Preparing teachers to deliver hybrid education

A framework for Latin America and the Caribbean

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The Global Education 2030 Agenda
UNESCO, as the United Nations' specialized agency for education, is entrusted to lead and coordinate the Education 2030 Agenda, which is part of a global movement to eradicate poverty through 17 Sustainable Development Goals by 2030. Education, essential to achieve all of these goals, has its own dedicated Goal 4, which aims to **"ensure inclusive and equitable quality education and promote lifelong learning opportunities for all."** The Education 2030 Framework for Action provides guidance for the implementation of this ambitious goal and commitments.

Strengthening teaching skills in Latin America and the Caribbean

The shift to remote and hybrid education during the COVID-19 pandemic demonstrated the need to revise and improve the education and professional development of teachers. It revealed that teachers often lacked the digital and pedagogical skills to organize and deliver education remotely.

Better educational systems and processes begin with better-quality teaching, not only in schools and classrooms, but now remotely and in hybrid form. In Latin America and the Caribbean, a recent survey reveals that half of teachers consider that their single most important training need is pedagogical skills.

To seize the opportunity to strengthen the teaching skills of K–12 teachers in the region, the Inter-American Development Bank (IDB) and UNESCO are partnering to promote pedagogically driven remote and hybrid education. For that, professional development is key. Based on existing international teacher competency frameworks and drawing on promising global practices, this framework publication presents recommendations for:

50%
of teachers say their single most important training need is pedagogical skills

- Initial education programmes to enable new teachers to operate in all modes: face-to-face, remote, and hybrid.

- Short professional development opportunities for in-service teachers to design, plan, implement, and assess lessons in hybrid and remote formats.

unesco

"Since wars begin in the minds of men and women it is in the minds of men and women that the defences of peace must be constructed"

Preparing teachers to deliver hybrid education

A framework for Latin America and the Caribbean

Foreword

Across the globe, the pandemic led schools to adopt hybrid modes of education that combined both face-to-face instruction and remote learning.

When carefully planned, hybrid models can combine the best of traditional face-to-face instruction and online learning. Such models open opportunities for individualized instruction based on the needs of each student, encouraging self-directed learning, the right pace of study, and progression based on mastery of skills and content. Hybrid education can help students to engage in collaborative pedagogies (for example, group problem-solving and project-based learning) and to access quality instruction, since hybrid learning is flexible in terms of attendance (classroom, virtual, or both) and allows students to participate in real time (synchronous learning) or through recorded lessons (asynchronous learning).

In practice, however, the quality of hybrid education available to learners varies widely across education systems.

While curriculum content can be largely replicated from the face-to-face classroom, effective hybrid education entails an understanding of the differences between the two modes and the specific tools and pedagogical approaches that make different learning methods effective. Teaching remotely requires both a different skill set and a different mindset than face-to-face instruction. At the same time, teacher training institutions in Latin America and the Caribbean typically do not include remote and hybrid teaching competencies as part of their pre- and in-service professional development programmes, resulting in a lack of skills in this area.

Both UNESCO and the IDB have developed expertise in the professional development of teachers and the use of educational technologies in instruction. UNESCO's work includes guidelines on hybrid curriculum design that integrate virtual and physical classroom learning. The IDB's work on digital transformation for education covers a wide array of financial and technical advisory services, ranging from connectivity and infrastructure to pedagogical approaches and learning with a strong focus on equality. IDB's work includes a regional conceptual framework and self-assessment tool for gauging teachers' digital competencies.

The professional development framework presented in this publication is a product of collaboration between UNESCO and the IDB. It includes general recommendations to improve teacher education and professional development and specific recommendations to prepare them to teach effectively in hybrid settings. By supporting teachers in the development of digital pedagogical competencies, governments and education partners can maximize student learning and reduce inequalities through hybrid education experiences that are carefully designed and implemented.

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Acknowledgments

Methodologies used for data collection

This framework is the result of information gathered from a variety of sources.

An extensive review of international literature focused on Latin America and the Caribbean, teachers' professional development, hybrid and remote education, and teacher competency frameworks that emphasized information and communication technologies, digital competencies, and blended learning.

Additional information was collected from academic conferences, webinars, and consultations with experts in the field, including members of the IDB-UNESCO Advisory Committee on Teacher Professional Development in Hybrid Education and members of the Red Kipus, a network of institutions, researchers, and specialists in teacher education in Latin America and the Caribbean.

The review of the state of education amid the pandemic was informed by results from a regional survey of more than 200,000 students and 20,000 educators in seven countries: Belize, Colombia, Costa Rica, El Salvador, Guatemala, Mexico, and Peru (see Näslund-Hadley et al., 2023). In the survey, teachers reported their experiences during the pandemic and their perceived training needs (see chapter 1).

