



**TPD@SCALE
COALITION**
FOR THE GLOBAL SOUTH

A FRAMEWORK FOR STRENGTHENING TEACHER PROFESSIONAL DEVELOPMENT SYSTEMS WITH ICT

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Acronyms

AI	artificial intelligence
EMIS	education management information system
GES	Ghana Education Service
GPE KIX	Global Partnership for Education Knowledge and Innovation Exchange
ICT	information and communications technology
LMS	learning management system
MTs	Master Teachers
NTC	National Teaching Council (Ghana)
PLC	professional learning communities
SISOs	School Improvement Support Officers
TPD	teacher professional development
TPD@Scale	teacher professional development at scale
UNESCO	United Nations Educational, Scientific and Cultural Organization
VLEs	virtual learning environments

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About the framework

Purpose of this framework

Teacher professional development (TPD) is an essential component in the transformation of teaching and learning to meet the targets of Sustainable Development Goal 4.

The purpose of this framework is to support countries in strengthening their TPD systems by harnessing the power of information and communication technologies (ICT). It provides a way of thinking about how to effectively incorporate ICT in the design and implementation of professional learning programs for all teachers in ways that address equity concerns and take account of contextual factors.

For whom is the framework intended?

The framework is intended for use by government education policymakers and other key stakeholders working with teacher educators, teachers, teacher representatives and other national education agencies. It could also be used by development partners to diagnose the needs of country TPD systems. It is relevant to all education systems in the Global South.

As our country case studies will show, the collaborative development of the framework across various countries has engaged a wide array of stakeholders, emphasizing its broad applicability. In Ghana, it is being used as a diagnostic tool for government agencies to refine TPD policies, showcasing its utility in guiding evidence-informed policy-making. In Honduras, the framework provided education specialists and university researchers with new perspectives on designing and implementing TPD, adding to their understanding of its multifaceted nature. Meanwhile, in Uzbekistan, UNESCO specialists have utilized the framework to align their education strategies with the key drivers of TPD, addressing both current and anticipated challenges, and filling the gaps where coordinated action with the government is needed.

What does the framework include?

The framework consists of **six supporting pillars**:



Policies



ICT



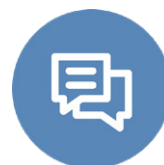
Supporting
capacities



Learning
design



Partnership



Communication
channels

We have identified these six pillars as important TPD system factors that should be considered when aiming to affect sustainable improvements in TPD systems through the effective deployment of ICT. Equity is a seventh pillar that is embedded in all the other pillars. The pillars are highly interconnected and when using the framework, it is important to consider the interplay and interdependencies between the pillars; tensions can emerge as changes are made in any one pillar.

The description of each pillar is followed by a small number of questions that can serve to prioritize actions towards coherence, equity and quality while improving TPD systems with ICT or scaling ICT-mediated TPD. Examples from the field illustrate aspects of each pillar.

Using the framework

The framework is intended to be a living tool to guide the process of reform and regeneration of TPD systems at local, regional or national level. We suggest three steps:

- **Analyze and evaluate:** Assess whether the TPD system currently maintains equitable management of these individual pillars and use the framework to guide the prioritization of expertise, resources and energy towards greater equity, quality and efficiency in TPD.
- **Target action:** Use the framework to plan and implement actions to scale the use of ICT in TPD to improve teachers' classroom skills.
- **Monitor and review progress:** Use the framework to help refine TPD systems over time through continuous improvement cycles of act, evaluate and adapt.

How was the framework developed?

The framework draws on international research and fieldwork findings from the Global Partnership for Education Knowledge and Innovation Exchange (GPE KIX) multi-site empirical TPD@Scale research project, [“Adapting and Scaling Teacher Professional Development Approaches in Ghana, Honduras, and Uzbekistan.”](#) This study sought to identify how ICT can be utilized at scale to improve equity, quality and efficiency in TPD systems.

The framework was developed by international experts including researchers, practitioners and representatives of national agencies. It builds on the TPD@Scale Coalition for the Global South's working paper, [“TPD@Scale: Designing Teacher Professional Development with ICTs to Support System-Wide Improvement in Teaching”](#) (Wolfenden, 2022).



Introduction

Strengthening TPD systems to support sustainable improvement in the quality of classroom teaching is a key education priority in many countries. Every teacher in every classroom in every school becoming better at teaching demands a robust TPD system that is accessible to all teachers and helps them to develop the relevant skills, knowledge and attitudes to innovate for equity in learning in their classrooms.

The TPD@Scale Coalition and the GPE KIX project that informed this framework argue that harnessing the power of ICT is critical to strengthening TPD systems. Most TPD systems and programs will already be using ICT in some form but few are currently optimizing ICT affordances to maximize equity, quality and efficiency in TPD.

This framework uses the working definition of TPD as a long-term, continuous process involving regular opportunities to “develop an individual’s skills, knowledge, expertise and other characteristics as a teacher” (OECD, 2009, p. 49). This may include formal courses, non-formal training activities (such as workshops and seminars), and informal experiences (such as participation in a professional learning community).

The purpose of TPD systems is to provide career-long opportunities for growth and development in the profession (Villegas-Reimers, 2003). A teacher education system should be a permanent component of the education system. It may be scaled up to extend reach and deepen impact during periods of reform, such as when a new curriculum is being introduced, but its existence should not be episodic nor dependent on donor funding.

TPD systems

Most contemporary scholarship and guidance on TPD focus on the structure and design of the TPD program itself (Popova et al., 2022). Drawing on what is known about the characteristics of effective TPD is important: participatory and collaborative with peers and experts; situated in teachers’ practice; and undertaken with teachers rather than “done to” teachers, thereby recognizing them as capable of critiquing, adapting and developing their professional practice in service of improvements in student learning outcomes (see the [TPD@Scale Coalition working paper](#) [Wolfenden, 2022] for further details). However, mere adoption of these characteristics within a TPD system or in large-scale programs does not necessarily lead to productive professional learning for all teachers. Similarly, many initiatives that are successful on a small scale fail when they are scaled. In both cases, designers have not taken into account factors and characteristics of the wider education system.

Teacher education systems are complex and only one part of a much larger, highly dynamic interdependent education system with multiple actors and priorities. TPD@Scale research points to the need for an approach to quality TPD that consciously attends to the characteristics of the education ecosystem within which the TPD system is located – its goals, history, norms, social representations of teachers and ICT, and so on. Detailed consideration of political, economic and relational dimensions at different levels

of the education system is needed to ensure that the TPD system within it is coherent and optimizes cost effectiveness and sustainability. Well-intentioned actions can give rise to unpredictable results because the relationships between different system components, both within and across levels, are not causal; the components are changed by interaction with each other (Faul & Savage, 2023).

Furthermore, it is critical when working at scale to be sensitive to variations in the contexts in which teachers work within the system including in terms of students' needs, teachers' working conditions, available infrastructure, school size and organization, and so on. These variations should all be considered along with differences in teachers' professional needs, digital skills, prior experiences and the diverse ways ICT is taken up by different groups of teachers. Too frequently in education systems in the Global South, particular groups of teachers not only have fewer opportunities for TPD but also find that the TPD available to them is not relevant to their professional needs or appropriate to their teaching context. These groups may include female teachers, those living or working in remote areas, teachers in small schools, teachers working in different languages, contract teachers, uncertified teachers, teachers working with indigenous/pastoral populations, teachers with disabilities, and teachers working in fragile or conflict-affected contexts. Effectively addressing the TPD marginalization of these teachers necessitates a conception of scaling that goes beyond tallying training numbers to account adequately for those teacher characteristics that hinder their participation in quality TPD. This points to the need for disruption and adaptation within large-scale TPD (Wolfenden, 2022). ICT can play a key role here.

TPD programs need to be flexible to adapt for a range of teacher characteristics and local conditions.

ICT in TPD systems

ICT has a role to play in creating, maintaining and continuously improving the architecture and working of TPD systems including, among others, enabling and supporting new pedagogical approaches, more inclusive content production and distribution, easy and rapid communication, and comprehensive data management.

ICT is understood here as the infrastructure and components that enable people and organizations to interact in the digital space. It is a broad category that encompasses an increasingly diverse array of components including, but not limited to, hardware, including older technologies such as computers and television and newer technologies such as robots and smartphones; software, including artificial intelligence (AI); data; and cloud computing. It is through the combination and application of these components that the power of ICT is realized.

The potential of ICT in TPD is through a number of overlapping affordances.

Inputs: The use of digital content enables curriculum designers to move towards full inclusion of all teachers; different versions of the content, including content in different languages, can be more easily created. In this way, teachers' diverse prior experiences and learning needs can be recognized and met. ICT also makes available to teachers the possibility of new pedagogic approaches to add to their professional classroom repertoires.

Delivery mechanisms: ICT can be used to make activities, resources and assessments available to teachers in different modalities – online, offline or hybrid – and through the use of online platforms including virtual learning environments (VLEs) such as Moodle. This allows TPD programs to be offered more flexibly and to extend over longer periods of time. Teachers can participate at times and in locations that are convenient for them, and can revisit learning episodes at any time. ICT can also be used to assist follow up with teachers.

Communications: ICT is increasingly being used by teachers to facilitate the social interactions with peers, expert mentors and coaches that are core to learning. This is particularly consequential for teachers who are professionally isolated due to geography and other factors. These connections are critical to teachers' identity as members of a professional community. Through participation in groups on instant messaging and social media platforms or in online course forums, teachers can reflect with peers on how new practices are working, what is being improved and what else may be tried for further improvement. Such collegial interaction and peer support may encourage teachers to take risks to innovate in their practice.

