GPE KIX BRIEF

The Global Partnership for Education Knowledge and Innovation Exchange

POLICY AND PRACTICE INSIGHTS

STRENGTHENING TEACHER PROFESSIONAL DEVELOPMENT

GPE KIX
KNOWLEDGE INNOVATION EXCHANGE

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Canada

TPD

A synthesis of 11 research projects supported by GPE KIX and IDRC in 41 countries offers practitioners and decision-makers effective strategies and recommendations for strengthening teacher professional development.

Photo: GPE/ Carine Durand

Even before millions of learners' education was disrupted by the COVID-19 pandemic, education experts worldwide warned of a "learning crisis" across the Global South. As of 2017, UNESCO had already flagged that too many children and adolescents were failing to achieve minimum proficiency levels in reading and mathematics, despite earlier advances in school access.

Teachers are key to solving this learning crisis. Improving student performance and learning outcomes depends on their attitudes, content knowledge and abilities. Governments increasingly acknowledge the importance of investing in teacher professional development (TPD) to help teachers stay up to date, improve their practices and use proven education innovations. Yet the effectiveness of in-service training has been called into question for its limited impact on student learning. This is largely due to the persistent use of outdated pedagogical practices.

Considerable research has shown that improving learning outcomes demands a shift from traditional top-down models of pedagogy toward student-centred learning. This entails equipping teachers with both a mastery of core curriculum content — such as mathematics and reading — and innovative teaching skills to meet the needs of diverse learners and help children thrive in the 21st century.

THE RESEARCH

From 2020 to 2024, the Global Partnership for Education (GPE) Knowledge and Innovation Exchange (KIX) supported nine research projects that generated new knowledge by testing and assessing innovations in TPD in 20 low- and middle-income countries. These projects aimed to improve teaching practices, foster professional collaboration and scale successful TPD models in resource-constrained environments. Most also incorporated elements of digital learning, with some relying heavily on ICT tools to reach significant numbers of teachers in remote settings. Two earlier projects supported by the International Development Research Centre (IDRC) also broke ground in testing innovative digital learning and teaching approaches at scale in 21 other countries.

Approaches differed across these 11 projects. Some focused on adapting and scaling existing TPD innovations, including through the use of ICTs, while others combined innovations to create new interventions. Another group collaborated with local stakeholders to design innovations from the bottom up, responding to priority needs and challenges in teaching and learning. All used participatory research approaches to engage and involve stakeholders in identifying challenges and testing possible solutions, suited to the local context.

APPLIED RESEARCH PROJECTS ON TEACHER PROFESSIONAL DEVELOPMENT

1. **Connected Learning for Teacher Capacity Building in STEM** (CL4STEM) in Bhutan, Nigeria and Tanzania
2. **Strengthening School-Based In-Service Teacher Mentorship and Support** (SITMS) in Kenya, Tanzania and Zambia
3. **Teaching at the Right Level: Learning How to Improve Teacher Support Through Mentoring and Monitoring** (Teaching at the Right Level) in Côte Ivoire, Nigeria and Zambia
4. **Science, Technology, Engineering and Mathematics (STEM) Teacher and Student Education for Primary Schools** (STEPS) in Benin, Cameroon and Democratic Republic of the Congo
5. **Improving Community Teacher Development in the Digital Era** (PARI) in Cameroon, Chad and Central African Republic
6. **A Multi-modal Approach to Teacher Professional Development in Low-Resource Settings** (MATPD) in Afghanistan, Maldives and Nepal
7. **Strengthening Teachers' and School Principals' Capacity for Scaling Innovation from the Bottom Up in the Education System in the Caribbean** (Strengthening Capacity for Scaling Education Innovation in the Caribbean) in Haiti and Saint Lucia
8. **Adapting and Scaling Peer Tutoring for Teachers and School Leaders for Equitable Rural Education** (TEPA) in Honduras and Nicaragua
9. **TPD@ScaleAdapting and Scaling Teacher Professional Development Approaches in Ghana, Honduras and Uzbekistan** (TPD@Scale) in Ghana, Honduras and Uzbekistan
10. **Digital Learning for Development** (DL4D) in Cambodia, China, Indonesia, Jordan, Mongolia, Nepal, Pakistan and the Philippines
11. **Supporting Teacher Professional Development at Scale** (TPD@Scale IDRC) across the Global South