The proposed framework was informed by eight case studies and multiple interviews with stakeholders and key actors involved in the implementation and evaluation of international programmes on remote and hybrid education (described in the appendix). Some of these initiatives were underway before the COVID-19 pandemic, and the data gathered in the interviews reflect the changes and adaptations that had to be made owing to the pandemic and the challenges it posed.

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The COVID-19 pandemic and learning: A focus on teachers and their education
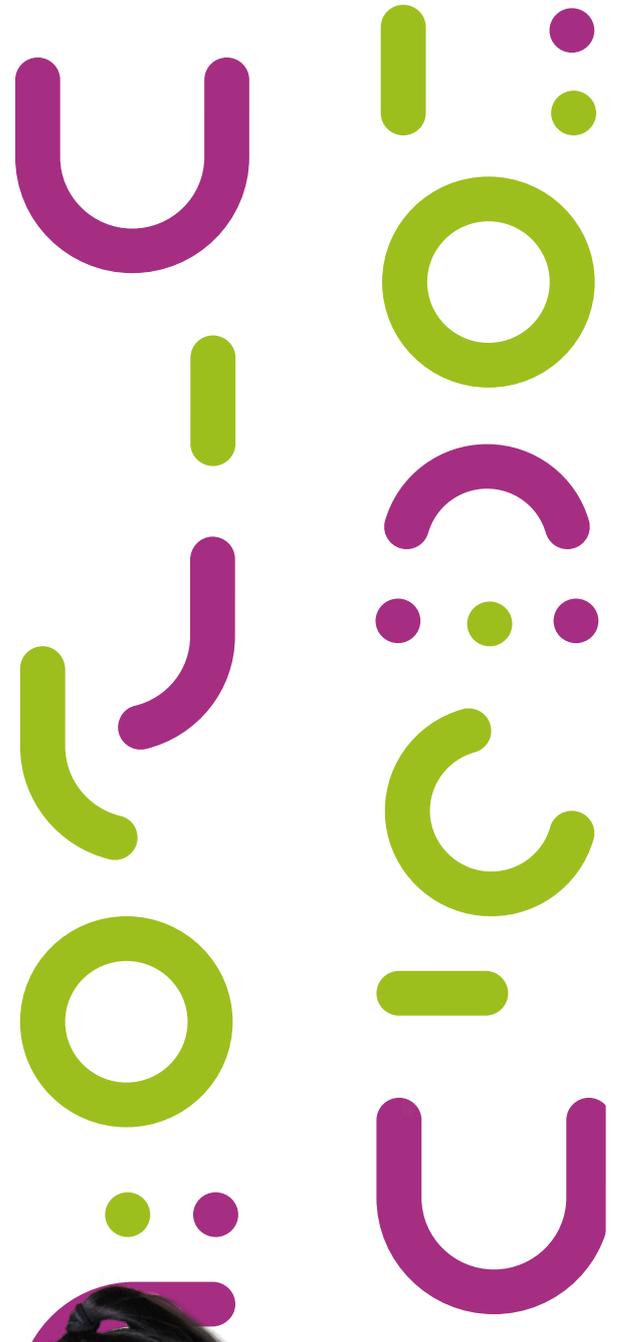
The COVID-19 global pandemic worsened education gaps that existed before the pandemic.

» Nearly 1.5 billion children in 164 countries were affected by closed and partially closed schools (Bobley and Best, 2021; UNESCO Institute for Statistics, 2021). "An estimated 63 million primary and secondary teachers were affected by school closures. In many countries, teachers were not equipped to organize, deliver and assess distance learning. They lacked digital skills and readiness for employing distance learning pedagogies" (UNESCO, 2021a).

» The pandemic exacerbated already existing socioeconomic gaps, and thus, it had a significant impact on education for all, but unevenly.

» Families with greater resources were less intensely affected by the pandemic than those with less, including under-prepared teachers who could not pivot quickly to adapt to the crisis (OECD 2020b).

Many education systems have been working to identify, plan, and implement immediate solutions to the challenges faced by students and teachers during the crisis (UNESCO 2021b). Most have focused the bulk of their attention on the limited access to technology and connectivity that many households experienced during the pandemic (OECD 2020a; World Economic Forum, 2020). A broader look at the state of education in the region, however, demonstrates that much more is needed in a region of great diversity.