Tools for monitoring and planning TPD in public education systems: ICT makes it easier to manage data on teachers' participation in TPD episodes or courses and to monitor the quality of TPD offerings. It also enables teachers to contribute more easily to TPD design and content, thus facilitating a more effective match between teacher professional learning needs, past experience and learning opportunities.

However, teachers' professional learning needs, the forms of ICT available to them, their levels of digital wisdom, the student curriculum, etc., are not static but constantly evolving, prompted by factors such as education reforms, developments in technology, and changes in the external environment. TPD must be responsive to these changes to ensure that it remains relevant, equitable and affordable.

The choice of ICT must be a local decision informed by the available infrastructure, teachers' personal access (to devices and data), their level of digital competencies, and the goals of the TPD.

Improvement in TPD systems

Education systems are complex, open, dynamic and unpredictable. Components of the system (and its nested systems such as TPD) interact and are changed by these interactions with unpredictable consequences. Each system, and its subsystems, will also respond to changing circumstances and different needs. Hence, nested TPD systems and their constituent programs will need to be constantly studied and adapted rather than implemented according to a set plan and subsequently evaluated for success or failure.

Stakeholders will need to negotiate choices (adaptations) at various points in the TPD system in response to changing possibilities "to rework what matters and what is excluded from mattering" (Barad, 2003, as cited in Fenwick, 2012, p. 158) in practice in each context and at different moments in time. One approach

to this is to employ improvement cycles of act, evaluate and adapt. Through collaborative working, this approach generates shared local knowledge to support stakeholders (policymakers, education officials, teacher educators and teachers themselves) to understand how different system components are interacting with each other and with teaching professionals in diverse settings. This approach enhances the capacity and capabilities of relevant institutions and organizations and disrupts boundaries of practice of different education professionals. However, as this pillar framework emphasizes, the resulting adaptations or improvisations will take place within regulatory regimes that define desirable professional learning, often with limited resources and embedded social inequalities.

Continuous or regular study of TPD programs and systems, in partnership with teachers, is needed to inform adaptations towards greater equity and efficiency without compromising quality.

The framework

The framework is based on findings from the [GPE KIX TPD@Scale research project](#). This identified six pillars – or system dimensions – as key to strengthening TPD systems with ICT (see Figure 1).

The **six pillars** represent critical areas where TPD systems can succeed or fail in providing quality TPD in an equitable and efficient manner.

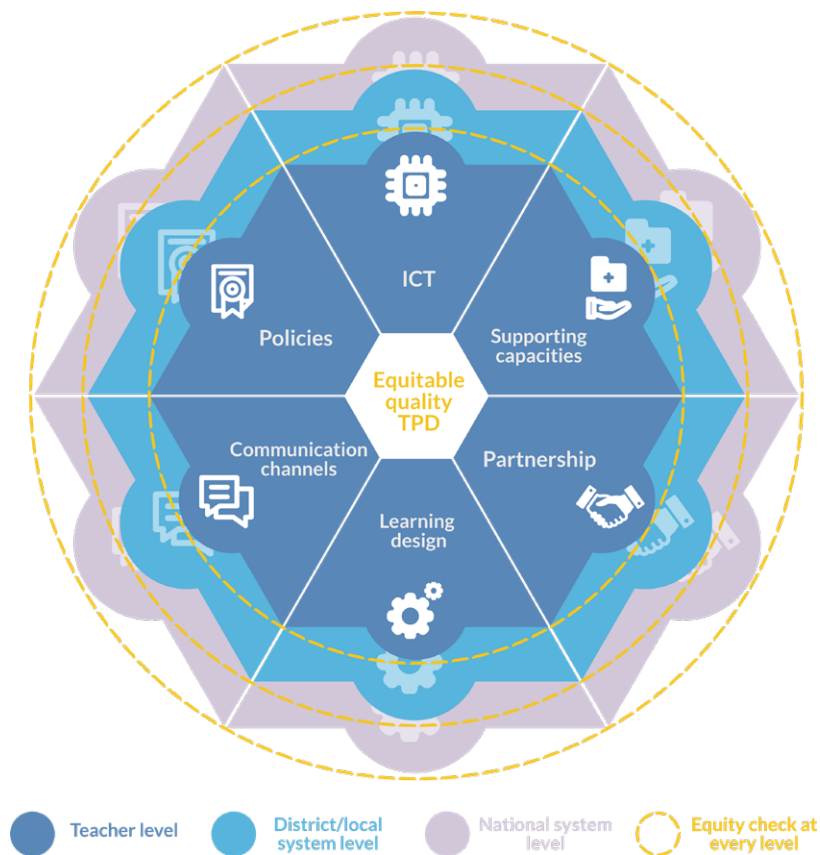


Figure 1. Visual conceptualization of the framework with the six pillars at three different levels and with equity as a cross-cutting issue

The **six pillars** have implications at multiple levels of the education system.

- At national (or sub-national) level: The broad context within which schools sit and which includes policies, structures and social representations of teachers and ICT
- At district, municipal, department or school level: The norms and practices, rules, expectations, communities of practice and collective cultural beliefs

- For individual teachers working in schools or other centers of learning: Their conditions of work, prior experiences, access to resources, attitudes, beliefs, etc.

The pillars function at different levels of the TPD system with varying degrees of intensity depending on existing system conditions.

- At national or sub-national level: Setting the conditions to offer more and better access to professional learning opportunities for all teachers
- At district, municipal or local level: Providing the right information and resources for all teachers to engage in relevant and targeted professional development activities
- At the school level: Determining the time and space for all teachers to actively participate and engage in deep collaboration in professional communities

Equity is central to the design and implementation of quality TPD systems including those that utilize the power of ICT. Equity in large-scale TPD is usually understood as an ambition to make TPD opportunities available to all teachers. However, TPD@Scale research suggests that such equity ambitions need to be expanded if TPD is to contribute to the sustainable transformation of learning and teaching. Equity questions need to be applied to all actors – TPD providers as well as TPD participants; the TPD should demonstrate equity through active participation of all teachers; and the TPD should support increased equity in pupil learning (Fletcher-Campbell & Soler, 2022). Finally, equity in TPD is not static or fixed but needs to be constantly re-imagined in each context as social, political and economic conditions change.

Equity must be integrated and evaluated through all six pillars at each level of the system.

The framework pillars

The description of each pillar is followed by a small number of questions that can serve to prioritize actions towards coherence, equity and quality while improving TPD systems with ICT or scaling ICT-mediated TPD. Examples from the field illustrate aspects of each pillar.

Pillars are connected through horizontal and vertical relationships that shape the dynamics of the TPD system. Changes made in one pillar at a particular level will have an impact on other parts of the system (levels and pillars). Some of these impacts and their outcomes may be unexpected. It is important to map and monitor the magnitude of these impacts and how they might affect equity, quality or efficiency of the TPD. This will involve continuously making choices and improvisation to minimize those impacts which are undesirable and leverage those which are beneficial to teachers and other educators. For more details on how these outcomes might emerge, see the example from Ghana ([pp. 22-23](#)).



Pillar 1: Policies

Key features

- 1.1 Policies for TDP contribute to national education goals and align with wider education policies at each level of the system.
- 1.2 Policies recognize the diversity of the teacher workforce and range of contexts in which teachers work.
- 1.3 Policies require the allocation of resources to support teacher participation in different forms of TPD as appropriate to their context and needs.
- 1.4 ICT-mediated TPD is regularly monitored and subject to continuous improvement.

An alignment of TPD policies, including those referring to ICT-mediated TPD¹, with wider education policies and ICT policies is required to ensure that TPD priorities align with broader education goals at national, municipal or district and school levels. To achieve this, *TPD policies should specify or strive to develop a clear and coherent framework for TPD that orients the actions and expected outcomes of the TPD system*. In addition, relevant policies should specify and distinguish the roles of relevant authorities involved in TPD training programs (members of the ministry of education, municipal directors, teacher trainers, headteachers, etc.).

Within any large scale TPD system there will be multiple levels of diversity. At the district or school level, there will be variations in physical and digital infrastructure, in priorities and practices, in the resources available, and in the nature of the education leadership. At the level of the teacher, there will be variation depending on each teacher's previous experiences of professional learning and teaching, and the characteristics, experiences and consequent learning needs of their students (Wolfenden, 2022). *Teachers are not a homogenous group*. This means all ICT-mediated TPD programs need to be flexible and adapted to better fit teachers' contexts, experiences, skills and professional learning needs. This is critical for moving towards equity in and through the TPD.

It is important to recognize that material and economic support are needed for equitable participation in TPD programs. Most critically, teachers need time to participate in TPD. Resources need to be made available to allow flexible adjustments to the TPD provision to enable all teachers to participate fully, in particular teachers living in remote geographical areas with poor internet connections and teachers working in challenging circumstances such as refugee camps, with multigrade classes and in single teacher schools.

It may be necessary to set up or strengthen monitoring systems to ensure that funding and other resources are used effectively and appropriately. Few countries have robust data on the costs of TPD systems, and the introduction or extension of ICT-mediated TPD can be an ideal opportunity to assess the cost implications of different TPD models. Furthermore, education systems are not static; over time, teachers will develop new digital skills and increased familiarity with ICT, and new ICT tools, devices and platforms will become available. A continuous improvement approach to the TPD system can be helpful here, i.e., a routinized structured data-driven process for improving efficiency and [equity](#).