KEY FEATURES OF EFFECTIVE TPD PROGRAMS

Based on interviews, reports and background literature related to these 11 projects, a research synthesis commissioned by GPE KIX highlights the following key features of effective TPD programs:

- **A focus on both curriculum content and pedagogy.** Content mastery is crucial to the quality of instruction and student performance. Likewise, understanding the pedagogies best suited to each subject and the teaching environment is essential for adapting teaching strategies to students' needs and the educational context.
- **Use of active adult learning strategies.** Effective TPD considers how teachers learn and encourages them to reflect on their teaching practices, engage with new ideas and relate them to their previous experiences and knowledge. Examples include observing effective teaching demonstrations, analyzing student work or engaging in peer observations.
- **Support for peer collaboration and learning.** Research findings and teachers' own views emphasize the importance of collaboration in effective TPD. Collaborative learning promotes continuous professional development and facilitates the establishment of professional communities, which play a crucial role in sustaining autonomous, self-led TPD processes.
- **Use of expert instructors and facilitators.** Effective TPD requires facilitators who are well-versed in professional learning strategies and understand classroom dynamics. Experienced educators are important in designing learning experiences, facilitating collaborative work and professional communities, and serving as coaches in school-based support programs.
- **Long-term support to teachers.** While there is no standard for program duration, it is clear that short-term courses or workshops do not lead to lasting changes in teaching practices. Alternating between training and in-class practice, supported by mentors or study groups, is more likely to result in the successful adoption of new practices.

Photo: GPE/ Paul Martinez

IMPACTS OF ENHANCED TPD MODELS

This body of research demonstrated that a range of enhanced TPD models could strengthen both teaching and learning. Based on their assessment of contextualized TPD programs, which included new instructional materials and professional development strategies such as peer coaching, mentorship and collaborative learning, GPE KIX projects observed positive outcomes at multiple levels, benefitting teachers, learners, school leaders and education systems.

INCREASED TEACHER ABILITY TO FOSTER STUDENT-CENTRED LEARNING

To better address learners' diverse needs, research teams worked with various innovations to shift teaching away from traditional top-down pedagogy toward more student-centred approaches.

In Honduras and Nicaragua, for example, TEPA's peer tutoring approach transformed classroom dynamics, emphasizing interaction, active learning, intrinsic motivation and healthy social-emotional connections. As a result, students developed their metacognitive skills, gaining self-awareness, self-esteem and autonomy.

In Kenya, Tanzania and Zambia, SITMS, which focused on secondary-level mathematics instruction, strengthened teachers' pedagogical skills and critical reflection on teaching and learning processes through a contextualized in-school mentoring and training program. It reported positive impacts on teachers' knowledge, attitudes and practices, particularly in adopting student-centred teaching strategies. Changes were observed at multiple levels, including in students' classroom engagement and stronger interest in mathematics; in the school environment, thanks to the adoption of a collaborative learning culture; and in teachers' ability to integrate interactive teaching strategies, which empowered learners to contribute meaningfully to the learning process. Peer-to-peer interactions and team teaching flourished, creating a supportive ecosystem where knowledge was co-created between teachers and students.

Key findings from MATPD show that teachers' increased using of student-centered pedagogical practices boosted student interest and engagement across all subjects, helping them to understand and visualize concepts more comprehensively.

IMPROVED STRATEGIES TO PROMOTE INCLUSION AND EQUITY IN THE CLASSROOM

Teachers need effective training and guidance to address gender inequalities in education and ensure that learners are not disadvantaged by their socioeconomic status, physical or learning abilities, or other factors.

