sessions (Jita, 2014).

Peer-to-peer teacher professional development has been widely utilized across LMICs and has had a significant impact on teacher quality and learning outcomes. In South Africa, the Mpumalanga Secondary Science Initiative uses a cluster-based approach to teacher professional development which has since been institutionalized across the Mpumalanga province (Jita, 2014). In a qualitative study, Jita (2014) finds that the cluster-based program helped teachers engage more deeply with the curriculum, collaborate more effectively on lesson planning, and share their unique expertise in different subject areas. The clusters also encouraged teachers to create better linkages between different elements of teaching such as lesson planning, in-class instruction, and student assessments – interconnections that are often overlooked but that are critical to ensuring student learning (Jita, 2014).

Other studies have found significant increases in learning outcomes for students in schools that use cluster approaches. For example, in two different states in Nigeria, Nwagbara (2014) and Jacob (2015) both found that a cluster-based teacher professional development

Implications for policy and practice

- **Consider existing capacity:** When designing peer-based approaches to professional development, practitioners must consider the availability and capacity of group facilitators and school leaders to drive the process forward (Ding et al, 2022). Despite the proven success of many peer-to-peer approaches, Jita and Ndlalane (2009) and Clercqo and Phiti (2013) argue that there are certain preconditions for them to be effective on their own. Peer- and cluster-based learning are predicated on quality teacher-led interactions and require a highly qualified and motivated facilitator or cluster group leader to spearhead this process in addition to school leaders who are committed to creating a culture of learning and reflection within the school.
- **Utilize peer-to-peer approaches to complement other training:** Considering the limitations discussed above, peer-to-peer learning should be used to *complement* existing in-service training rather than aiming to fully replace it. As highlighted above in Zambia, *Lesson Study* was designed to complement an existing in-service training program rather than to operate as a parallel, separate project (Jung et al. 2016). Practitioners should thus consider the in-service training that teachers may have already received and design peer-based activities that build off existing modules rather than introducing new material.

program resulted in a significant increase in student test scores. Moreover, the cluster approach improved teachers' job satisfaction and motivation, leading to higher rates of retention (Adeyanju, 2016; Ayodele and Govender, 2018). Likewise in Zambia, a peer-to-peer approach to training called *Lesson Study* saw significant impacts on learning outcomes and teacher performance (Jung et al., 2016). Teachers met once a month to collaborate, identify challenges in their classroom, jointly develop lesson plans to address them, and to practice delivering the lesson while other teachers observed and offered constructive feedback. At the end of the pilot period, pass rates for participating schools were 12.4 percent higher in physics and 19.2 percent higher in biology compared to other schools. Critical to its success, the authors highlight how the program was "entirely teacher led and teacher driven. There were no trainers or trainees; instead, teachers were at the center and forefront of the *Lesson Study* approach as key change agents." (Jung et al., 2016, pg. 7).

Research in Practice:

How Does EduQuality Apply Lessons from Research to Program Design?

EduQuality strives to incorporate lessons from research into its existing activities and future program planning. Our Education Specialists work with school leaders to incorporate the above design considerations into schools' teacher professional development to best improve student learning outcomes.

1. **Practical Applications: Teacher Mentorship and Classroom Observation**
   EduQuality uses a training-of-trainers model (ToT) to equip teacher mentors to train their peers through professional development sessions, classroom observations and feedback, and ongoing coaching methods. Teacher mentors attend trainings on foundational teacher training topics, including classroom management, teaching and learning, and literacy. They then support their fellow teachers by providing ongoing coaching and mentorship in these foundational topics. School leaders also provide ongoing feedback to teachers and identify areas for improvement through classroom observation.
2. **Student-Centered Teaching**
   Through the EduQuality approach, school leaders receive guidance on how to train teachers in creating student-centered learning environments, namely by providing tailored, individualized feedback to learners. In 2022, 89% of schools reported providing consistent, student-centered feedback to their learners including areas of learner weakness and clear steps to take towards improvement (Opportunity EduFinance, 2022b).
3. **Peer-to-Peer Approaches**
   When schools agree to join the EduQuality program, they self-select into clusters consisting of 4-12 schools per cluster. School leaders are guided through this process and encouraged to join peer clusters within their geographic area, ensuring they can regularly meet together to create communities of collaboration, support, and leadership development.

School self-assessments completed annually by leaders show how EduQuality school partners have made improvements in these areas over the past three years. In the coming years, EduQuality will continue to apply lessons from research on ways school leaders can provide effective, consistent, impactful teacher professional development.

For more information on EduQuality's work in teacher and school leader training, visit: https://edufinance.org/what-we-do/education-quality

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