1 The term "ICT-mediated TPD" is used to describe TPD in which ICT is used as a tool to enable the TPD activities.

Questions

- *What TPD systems are currently in place? How can ICT-mediated TPD integrate into and enhance these systems?*
- *To what extent are the professional learning needs of teachers working in marginalized or challenging conditions addressed?*
- *To what extent do TPD policies ensure that all teachers have the necessary time, social conditions of work, support and resources to participate in TPD?*
- *How effective are mechanisms to implement and monitor TPD? How might these include a cost analysis?*

BOX 1. Pillar 1 examples from the field

Ghana: Aligning ICT-mediated TPD with policy expectations (1.1)

Each TPD activity in Ghana is now being given a TPD point allocation. Based on their teaching rank (category), teachers employed by the Ghana Education Service need to meet the point target for their rank in a three-year period to renew their teaching license. This applies to all teachers regardless of their living and working conditions and their accessibility to resources. In the GPE KIX TPD@Scale project, the course materials were submitted to the National Teaching Council (NTC) for review and assessment. Through this process, the course was given a TPD point allocation. Each teacher who successfully completed the course was automatically allocated TPD points through the NTC portal. Teachers who didn't complete the entire course were awarded TPD points pro rata.

Honduras: Cost analysis of ICT-mediated TPD (1.3)

In the context of Honduras, where resources for expenses beyond teachers' salaries are limited, it is becoming crucial to establish or strengthen monitoring systems capable of providing insights into the effective and proper allocation of funds for TPD. To understand the efficiency of ICT-mediated TPD and its financial implications, a cost analysis was conducted for the ICT-mediated TPD math course delivered to over 800 teachers of lower secondary grades. This analysis aimed to assess the investment of funds of various delivery models and how scalability would become feasible.

Teams comprising members from the planning, financing and TPD units of the Ministry of Education in Honduras collaborated to compile cost-related information. They utilized a user-friendly tool provided by the Brookings Institution known as the [Childhood Cost Calculator](#). This tool enables the visualization of information based on cost categories, types of resources and investments versus recurrent costs, all of which can be useful for making informed decisions or policies that promote more equitable TPD programs.

For further details, see the [Brookings costing report](#).



Pillar 2: ICT

Key features

- 2.1 ICT tools are harnessed to mediate TPD in ways which are contextually appropriate and responsive to teachers professional learning needs.
- 2.2 Teachers and teacher educators have continuous opportunities to develop their digital skills.
- 2.3 TPD information management systems utilize ICT to record teachers' TPD experiences and their professional growth, and to link this to career progression.

Large-scale TPD programs often involve developing and sustaining an online platform and/or a repository of TPD courses and resources that teachers can access from different devices. However, ICT can be used in multiple ways beyond the scope of an online course or resources. Equitable ICT-mediated TPD will often include hybrid or blended modalities, the exact nature of which will depend on the conditions and specific professional learning needs of different groups of teachers. *For ICT to help improve equity and efficiency in TPD, it must be used in ways that are contextually appropriate and responsive.*

This pillar also refers to the development of teachers' digital wisdom, i.e., knowledge and competencies associated with effective use of a digital technology (Twining et al., 2017). This involves consideration of the context of teachers regarding their internet connection, personal devices and existing levels of digital wisdom as crucial factors when designing TPD mediated by ICT. Equity actions might include the provision of ICT devices and connectivity to schools and their localities, such as through the use of low-cost solutions.

Lastly, this pillar also includes the use of information systems to record teachers' participation in TPD and linking this to their career progression as appropriate.

Questions

- *What is the current state of ICT provision for teachers? Is this provision consistent across all geographical areas, types of school and groups of teachers? If not, why not?*
- *How are teachers currently using ICT for their professional learning? What are the current barriers to ICT use in TPD?*
- *What technology provision is needed to ensure equitable access to ICT-mediated TPD for all teachers?*
- *To what extent are all teachers able to easily access opportunities to improve their digital wisdom?*
- *Which TPD-related processes of the system could be optimized by the use of ICT? Examples of such processes include recording of TPD experiences, celebration of teachers' professional growth and communication of TPD opportunities.*

BOX 2. Pillar 2 examples from the field**Honduras: Adaptations to the ICT dimension of the TPD offering (2.1)**

Internet connectivity can be a constraint in some rural areas in Honduras, limiting teachers' access to online courses and resources. In the GPE KIX TPD@Scale project, adaptations made to the online Geometry course included making available a downloadable offline version and providing support via Zoom and WhatsApp. A bespoke chatbot was also created to give live responses to subject knowledge queries. These highlight the equity considerations taken around the use of ICT to improve the experience of teachers with their professional development.

Uzbekistan: ICT improving equitable access to TPD (2.1 and 2.3)

Even when internet penetration rates are relatively high, as in Uzbekistan, the connection is not always stable and reliable at schools or at home. The government has been responsive and has seen hybrid models as the means for reaching teachers that have limited connectivity or had limited access to TPD in the past.

ICT also powers the national learning platform and the embedded education management information system (EMIS) where records of teachers' professional development journey can be used to personalize content and maximize engagement as well as link to career progression.



Pillar 3: Supporting Capacities

Key features

- 3.1 Appropriate roles at different levels of the system are in place to provide virtual and in-person support for teachers in ICT-mediated TPD programs.
- 3.2 There is regular, high-quality professional development for staff supporting ICT-mediated TPD, modeling expectations on teachers.
- 3.3 Sufficient resources are allocated to maintain and update ICT hardware and software throughout the teacher education system.

Implementing ICT-mediated TPD at a large scale requires support from educators and other professionals at different levels of the system including those who are:

- generating digital content and innovative tools;
- managing the TPD platform;
- tutoring or mentoring teachers to provide them with content-related assistance;
- providing ICT support to teachers;
- monitoring teachers' engagement with a TPD training course and logging it into an accurate and regularly updated database;
- maintaining clear communication channels;
- continuing to support teachers' classroom practice after a TPD episode; and
- conducting monitoring and improvement of the TPD including cost-benefit analysis of a potential TPD adaptation that enhances equity, quality and efficiency at scale.

This pillar also includes provision of support to improve the socio-emotional well-being of all teachers to enable them to participate with commitment and enthusiasm in TPD.

Some of these roles may be undertaken by peer teachers supporting colleagues in their own and other schools. This experience can develop teachers' pedagogic and digital skills and contribute to career progression. However, *it is crucial to monitor who is offered these roles to ensure equality of opportunity for all teachers*. This may involve challenging assumptions about the experiences required for these roles and the ways in which the roles are practiced.

All staff involved in ICT-mediated TPD will require regular professional development alongside access to appropriate equipment and resources. It may be necessary to make changes to their terms of reference or role descriptors to recognize the shifting nature of their activity with ICT-mediated TPD and to ensure human resources are used to best effect.

Finally, when implementing and extending ICT-mediated TPD, it is important to consider total lifecycle costs, not only the initial costs but also the resources required for maintaining and updating software and hardware at national, district and school levels.

Questions

- *To what extent are there effective support mechanisms for ICT-mediated TPD at each level of the system?*
- *Are the roles of educators who support ICT-mediated TPD sufficiently well defined? For example, teachers who have a role as tutors or local teacher advisers who act as mentors or tutors. Are opportunities to apply for these roles made available to all teachers?*
- *How effective and inclusive are the systems for professional development for staff supporting ICT-mediated TPD?*
- *Do costings for ICT-mediated TPD take into account the full lifecycle costs of technology provision? And are these costs compared with those for traditional in-person workshops?*

BOX 3. Pillar 3 examples from the field

Ghana: Role adaptation (3.1)

The core roles of School Improvement Support Officers (SISOs) are supervising a small group of schools and acting as curriculum leaders in their district. One adaptation during the run of the [TPD@Scale District Partnership Model](#) was to use them as Master Trainers in school-based professional learning communities to respond to requests from teachers for increased support. The SISOs were able to visit schools and helped teachers to access different components of the online course and to share classroom examples and reflections through the online platform.

Uzbekistan: Role promotion (3.1)

Following an evaluation of the GPE KIX TPD@Scale project, the TPD model was readjusted by strengthening the role of mentors in professional learning communities. Mentors were identified as key facilitators of teachers' engagement playing an important part in teachers' practice change.

Honduras: Capacity strengthening (3.2)

The GPE KIX TPD@Scale project involved movement from a centralized to a distributed model of support for teachers involving tutors and personnel from sub-regional centers. This latter group received training on how to be tutors in this context and engage productively and sensitively with teachers.



Pillar 4: Partnership

Key features

- 4.1 Public agencies responsible for TPD and those responsible for management of schools and the teaching workforce work together to ensure a coordinated and comprehensive TPD system.
- 4.2 Opportunities for regular dialogue with teachers are securely in place.
- 4.3 Providers of ICT-mediated TPD coordinate with institutions responsible for initial teacher education.
- 4.4 All partners in ICT-mediated TPD understand and support equity in TPD and practice inclusion in their partnerships.

Collaboration between different stakeholders, including policymakers, educators, providers and other relevant actors, is essential for ensuring the effectiveness of TPD programs. In many countries there is a plethora of TPD providers and often duplication of TPD platforms and overlap in provision.