SITMS implemented modules that sought to promote gender equity based on baseline studies that identified the lack of female role models in areas such as mathematics. It addressed gender barriers by including female tutors and adapting teaching materials. STEPS, which also focused on strengthening STEM teaching, used materials with gender-affirmative language and content that modeled positive female roles in mathematics and sciences. It selected gender-informed open-source curricular materials to address barriers for female students and make visible the unconscious biases that perpetuate gender gaps in education.

In Bhutan, Nigeria and Tanzania, CL4STEM — which focused on improving higher order thinking skills in math and science teaching — saw substantial improvements in the instructional strategies used by trainers and teachers to promote inclusion and equity in the classroom.

In Afghanistan, MATPD worked with teachers in low-resource settings to improve their ability to integrate students with diverse abilities into classroom activities, ensuring equal learning opportunities through appropriate pedagogical strategies and classroom management. The project's involvement of government agencies responsible for teacher training has helped to anchor new knowledge on creating more inclusive schools so it can serve future TPD programs.

TAPPING SCHOOL LEADERSHIP TO SUPPORT PEDAGOGICAL INNOVATION

While most projects targeted teachers for professional development, several also engaged with school leaders as an essential means to foster a school culture that supports TPD and values collaboration, communication and continuous learning.

In Côte d'Ivoire, classroom observations conducted through the Teaching at the Right Level project revealed that success in implementing TPD innovation in participating schools depended on the level of involvement by principals and pedagogical advisors in mentoring and coordination.

In Haiti and Saint Lucia, where the Strengthening Capacity for Scaling Education Innovation in the Caribbean project worked with instructors and school leaders to help them foster innovation, researchers reported an increase in principals' support for teacher-led innovation activities and for networking opportunities to discuss and share findings from innovation activities in their schools. In Haiti, the project also fostered greater participation and leadership by female teachers in these innovation activities and networking opportunities, which enhanced their sense of agency.

NEW WAYS TO REACH TEACHERS IN REMOTE, LOW-RESOURCE AND MULTI-LINGUAL CONTEXTS

Education systems in many low- and middle-income countries struggle to provide adequate training to teachers because they lack infrastructure and the resources to invest. Many are multi-lingual and need to provide TPD in multiple languages and formats. Teachers in rural and remote areas are among the hardest to reach. GPE KIX projects assessed and scaled various technologies to support TPD in areas with limited resources, including through phone calls, text messaging and learning management systems.

In West and Central Africa, PARI widened access to TPD by designing a digital platform that lets trainers and teachers connect in their national languages — French and English for Cameroon, French and Arabic for Chad, and French and Sango for the Central African Republic.

TPD@Scale developed an analytical framework for considering key factors when scaling hybrid and ICT-mediated TPD to serve rural and remote areas. New training models were adapted and adopted in each participating country. In Ghana, for example, the Moodle platform of the National Teaching Council was adapted and is now used to offer government-designed course content to 60,000 teachers. In Honduras, a self-guided mathematics course designed through the project is now offered as a cost-effective, technology-mediated way to improve the pedagogical skills of middle-school teachers.

While these ICT-enabled innovations offer the potential to reach more teachers with diverse needs at lower cost, research also highlighted that it is essential to consider local infrastructure and adapt the technology and approaches used to ensure accessibility.

UPTAKE OF PROVEN TPD INNOVATIONS WITHIN NATIONAL EDUCATION SYSTEMS

Innovations supported by GPE KIX research evidence were adopted in a number of participating countries to strengthen TPD within national education systems.

In Uzbekistan, results from the TPD@Scale project on ICT-mediated professional development fed into a reform of regulations governing in-service training, which, until then, had been structured around 178-hour distance courses and follow-up exams that teachers had to take once every five years.

In Côte d'Ivoire, the Ministry of Education has identified Teaching at the Right Level as their preferred remedial approach in their foundational learning strategy; they have begun integrating it into pre-service education, including through hybrid training. In Zambia, the Ministry of Education is developing an overarching plan to reach national scale and in Nigeria, scaling and institutionalization of this approach are being carried out within individual states.