The remote lessons used during school closures—whether by paper packages, radio, TV, WhatsApp, or Zoom—focused largely on the transmission of content, often through lecture-style teaching (UNESCO 2020), reversing the changes that had begun in the region to include much more participatory, active education.
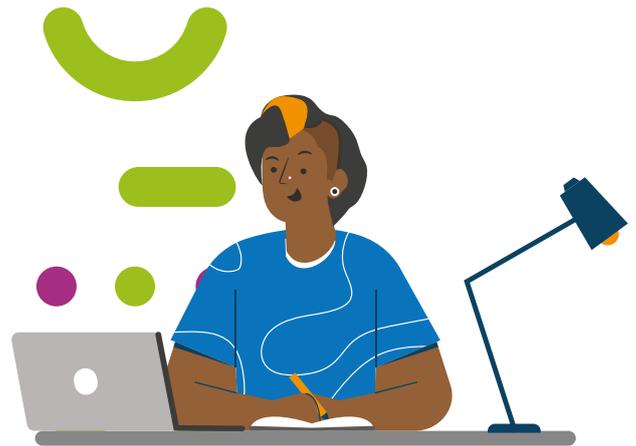
Thus, the pandemic-related changes in learning models risk reversing the region's incipient, but hard-won progress toward pedagogical approaches centered on project group work, collaboration, exploration, and critical thinking (Arias Ortiz et al., 2021).

For many teachers in the region, who even in the best of times struggle with the provision of engaging, interactive learning experiences (Näslund-Hadley and Bando, 2016), the swift switch to remote learning has been a complex and difficult cultural change.

The global COVID-19 pandemic has affected education and the future of younger generations
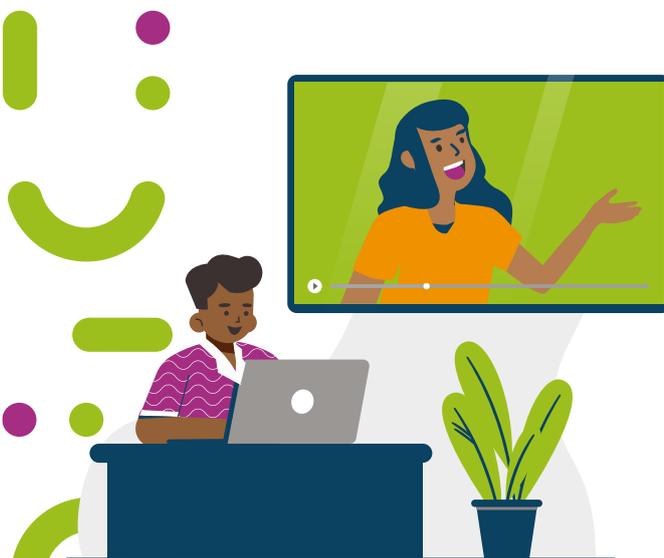
The purpose of this publication : Reimagining education

The professional development of teachers, from the first stages of pre-service preparation to the most advanced in-service education needed by experienced teachers, is one of the most important ways to address the education crisis created by the pandemic. Teachers must learn a new set of skills and strengthen already existing skills and knowledge on how to organize and facilitate educational experiences and teach effectively in face-to-face, remote, and hybrid formats.

This publication is a call to action for governments and institutions to dedicate resources, funding, time, and effort to address that challenge. Although other aspects of the education system must be also improved through changes in legislation, curriculum reform, and other means, teachers must be at the center of any effort to reimagine education.

Why focus on preparing teachers to deliver face-to-face, remote, and hybrid education?

First, teacher quality is the most significant factor in student achievement, even more than demographic factors (Darling-Hammond, 2020).

Second, improving education systems and processes must begin by improving the quality of the work that teachers do, not only in the schools and classrooms (see, for example, Seebruck, 2015; Stronge at al., 2007; UNESCO 2021; UNESCO/ILO, 1966), but now in remote and hybrid formats.

Third, even those teachers who knew how to use technology in their teaching before the pandemic, generally used it only in the classroom, not remotely. But teaching online—synchronously or asynchronously—and teaching remotely when access to the Internet is not guaranteed, are very different from teaching in person. This is well known as it relates to adult learners but not with respect to Pre-K through 12 learners.

And fourth, the pandemic has pointed a finger at a problem that has been around for some time. As challenging as educating Pre-K through 12 students has been during the pandemic, it is an excellent opportunity to begin implementing changes that were uncovered because of the pandemic.

This publication presents a framework of teacher professional development that includes general recommendations to improve teacher education and professional development, and, in particular, to prepare teachers to teach in hybrid mode.

The premises that guide this work

Effective teachers know how to adapt to different forms and circumstances of teaching and learning. When teachers are well prepared and educated as expert professionals in their fields, they possess, in theory, the competencies (knowledge, skills, dispositions) to design, develop, deliver, and assess learning experiences in face-to-face, remote, and hybrid settings. But the pandemic took even the best prepared professionals by surprise (e.g. Engzell et al., 2021).

Teachers who had been taught to follow a particular curriculum in a particular circumstance were unprepared to change modalities, areas of focus, and modes of interaction. Unless teachers had been teaching remotely or online prior to the pandemic (and such situations were few and far between), the pandemic represented a challenge.