Structured coordination may be needed between relatively new government agencies responsible for TPD platforms and online TPD, and those agencies who have responsibility for teacher and school management. The latter have often traditionally organized in-person TPD at district, municipality or department level. Such collaborations ensure that two parallel but discrete systems of TPD do not operate. Through collaboration, online TPD can be made available to teachers without easy connectivity or limited digital skills in an offline or hybrid format utilizing the structures for in-person TPD. Similarly, collaboration can enable teachers who are not able to access in-person TPD to access learning experiences through online and offline digital provision.

Systems should be in place for partnership and dialogue with teachers to ensure there is a shared set of assumptions and beliefs about the purpose of the TPD, resources required and assessment mechanisms. At a national level, this may be through teacher unions or subject teaching associations. At the teacher level, dialogue through intra- and inter-school networks can support teachers' professional learning and ensure contexts and needs are taken into account in the design and implementation of ICT-mediated TPD.

Partnerships with universities and other providers of initial teacher education are also crucial to ensure continuity between pre-service and in-service teacher education particularly in terms of expectations around ICT use and peer collaboration in professional learning.

Other possible partnerships at national or sub-national level might include alliances with local and international specialist organizations and agencies (e.g., those that support children with disabilities or children from other marginalized groups), donors, development partners and private companies (e.g., mobile phone manufacturers and service providers). In all these partnerships, attention should be paid to ensuring equity in the partnership and in the joint provision.

Questions

- *To what extent is there strong coordination between different agencies involved in TPD and the management of teachers?*
- *To what extent are teachers involved as equitable partners in the design, implementation and evaluation of ICT-mediated TPD?*
- *How effective is coordination with providers of initial teacher education? How might these partnerships be enhanced to ensure coherence in the teacher education system?*
- *To what extent do local and international partners prioritize equity in their TPD partnerships and provision? How might the equity dimension be strengthened?*

BOX 4. Pillar 4 examples from the field

Revisiting multiple partnerships (4.1)

Across each country, the GPE KIX TPD@Scale research revealed a need to strengthen collaboration between agencies involved in TPD (e.g., the Avloniy Research Institute in Uzbekistan and the National Teaching Council of Ghana) and agencies or departments involved in teacher management at different levels (e.g., the Uzbekistan National Ministry of Education and the Ghana Education Service). The absence of continued dialogue and coordination can be a barrier to making informed decisions and to achieving optimal use of resources in TPD.

Honduras: A focus on equity in partnerships (4.2)

Partnerships around TPD can take different shapes and work at different levels. In Honduras, it was standard practice for only one person from the central unit to be responsible for creating, executing and delivering online TPD courses. For the GPE KIX project, a team comprised of mathematics specialists, virtual learning specialists, examiners, tutors and teachers was formed to undertake this work. Such an interdisciplinary group – a taskforce – was a new way of creating and delivering TPD in Honduras that led to much more distributed ownership and engagement with the online program. This collaboration was both vertical (through the central unit, regional centers, departmental curriculum liaison staff, municipal director and teachers) and horizontal (with peer collaboration at each level).



Pillar 5: Learning Design

Key features

- 5.1 Designs of ICT-mediated TPD center on practical, relevant and intellectually stimulating subject-based activities that teachers can undertake in their classrooms complemented by the provision of support from peers and experts.
- 5.2 The design of ICT-mediated TPD is flexible to enable multiple adaptations for different groups of teachers and contexts.
- 5.3 Tools for teachers to self-diagnose their professional learning needs and to reflexively assess their professional growth are embedded in ICT-mediated TPD.

TPD courses and materials need to focus on activities to support teachers to improve their classroom practice. *Teachers need to be given time to experiment with these activities in their classrooms and to have access to appropriate support for their experimentation including through peer dialogue and collaboration.* Both activities and support, which may or may not involve the use of ICT, are needed for quality TPD.

For TPD to be relevant and authentic across varied contexts and for different groups of teachers, implementers/practitioners need to effect adaptations within the TPD model, program or course for different language, cultural, resource and practice needs. This is critical to operationalizing ICT-mediated TPD with equity. These adaptations may involve one or more aspects of the TPD – modality, materials, forms and intensity of support, etc. They may be driven centrally (at national or sub-national level) or locally (at teacher, school or district level).

Ideally, TPD learning objectives emerge from recent diagnostic analysis of teachers' needs and their contexts (e.g., classroom facilities, opportunities for peer collaboration, availability of ICTs, etc.) undertaken in partnership with teachers. Learning design should also take into consideration the expected teacher profiles or standards in the broader educational system and, if appropriate, link these to assessment within the TPD.

The development of an inclusive learning design for TPD requires the participation of subject and pedagogic specialists. It should also involve staff with relevant skills to adapt the learning content into different forms of delivery (e.g., face-to-face, virtual or blended) as appropriate for equitable participation of teachers. The input of teachers who are familiar with the range of classroom and school conditions in the country, region or department is also critical.

Questions

- *To what extent do TPD programs include the characteristics of effective quality TPD? For example, do they offer authentic activities for teachers to undertake with their learners?*
- *How can the TPD be adapted (in terms of modality, forms of support, timings, etc.) to ensure equitable participation for different groups of teachers?*
- *To what extent are teachers involved in self-diagnosis of their professional learning needs?*
- *To what extent are teachers supported to evaluate their own professional growth? And is this linked to career structures or TPD frameworks?*

BOX 5. Pillar 5 examples from the field**Honduras: Authentic and relevant practice in TPD (5.1 and 5.2)**

In the GPE KIX TPD@Scale project, feedback from teachers in the initial pilot in Honduras prompted adaptive responses to the form of the assessment and tutoring. Options such as peer evaluation for the course culminating project, adaptable dates for assignments, and a chat feature with tutors to pinpoint challenging sections of the course were introduced to fit better with teachers' professional and personal commitments.

Uzbekistan: Improving equity through design adaptations (5.1, 5.2 and 5.3)

Findings from field interviews and questionnaires in the GPE KIX TPD@Scale project indicated that TPD provision needs to be delivered in multiple languages, have activities that are relevant to teachers' contexts and socio-cultural experiences, and include assessments related to classroom practice.



Pillar 6: Communication Channels

Key features

- 6.1 The value of TPD, including ICT-mediated TPD, to teachers and their learners is strongly reinforced in all messaging across the education system.
- 6.2 Multiple channels are in place to inform teachers and other actors at different levels of the education system about diverse TPD opportunities.
- 6.3 Systems are in place to enable teachers, and those supporting teachers, to give feedback on TPD needs and experiences, and to contribute case studies, localized resources and new materials to TPD repositories.

Strategic communications need to engender discussion on ICT-mediated TPD at different levels of the system and to reinforce the value of such TPD to the teachers' performance of their role and to their development as professionals. *Teachers should be encouraged to take on responsibility for their own professional learning throughout their careers.*

Teachers need to be informed in advance about future TPD training opportunities using multiple channels including websites, emails, social media platforms and print bulletins. Channels should also include school leaders (head teachers or principals) and pedagogical or teaching supporters at the district or municipal level so that they are familiar with the TPD available to staff in their institution or locality. These communication channels should be two-way; teachers need to not only know about TPD opportunities but also to be able to contribute feedback on their needs and experiences and offer suggestions for how the TPD could be made more useful to their context and more responsive to their professional learning needs.

Where appropriate, teachers (and tutors, facilitators and mentors) need mechanisms to contribute resources, e.g., case studies, new and localized materials, etc., to TPD repositories and courses. *A multidirectional flow of communication that suits the context is needed.*

Questions

- *To what extent is there discussion on ICT-mediated TPD in national and local TPD discourses? Do these discussions involve all relevant actors, including teachers, to facilitate coherence across the system?*
- *Do all teachers have easy access to information about relevant TPD opportunities? Could existing communication channels be enhanced or expanded?*
- *To what extent do these communication channels include easily accessible feedback loops to hear teachers' experiences of ICT-mediated TPD and their suggestions for future TPD?*
- *Are all teachers able to contribute resources to TPD repositories and courses? If not, why not and how can disparities be mitigated?*

BOX 6. Pillar 6 examples from the field**Use of social media platforms to promote TPD opportunities (6.2)**

In Ghana, the National Teaching Council (NTC) uses Facebook to alert teachers to new TPD courses on the NTC platform. While this is successful in encouraging thousands of teachers to enroll for courses, it needs to be complemented by other communication channels for those teachers who do not use social media platforms.

Feedback channels (6.3)

A recurring observation in the GPE KIX TPD@Scale research was the absence of a reciprocal exchange (“a loop”) in the dissemination of information about TPD. Rather, the prevailing pattern was characterized by a unidirectional flow from higher to lower levels (“top-down”). Issues raised at district/municipal levels did not often reach those who make or influence policies, which led to a lack of congruence between high-level actions and goals in relation to TPD, on the one hand, and local realities, on the other.