Through CL4STEM, the CLIx open-source online TPD learning model has been adopted, with some variations, in all three countries where it was piloted. In Bhutan, the government decided to implement this innovation with all secondary school mathematics and science teachers through a cascade model. In Nigeria, Niger State has committed to using it in training 1,000 mathematics and science teachers, and one of the project implementing partners was invited to train secondary school teachers in Oyo State. In Tanzania, the government will implement CLIx in most secondary schools in Iringa State.

RECOMMENDATIONS FOR POLICY AND PRACTICE

The following recommendations are derived from the experiences and findings of this wealth of research, and aim to guide the design and implementation of TPD programs.

1 Build on students' learning needs.

- Professional development should focus on improving student learning outcomes, addressing specific gaps identified through data analysis.
- Teachers should be trained to effectively use formative assessment so they can adapt their teaching to students' learning needs.
- Teachers need to master different instruction strategies to meet the diverse learning needs within a classroom.

2 Prioritize teachers who work with marginalized groups.

- TPD programs should prioritize teachers who work in disadvantaged areas or those working with students at risk of educational exclusion.
- Programs should equip these teachers to address the unique challenges of their settings, such as managing multilingual and multicultural classrooms, integrating learners with disabilities, dealing with gender bias, or teaching with limited tools, materials and resources.

3 Select cost-effective innovations with scaling potential.

- Focus on TPD interventions that have already demonstrated success in low- and middle-income countries and have proven cost-effective for broader implementation, such as those tested through GPE KIX research.
- Scale strategically, using evidence from rigorous evaluations to identify interventions that have significantly improved teacher practices and student learning. Examples of proven approaches include peer coaching, mentorship programs and collaborative professional learning models.
- Implement TPD innovations in phases, allowing for iterative learning and adjustment based on feedback and outcomes at each stage.
- Where appropriate, use technology platforms to deliver TPD at scale, such as through online courses, virtual collaboration tools or digital libraries, which can be more cost-effective than in-person methods. It is crucial to consider user preferences and what will work in a given setting. Depending on the context, low- or high-tech options — or hybrid models — may best suit users' needs and resources.

4 Build alliances with stakeholders.

- Teachers are primary stakeholders in any TPD innovation. Understanding their characteristics and expectations is essential to ensure educational innovations are relevant.
- Collaborating with teachers' colleges and universities is essential to ensure pre- and in-service teacher training aligns with the latest educational research and best practices.
- School leaders must also be equipped to drive TPD programs. Their leadership entails fostering participation, nurturing professional communities, providing feedback and integrating TPD into their school's ongoing improvement efforts. Involving school leaders in the innovation process can facilitate wider uptake of new concepts and methodologies into classroom practices.
- Strategic alliances can help sustain TPD innovations. Partnerships with government bodies, local and international education organizations, teachers' unions, private sector partners and technology companies can help to secure support for TPD.
- Building relationships with decision-makers and opinion leaders to advocate for integrating successful TPD models into national or regional education strategies can help to shore up political support and long-term funding.

5 Evaluate, improve...and evaluate again.

- Establishing ongoing monitoring and feedback mechanisms to track the effectiveness of TPD programming allows for real-time adjustments and resource reallocation.
- In addition to gathering qualitative insights from teachers and students, education authorities should use available data on student achievement to target TPD programs and strategically allocate resources.
- Local communities should be consulted so that local education challenges and community needs guide the selection of TPD programs, ensuring they are relevant and likely to achieve impact.

These policy insights are drawn from Teacher Professional Development: A Research Synthesis.

The Global Partnership for Education (GPE) Knowledge and Innovation Exchange (KIX) is a joint endeavour between GPE and the International Development Research Centre (IDRC) that aims to ensure partner countries have and use the evidence and innovation they need to accelerate access, learning outcomes and gender equality through equitable, inclusive and resilient education systems fit for the 21st century.

Five synthesis reports were commissioned by GPE KIX to consolidate evidence across research projects conducted between 2020 and 2024. Topics include: data systems and data use; early learning; gender equality, equity and inclusion; teacher professional development; and out-of-school children and youth.

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