Photo credit: Shutterstock

The framework in use

Strengthening TPD to improve the quality of teaching is a key education priority in many countries. This framework seeks to provide an evidence-based perspective from empirical studies in less well-resourced countries, to guide policymakers, implementers and educators to harness the power of ICT to strengthen TPD. The framework can be utilized in multiple ways as shown by the following examples from Ghana, Honduras and Uzbekistan

In Ghana, the framework took the innovative form of a “traffic light” system, providing policymakers with a visual and intuitive method to assess the TPD landscape. This approach not only highlighted the challenges within the existing system but also illuminated the supporting structures crucial for the success of ICT-mediated TPD, facilitating a comprehensive understanding of the ecosystem. In Honduras, the approach was distinctly focused on juxtaposing local and national perspectives on TPD issues. This method emphasized the interdependency between these levels, showing how a deeper understanding of this relationship is essential for crafting quality TPD experiences that are both relevant and effective across the country. Uzbekistan’s methodology, while seemingly similar to Ghana’s at first glance, extends to anticipating future challenges in TPD in addition to addressing current obstacles. This proactive stance is geared towards creating a TPD system that is not only responsive to present needs but is also well-prepared for emerging educational trends and requirements

Each of these countries, in their distinctive approaches, showcases the framework’s versatility in supporting its users to anticipate, identify, address and monitor the educational needs and challenges that are unique to their contexts.

CASE STUDY 1

Using the framework in Ghana: Innovating to strengthen TPD systems with ICT

The framework can be used as a lens to analyze and understand the experiences of a blended model of TPD operationalized in Ghana during the GPE KIX TPD@Scale project (see Figure 2). The specific connections to the six pillars are detailed below.

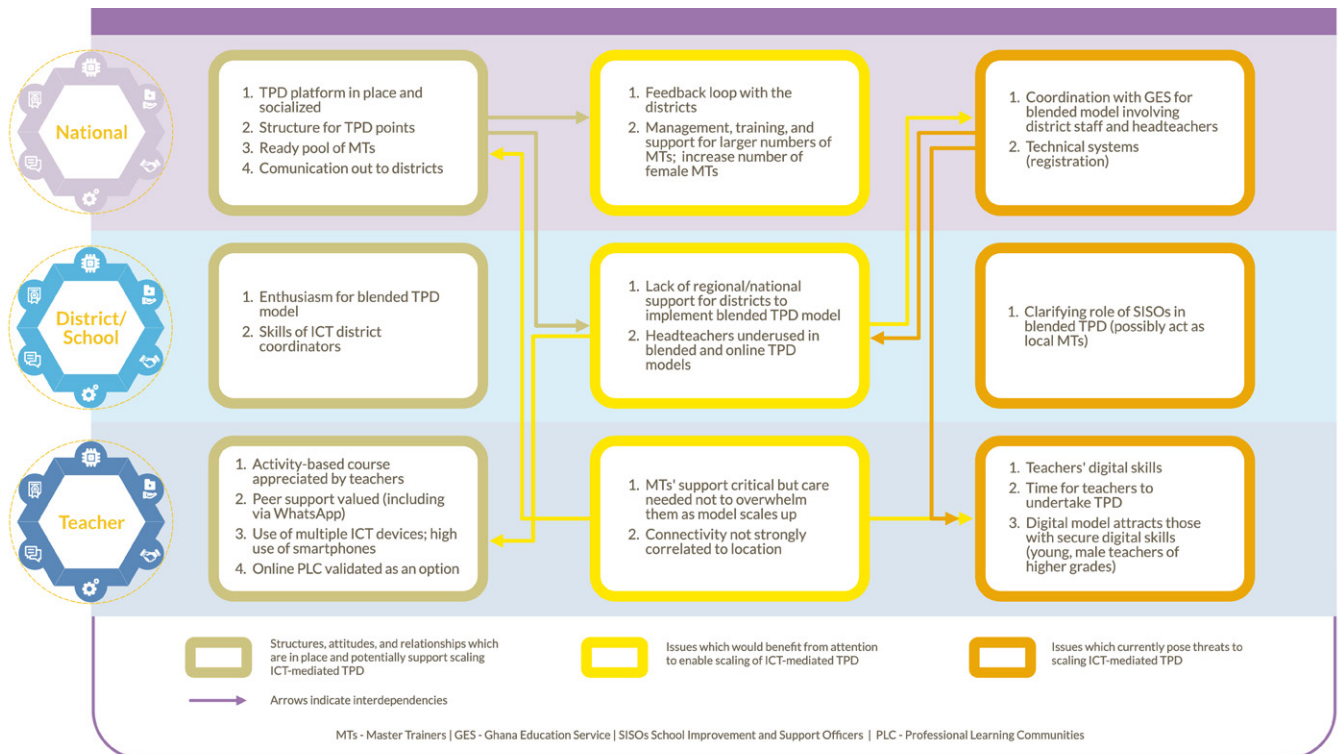


Figure 2. Analysis of scaling ICT-mediated TPD in Ghana

During the implementation of the blended TPD model in Ghana, the role of School Improvement Support Officers (SISOs) at the district/school level was, at first, ambiguously defined, leading to uncertainty about their responsibilities and potential contributions. Their substantive role is to supervise and support teachers in a cluster of schools, but as they are positioned close to the grassroots level, they possess the potential to be key players in the TPD process. One favorable adaptation of the model was to facilitate their provision of support directly to teachers to become a much needed extension of the Master Trainer.

We can see this directly tying to *Pillar 3: Supporting Capacities* of the framework, which emphasizes the importance of having strong capacities at all levels, ensuring that those who play a pivotal role in TPD are well-equipped, knowledgeable and clear about their roles. As the model scales up, it is crucial to strike a balance between maximizing the use of existing capacities and nurturing new ones, making sure that the system is not inadvertently overburdened. The role of the SISOs also hints at some of the issues discussed within *Pillar 6: Communication Channels*. The lack of clarity in their roles could very well stem from inadequate communication channels, highlighting the necessity for clearer, more streamlined communication throughout the education system. The bidirectional flow of information, especially from the bottom tiers of the system to the top, ensures that roles are well-defined, potential is recognized and capacities are utilized efficiently.

A separate challenge observed at the teacher level pertains to their varying levels of digital proficiency. This became particularly evident when teachers were faced with a course registration procedure that was perhaps not very user-friendly, which had the unintended effect of excluding a large section of the teaching population. Those who seemed more adept with digital tools typically belonged to a specific segment – younger male educators teaching higher grades. Linking this observation to *Pillar 2: ICT*, it becomes evident that while there are tools and platforms available to support ICT-mediated TPD, there's a pressing need to ensure that these tools are accessible and user-friendly for all teachers regardless of their prior digital experience. Technology should serve as an enabler, not a constraint, as exemplified by the value placed by participants on the peer support offered via WhatsApp groups. It is essential to remember that not all educators have had the same prior exposure to digital tools; hence, any ICT infrastructure supporting TPD, such as information management systems, should cater to a broad spectrum of digital proficiency and be contextually appropriate in general. Additionally, this observation ties closely to *Pillar 5: Learning Design*. The design of ICT-mediated TPD courses should inherently consider the digital capabilities of its primary users, the teachers. If a segment of teachers is hampered from even registering for a professional development course, it might be an indication that the course design needs to be more intuitive or, at a minimum, that a range of registration and course delivery modalities should be made available. The design should not just focus on the course content but also on how users interact with the platform. Ensuring that teachers can access and navigate these platforms with ease is fundamental to the overall success and efficacy of any ICT-mediated program.

The implementation of the blended model also highlighted the importance of coordination and alignment between all relevant stakeholders, in this case the National Teaching Council (NTC) and the Ghana Education Service (GES). (GES is responsible for the provision and oversight of pre-tertiary, technical and special education in Ghana. NTC is responsible for regulating the teaching profession in Ghana, which includes licensing of teachers, monitoring and supervision of teacher education, and promotion of TPD.) For example, one key learning of the program rollout was that head teachers had been underused; being under the purview of GES, their potential had not been fully harnessed. Drawing a connection to *Pillar 4: Partnership*, successful ICT-mediated TPD relies heavily on the seamless integration of roles and responsibilities among partners. In this case, the partnership between NTC and GES is vital not only for strategic planning and implementation but also for leveraging existing human resources, like headteachers, to their fullest potential.

While some of the challenges observed during the planning and implementation of the blended TPD model highlight potential gaps in the overarching policies guiding TPD in Ghana, the presence of a solid policy framework guided the rollout and ensured that all activities were aligned with the broader TPD goals of the country. This draws attention to *Pillar 1: Policies*. Effective and clear policies act as the backbone for any successful program. Policies not only set the direction but also lay out the roles, responsibilities and channels of communication for all stakeholders involved. A well-structured policy will ensure that there's clarity from the get-go, which for Ghana meant that whether teachers were taking their TPD online or in person in professional learning communities, they would receive the same number of TPD points that corresponded to the professional development activity.

CASE STUDY 2

Using the framework in Honduras: Integrating local realities into national TPD strategies

Integrating local realities with national strategies in TPD is a multifaceted and adaptive process. In Honduras, the deployment of an ICT-mediated TPD model provided a unique opportunity to explore the intricate interplay between nationwide education goals and the on-the-ground realities faced by educators, as delineated by the distinct pillars of the TPD framework (see Figure 3).

The strategic formulation and implementation of TPD policies, as outlined in *Pillar 1: Policies* of the framework, must contend with the complex landscape of teachers' ICT access and skills. At the national level, TPD policies must reflect and respond to the diverse conditions of ICT access among teachers. This involves recognizing that while some educators may readily integrate technology into their professional development, others may be limited by factors such as connectivity, availability of devices and digital literacy. Simultaneously, at the municipal level, there is a need to creatively leverage existing infrastructures. Rather than relying solely on regional centers, which may be inaccessible for many due to distance, local technology-equipped

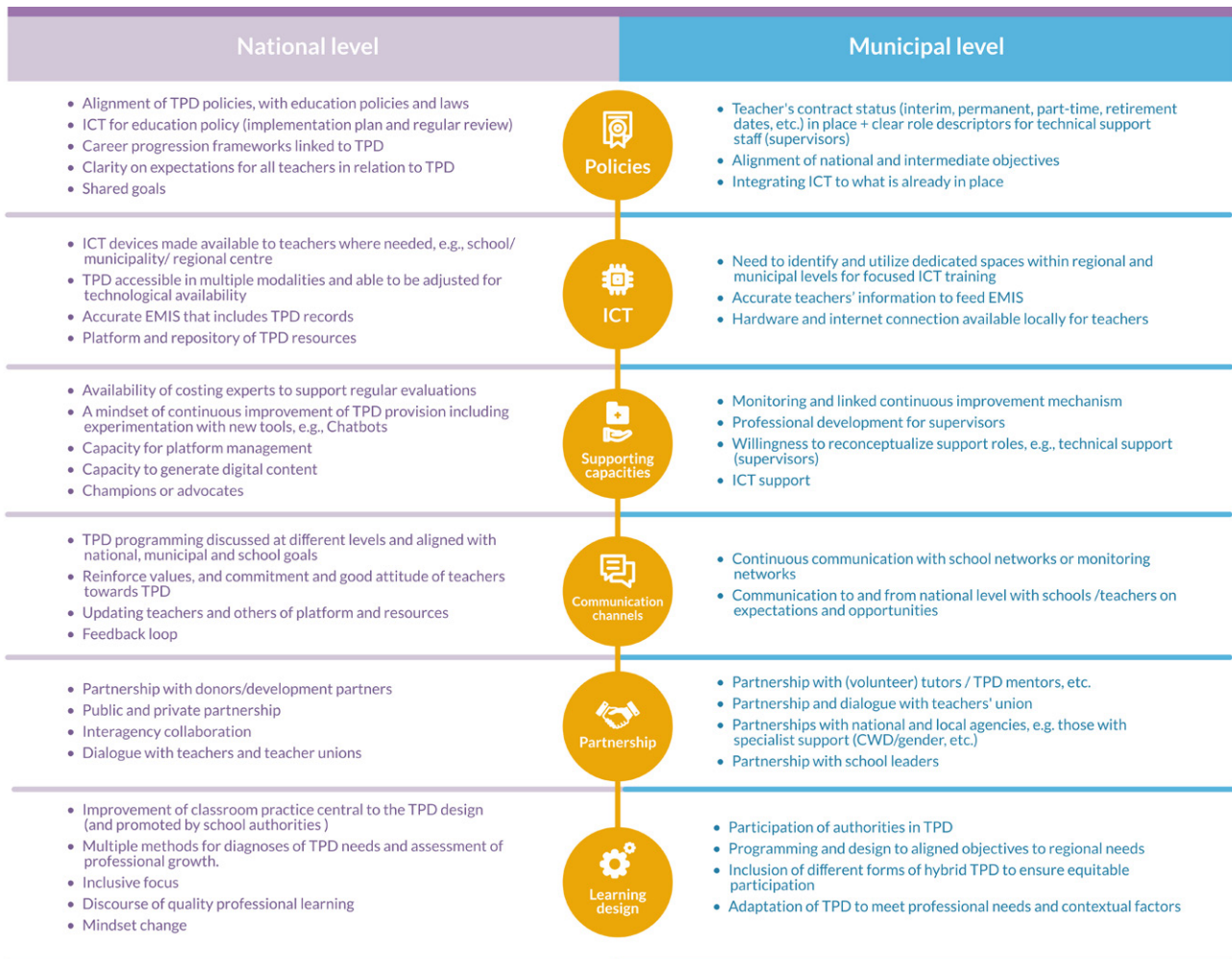


Figure 3. National and local considerations for each pillar when implementing TPD in Honduras

public facilities like internet cafes and libraries can serve as accessible hubs for ICT-mediated TPD. This approach acknowledges the local variations in resources and infrastructure, aiming to utilize all available venues that have the necessary connectivity and technological capabilities. By doing so, policies can facilitate more equitable access to TPD, ensuring that teachers in even the most remote areas or those facing challenges like an irregular electricity supply can engage in meaningful professional development without the barrier of travel.

Pillar 2: ICT are central to harnessing technology for enhanced data-driven decision-making and resource allocation in education systems. At the national level in Honduras, the digitization of information through an accurate education management information system (EMIS) is key. This system is designed to encompass comprehensive human and material resources data related to TPD across municipalities. The accuracy of this data is critical as it paints a detailed picture of the TPD landscape, enabling more informed strategic planning and resource distribution. Local systems are integral components of this data ecosystem; they must contribute to and utilize the national EMIS effectively, with a bidirectional flow of information. This means that updates from the ground – reflecting the real-time realities of TPD initiatives and resources – should move from the municipalities to inform national strategies. Conversely, guidance, course materials and assignments should flow from the national level down to localities, ensuring that every level of the education system is synchronized and that TPD efforts are harmonized. Further system analysis using the framework surfaces possible threats to implementation of ICT-mediated TPD in Honduras as shown in Figure 4.

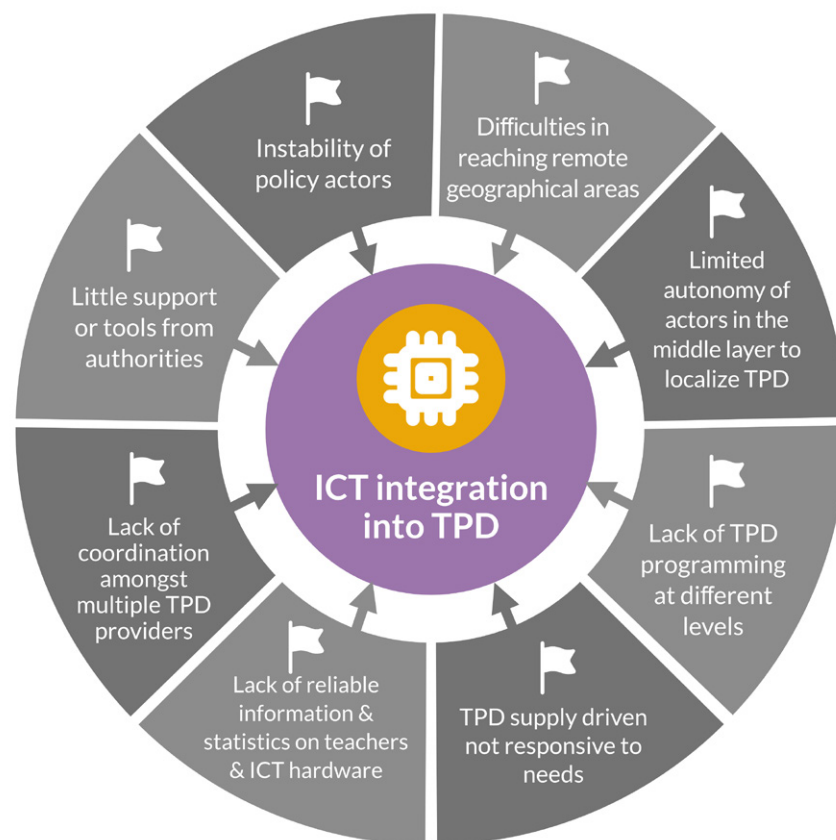


Figure 4. Possible threats to ICT integration into the TPD system in Honduras

Building upon the bidirectionality of information flow established under *Pillar 2: ICT*, *Pillar 6: Communication Channels* becomes equally critical in ensuring that this information exchange effectively translates into enhanced TPD experiences for teachers across Honduras. It's not only about creating and updating TPD platforms and resources but also ensuring that teachers are well-informed about the availability of these courses. Communication strategies should therefore be designed to not just disseminate information but to also align with the actual needs and schedules of the teachers. This means that informing teachers about TPD courses requires a nuanced understanding of what teachers need, which includes their professional development demands, the contexts in which they work, and the most opportune times for them to engage with TPD. As discussed above, communication should be a two-way street, with information flowing from and to schools and teachers. This exchange is vital for articulating the needs and demands of teachers, which should then influence the supply and design of TPD courses. By ensuring that teachers' voices are heard and that their feedback directly informs TPD offerings, the TPD system becomes more responsive and adaptive.

Another related factor underpinning the sustainable development and delivery of TPD courses through digital means relates to *Pillar 3: Supporting Capacities*. In the case of Honduras, there is a national need to build capacity for the creation of TPD digital content that is tailored to the needs and contexts of local teachers. This involves harnessing local expertise to inform the national creation of TPD courses, ensuring that content is not only relevant but also resonates with the various teaching environments across the country. This translates into a proactive approach to reconceptualizing support roles. By fostering a network of local digital content creators for TPD courses, Honduras can ensure that these educational materials benefit from the rich tapestry of local contexts and experiences. Such a decentralized model of content creation can promote the development of materials that are culturally and contextually appropriate, enhancing the relevance and impact of TPD initiatives. Moreover, local content creators can also provide ongoing, context-sensitive support and mentoring to teachers, a more effective approach than relying solely on a central pool of experts who may not be as intimately familiar with the unique challenges and opportunities present in different municipalities.

To understand the utilization of local expertise from a different angle, it is worth looking at the dynamics of *Pillar 4: Partnership in Honduras*. The tendency for development partners to repeatedly invest in the same localities has led to other areas, equally in need, remaining at the periphery of TPD initiatives. Recognizing the value of a diverse range of local insights is crucial in redressing this imbalance. A feedback loop, indispensable for capturing the efficacy of past partnerships in different localities, needs to be more than just an evaluative tool – it should be a learning mechanism that informs the national strategic direction of future collaborations. By actively incorporating findings from various regions, Honduras can ensure that partnership efforts are not just well-intended but are also well-distributed and informed by a comprehensive understanding of local needs. This approach promises to create a more balanced and informed TPD system where every region's voice and experience can shape an inclusive educational landscape.

Finally, *Pillar 5: Learning Design* emphasizes the importance of creating flexible and inclusive educational opportunities that accommodate the varied contexts in which teachers operate. At the national level, learning designs must be mindful of regional disparities in infrastructure and access. For instance, while digital resources are a powerful tool for TPD, it is essential to

consider its accessibility such that content can be downloaded and used in areas with limited internet connectivity, as was the case with the downloadable resources of the Geometry course included in the GPE KIX TPD@Scale project. Flexibility can be extended to the dynamics of assignments and assessment. This approach can accommodate teachers with poor connectivity, allowing them to submit their work according to schedules aligned with the availability of electricity and internet. At the municipal level, the concept of flexibility extends too to how teachers are perceived within the learning design. Rather than being seen as mere recipients of knowledge, teachers can be regarded as active contributors to the TPD process. This involves creating courses that are not only adaptable for different groups of teachers but which also invite them to modify and tailor the content to suit their specific teaching contexts. Such an approach acknowledges teachers as professionals with valuable insights capable of customizing their professional development journey.

CASE STUDY 3

Using the framework in Uzbekistan: Harmonizing TPD with evolving educational needs

Case study 3 delves into how each pillar of the framework is being tailored to address the unique challenges and opportunities within the Uzbek educational landscape (see Figure 5). From policy formation to leveraging technology and fostering effective communication, Uzbekistan's approach to TPD illustrates a commitment to evolving and enhancing its educational system to meet the diverse needs of its educators and students.




Levels of the system	Opportunities or strengths	Potential threats	Critical threats needing attention
 <p>National</p>	<ul style="list-style-type: none"> ▶ Uzbekistan adopted ICT-mediated continuous teachers' professional development policy in February 2021. ▶ National TPD model and program in place: adopted, tested and socialized. ▶ Model provides an induction diagnosis of teacher's competencies before they enroll in a course. Furthermore, there are pre-/post-course assessment surveys to assess teachers' progress and evaluate course quality. ▶ The model is cost-effective, easily accessible, and accommodates repetitions/retakes of complex courses and materials by teachers. ▶ Convenient to accommodate the related learning needs of substitute and/or out-of-field teachers quickly and effectively. 	<ul style="list-style-type: none"> ▶ Lack of comprehensive teacher national policy linked with teachers standards, qualifications, and teachers professional development across educational levels. ▶ Limited TPD opportunities for teachers who teach in minority languages. ▶ Absence of clear mechanisms and instruction for private TPD providers and universities. ▶ Robust system and policies are missing to eliminate any forged course attendance practices by teachers (for online courses). 	<ul style="list-style-type: none"> ▶ Creating culture of lifelong learning and stimulating teachers to increase quality of teaching and meet professional standards. ▶ Designing and improving TPD programs in response to professional development needs of teachers. ▶ Involving teachers in development of TPD program and design of training delivery. ▶ Adopting national ICT competency framework embedded with the teacher's professional standards in order to encourage teachers to develop their ICT literacy.
 <p>Region/ District</p>	<ul style="list-style-type: none"> ▶ All schools and regional TPD centers have access to technological gadgets and internet connectivity to provide online TPD courses. ▶ Official and unofficial platforms and Telegram channels/groups for professional learning community discussions. ▶ Teachers are provided ample time for the self-development and peer learning within their working week 	<ul style="list-style-type: none"> ▶ Quality of master trainings at regional TPD centers should be enhanced to meet needs of teachers and integrated with online platform. ▶ Supportive environment for school based TPD should be enhanced. ▶ Mentors' role is not defined and they are mostly occupied with administrative issues. ▶ Existing regional in-service teacher education institutions shall be transformed into the teachers' excellence centers so to serve as a backstopping resource hub and active peer-learning venue for teachers. 	<ul style="list-style-type: none"> ▶ Very limited practice of peer-learning communities and provision of easily accessible spaces for exchanging ideas, self-reflective practice, and experimentations. ▶ Recognizing and providing incentives for the mentorship role by teachers.
 <p>Teacher</p>	<ul style="list-style-type: none"> ▶ Positive feedbacks from teachers about online courses in terms of quality, cost effectiveness, and flexibility in planning TPD. ▶ Increased convenience for teachers to learn anytime from anywhere rapidly. ▶ Easy pathway for career progression and professional excellence. 	<ul style="list-style-type: none"> ▶ Classroom application of TPD ideas weak; need for guidance for teachers. ▶ Need for parallel investment in technology and development of teachers' ICT skills. ▶ Teachers may cheat in taking online courses – ask someone else to take the compulsory online course on their behalf caused by the weak LMS. 	<ul style="list-style-type: none"> ▶ Attention needed to teachers social, pedagogical and emotional skills to create healthy and inclusive learning environments at schools.

Figure 5. Opportunities and threats to working with a TPD model at scale in Uzbekistan

In Uzbekistan, *Pillar 1: Policies* highlights the need for a cohesive national policy that interlinks teacher qualification standards, credentials and professional development across all educational levels. A critical gap in the system is the absence of a culture that promotes lifelong learning among teachers. From a more pragmatic point of view, the current policy framework does not offer a significant reward system or incentives that encourage voluntary participation in TPD courses. This often results in a lack of understanding about the benefits of TPD, which even at times leads to attendance forgeries and other dishonest practices during TPD courses. The

observation here is that there seems to be a delicate balance to strike: policies must be designed to avoid creating an overly regulatory environment that might burden teachers with mandatory course attendance yet still cultivate a genuine appreciation for the value of continual professional growth. Addressing these policy challenges is fundamental to fostering a culture where TPD is both respected as a professional obligation and embraced as a vehicle for personal and systemic advancement.

Building upon the foundational need for a cohesive national policy identified in *Pillar 1*, the national approach to *Pillar 2: ICT* seeks to further entrench these standards by embedding a national ICT competency framework within teacher professional standards. This initiative is not just about establishing baseline ICT literacy; it is about creating a synergy with the TPD model, ensuring that professional development is inherently tied to digital competencies. At the local level, the diverse ICT skill sets of teachers necessitate a multimodal delivery of TPD courses that caters to the varied proficiencies and promotes an inclusive environment.

Pillar 3: Supporting Capacities reveals significant challenges with the current mentoring system. Mentors, who are crucial to teacher development, find themselves entangled in administrative duties, with their roles in TPD not clearly delineated. This issue is compounded by the fact that mentors are responsible for thousands of teachers in each region, making it virtually impossible to provide effective, personalized support. To address this, the national government is discussing a potential solution. Building on insights from the GPE KIX TPD@Scale project, the proposal suggests repurposing existing regional in-service teacher education institutions into centers of excellence for teachers. These centers are envisioned as hubs of support and active peer learning venues where teachers can take on the role of peer mentors, sharing best practices and innovations with each other. This model promotes a dynamic exchange of expertise in which communication flows both ways. Instead of a fixed teaching staff, teachers who are recognized by their peers for their exemplary practices would lead sessions, fostering a sense of community and collaborative growth. By empowering teachers to mentor each other, the system aims to alleviate the pressures on individual mentors and enrich the professional development experience.

Pillar 4: Partnership emphasizes the crucial role of collaboration in the development and delivery of TPD programs. Involving teachers directly in the creation of TPD programs ensures that the training is not only relevant but also reflective of real classroom experiences and needs. Furthermore, by engaging with the Ministry of Employment and Social Security, TPD initiatives can be aligned with the broader demands of the job market, preparing educators for current and future challenges. While TPD has traditionally been developed through partnerships between the government and organizations like UNESCO, there is untapped potential in the private sector. Innovative start-ups, particularly those specializing in ICT and digital learning materials, are poised to make significant contributions. Their expertise in cutting-edge technologies and content creation can greatly enhance the quality and delivery of TPD in Uzbekistan, bringing fresh perspectives and resources to the table. Establishing these multifaceted partnerships not only diversifies the pool of expertise but also ensures that TPD programs are at the forefront of educational innovation and market relevance.

While the current TPD model in Uzbekistan (*see Avloniy Research Institute model*) is cost effective and relatively easy to access, *Pillar 5: Learning Design* emphasizes creating TPD programs that are also flexible enough to accommodate teachers' varying learning paces. To this end, an important

improvement in the model has been to allow on-demand access to course materials to enable teachers to retake complex segments as needed, which is crucial for mastery of the content. However, while the current TPD resources, predominantly available in Uzbek and Russian, have been beneficial, there is an opportunity to further enrich the TPD landscape to better reflect Uzbekistan's diverse linguistic environment. The country's education system, featuring at least eight different school language configurations, could be further supported by expanding TPD materials to include these languages. ICT tools such as automated translation and subtitling play a supportive role in this expansion. They offer a means to enhance accessibility for a wider range of teachers, promoting a more inclusive approach to professional development. That being said, the languages available on automated translation applications are not exhaustive. Thus, Uzbekistan's long-term solution to linguistic marginalization could involve supporting Uzbek educators who speak a minority language to create TPD materials in their local vernacular.

Lastly, the country has made significant strides in improving their existing *Communication Channels (Pillar 6)*, having adopted an ICT-mediated continuous TPD policy in February 2021. This national TPD model and program have been effectively adopted, tested and socialized, showcasing a robust top-down communication approach. However, the bottom-up flow of information is less effective. For instance, there is limited knowledge about new teachers, indicating a disconnect in how grassroots-level data is captured and integrated into the broader system. This mismatch creates a lag in updating and responding to the real-time needs of teachers. Additionally, the coexistence of two information systems – one paper-based and one digital – underscores the urgency of fully digitizing the education data system. By transitioning to a fully digital platform, Uzbekistan can streamline the flow of information, making it more efficient and allowing for more informed decision-making.

Annex: Getting started with the framework

The framework questions aim to support education decision-makers to identify which factors are most in need of attention – where to put the efforts, resources and reflection, and which necessary actions to take, including using ICT in appropriate and effective ways, to advance in systemic shifts towards improved quality, equity and efficiency in TPD systems. Users are encouraged to convene groups of educators from different parts of the TPD system to consider these questions and agree on priorities for action.



Grid and guidance for users to record answers to the questions and start to build an action plan.

Pillar 1: Policies	Analysis: Current strengths (what is in place and working effectively)	Actions: Issues to address/Timeframe/Level of the system/ Importance (low/medium/high)
Q1.1 <i>What TPD systems are currently in place? How can ICT-mediated TPD integrate into and enhance these systems?</i>		
Q1.2 <i>To what extent are the professional learning needs of teachers working in marginalized or challenging conditions addressed?</i>		
Q1.3 <i>To what extent do TPD policies ensure that all teachers have the necessary time, social conditions of work, support and resources to participate in TPD?</i>		
Q1.4 <i>How effective are mechanisms to implement and monitor TPD? How might these include a cost analysis?</i>		
<i>National or local questions or considerations</i>		
<i>Implications or impacts of changes in this pillar to other pillars or at other levels or in other parts of the system and how these might be optimized or mitigated</i>		

Pillar 2: ICT	Analysis: Current strengths (what is in place and working effectively)	Actions: Issues to address/Timeframe/Level of the system/ Importance (low/medium/high)
<p>Q2.1</p> <p><i>What is the current state of ICT provision for teachers? Is this provision consistent across all geographical areas, types of school and groups of teachers? If not, why not?</i></p>		
<p>Q2.2</p> <p><i>How are teachers currently using ICT for their professional learning? What are the current barriers to ICT use in TPD?</i></p>		
<p>Q2.3</p> <p><i>What technology provision is needed to ensure equitable access to ICT-mediated TPD for all teachers?</i></p>		
<p>Q2.4</p> <p><i>To what extent are all teachers able to easily access opportunities to improve their digital wisdom?</i></p>		
<p>Q2.5</p> <p><i>Which TPD-related processes of the system could be optimized by the use of ICT? Examples of such processes include recording of TPD experiences, celebration of teachers' professional growth and communication of TPD opportunities.</i></p>		
<p><i>National or local questions or considerations</i></p>		
<p><i>Implications or impacts of changes in this pillar to other pillars or at other levels or in other parts of the system and how these might be optimized or mitigated</i></p>		

Pillar 3: Supporting Capacities	Analysis: Current strengths (what is in place and working effectively)	Actions: Issues to address/Timeframe/Level of the system/ Importance (low/medium/high)
<p>Q3.1</p> <p><i>To what extent are there effective support mechanisms for ICT-mediated TPD at each level of the system?</i></p>		
<p>Q3.2</p> <p><i>Are the roles of educators who support ICT-mediated TPD sufficiently well defined? For example, teachers who have a role as tutors or local teacher advisers who act as mentors or tutors. Are opportunities to apply for these roles made available to all teachers?</i></p>		
<p>Q3.3</p> <p><i>How effective and inclusive are the systems for professional development for staff supporting ICT-mediated TPD?</i></p>		
<p>Q3.4</p> <p><i>Do costings for ICT-mediated TPD take into account the full lifecycle costs of technology provision? And are these costs compared with those for traditional in-person workshops?</i></p>		
<p><i>National or local questions or considerations</i></p>		
<p><i>Implications or impacts of changes in this pillar to other pillars or at other levels or in other parts of the system and how these might be optimized or mitigated</i></p>		

Pillar 4: Partnership	Analysis: Current strengths (what is in place and working effectively)	Actions: Issues to address/Timeframe/Level of the system/ Importance (low/medium/high)
<p>Q4.1</p> <p><i>To what extent is there strong coordination between different agencies involved in TPD and the management of teachers?</i></p>		
<p>Q4.2</p> <p><i>To what extent are teachers involved as equitable partners in the design, implementation and evaluation of ICT-mediated TPD?</i></p>		
<p>Q4.3</p> <p><i>How effective is coordination with providers of initial teacher education? How might these partnerships be enhanced to ensure coherence in the teacher education system?</i></p>		
<p>Q4.4</p> <p><i>To what extent do local and international partners prioritize equity in their TPD partnerships and provision? How might the equity dimension be strengthened?</i></p>		
<p><i>National or local questions or considerations</i></p>		
<p><i>Implications or impacts of changes in this pillar to other pillars or at other levels or in other parts of the system and how these might be optimized or mitigated</i></p>		

Pillar 5: Learning Design	Analysis: Current strengths (what is in place and working effectively)	Actions: Issues to address/Timeframe/Level of the system/ Importance (low/medium/high)
<p>Q5.1</p> <p><i>To what extent do TPD programs include the characteristics of effective quality TPD? For example, do they offer authentic activities for teachers to undertake with their learners?</i></p>		
<p>Q5.2</p> <p><i>How can the TPD be adapted (in terms of modality, forms of support, timings, etc.) to ensure equitable participation for different groups of teachers?</i></p>		
<p>Q5.3</p> <p><i>To what extent are teachers involved in self-diagnosis of their professional learning needs?</i></p>		
<p>Q5.4</p> <p><i>To what extent are teachers supported to evaluate their own professional growth? And is this linked to career structures or TPD frameworks?</i></p>		
<p><i>National or local questions or considerations</i></p>		
<p><i>Implications or impacts of changes in this pillar to other pillars or at other levels or in other parts of the system and how these might be optimized or mitigated</i></p>		

Pillar 6: Communication Channels	Analysis: Current strengths (what is in place and working effectively)	Actions: Issues to address/Timeframe/Level of the system/ Importance (low/medium/high)
<p>Q6.1</p> <p><i>To what extent is there discussion on ICT-mediated TPD in national and local TPD discourses? Do these discussions involve all relevant actors, including teachers, to facilitate coherence across the system?</i></p>		
<p>Q6.2</p> <p><i>Do all teachers have easy access to information about relevant TPD opportunities? Could existing communication channels be enhanced or expanded?</i></p>		
<p>Q6.3</p> <p><i>To what extent do these communication channels include easily accessible feedback loops to hear teachers' experiences of ICT-mediated TPD and their suggestions for future TPD?</i></p>		
<p>Q6.4</p> <p><i>Are all teachers able to contribute resources to TPD repositories and courses? If not, why not and how can disparities be mitigated?</i></p>		
<p><i>National or local questions or considerations</i></p>		
<p><i>Implications or impacts of changes in this pillar to other pillars or at other levels or in other parts of the system and how these might be optimized or mitigated</i></p>		

References

- Faul, M., & Savage, L. (2023). Introduction to Systems Thinking in International Education and Development. In M. Faul & L. Savage (Eds.), *Systems thinking in international education and development: Unlocking learning for all?* Edward Elgar Publishing. <https://doi.org/10.4337/9781802205930>
- Fenwick, T. (2012). Complexity science and professional learning for collaboration: A critical reconsideration of possibilities and limitations. *Journal of Education and Work*, 25(1), 141-162. <https://doi.org/10.1080/13639080.2012.644911>.
- Fletcher-Campbell, F., & Soler, J. (2022). *TPD@Scale briefing note: The evaluation of "equity" within TPD@Scale*. Foundation for Information Technology Education and Development.
- OECD. (2009). *Creating effective teaching and learning environments: First results from TALIS*.
- Popova, A., Evans, D. K., Breeding, M. E., & Arancibia, V. (2022). 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>.
- SUMMA, SEDUC, & UPNFM. (2023). *Adaptación y escalamiento de enfoques de desarrollo profesional docente mediados por tecnología en Honduras*. Honduras country report for the GPE KIX project entitled "Adapting and scaling teacher professional development approaches in Ghana, Honduras, and Uzbekistan." SUMMA.
- Twining, P., Browne, N., Murphy, P., Hempel-Jorgensen, A., Harrison, S., & Parmar, N. (2017). *NP3 – New purposes, new practices, new pedagogy: Meta-analysis report*. Society for Educational Studies.
- Villegas-Reimers, E. (2003). *Teacher professional development: An international review of the literature*. UNESCO International Institute for Educational Planning.
- Wolfenden, F. (2022). *TPD@Scale: Designing teacher professional development with ICTs to support system-wide improvement in teaching*. Foundation for Information Technology Education and Development.
- Wolfenden, F. (2023). *Adapting and scaling teacher professional development approaches in Ghana, Honduras, and Uzbekistan: Final technical report*. Foundation for Information Technology Education and Development.

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