Effective teacher education emphasizes practice-based experiences that are informed by theories and research. There are many different forms of teacher education in the world: some emphasize content and theory over practice; others, practice over theory; and some mix both. In Latin America and the Caribbean, most countries have emphasized theories, including pedagogical theories, in pre-service teacher preparation. The pandemic has highlighted the need for practice-based experiences in general and the need for a focus on practice-based preparation to teach in hybrid mode.

Given the current education crisis—with substantial learning loss and disengagement among students—new and experienced teachers need immediate professional development to acquire the knowledge, skills, and dispositions needed to teach effectively in hybrid and remote formats and to be able to respond effectively to students' educational and socioemotional needs.

The pandemic is both a challenge and an opportunity. It has demonstrated a significant need to revise and improve the teachers' education and professional development processes offered in the region. At the same time, it has revealed the weak spots in current systems, as discussed in chapter 1. With the weaknesses now exposed, there is no excuse not to take action.

Chapter 1

The state of education in Latin America and the Caribbean after the pandemic

The state of education: The global COVID-19 pandemic has affected education and the future of young people

The COVID-19 pandemic has harmed the quality of primary and secondary education and therefore threatened the future of younger generations. The pandemic has adversely affected countries worldwide, but several sources confirm that Latin America and the Caribbean (LAC) region has been the most affected. As reported by UNICEF (2021), "Among the top 20 countries with the longest full school closures during this period, more than half are situated in the Latin America and the Caribbean region."

In response to the COVID-19 pandemic, a worldwide experiment in remote and hybrid learning is unfolding.

This chapter highlights five key trends that have shaped the framework for teachers' professional development presented in chapter 4.

The quality of emergency remote education has been low

When the pandemic hit, Latin America and the Caribbean was poorly prepared for digital learning with schools being underprepared in terms of connectivity, digital resources, and learning platforms (figure 1.1). Among high school students, 64 percent had access to home computers, with vastly lower levels in under-resourced households (Rieble-Aubourg and Viteri, 2020). Alongside scant or absent digital platforms, devices, and Internet, another troubling pattern during the pandemic relates to deficient remote and hybrid learning experiences. Across the region, the remote and hybrid education models launched in response to the pandemic have tended to reinforce pedagogical practices that verifiably are not conducive to learning.

The most discouraging cases—lessons broadcast via television and radio—involved teachers reading a textbook. If classes continue to use the same outdated pedagogical principles, learning suffers. Lengthy face-to-face lectures work even worse in digital settings than in the classroom. If the region is to transition to quality hybrid education, it must invest not only in digital connectivity and devices, but also in preparing teachers in digital pedagogical practice, digital competencies, and parent and student engagement. To improve learning, education technologies must migrate from teacher transmission of content to a learner-centered approach (Arias et al., 2021).

Figure 1.1 Digital conditions in select Latin American and Caribbean Education systems pre-pandemic

More developed

	Argentina	Bahamas	Barbados	Belize	Bolivia (Plurinational State of)	Brazil	Chile	Colombia	Costa Rica	Ecuador	El Salvador	Guatemala	Guyana	Haiti	Honduras	Jamaica	Mexico	Nicaragua	Panama	Paraguay	Peru	Dominican Republic	Suriname	Trinidad and Tobago	Uruguay	Venezuela (Bolivarian Republic of)
Connectivity in schools																										
Digital platforms																										
Virtual tutorials																										
Virtual resources																										
Central repository of digital content																										

Source: Arias et al., 2021.

Increased learning losses and widening learning gaps

During the pandemic, an estimated 80 million students regionwide lost contact with their schools, with much higher proportions of disengaged students reported for rural households and those with low socioeconomic status (SES) (Acevedo et al., 2021). These students had less access to learning-from-home resources than did their peers from households of higher SES. A regional survey shows that low SES households had trouble accessing learning-from-home resources owing to lack of digital devices, radio, and television. Parents from such households also reported being more time-stressed than other households and having to reduce the time they spent helping their children learn at home from pre-pandemic levels (Näslund-Hadley et al., 2021). Overall, students reported reductions of 50 percent in the hours they spent studying during the pandemic. But rural and low-SES students reported even sharper drops (Acevedo et al., 2021). These findings are likely caused by more limited access to learning-from-home resources and more limited parental support. Probably as important is that students from low-SES households tend to attend schools with teachers who report challenges in supporting students with severe

learning needs. These teachers also report challenges conducting formative assessments (see figure 1.2) (Näslund-Hadley et al., 2023). Taken together, the data emerging from the region paint a picture of learning losses, increased disparities, and students who need help closing learning gaps exacerbated by the pandemic.

Figure 1.2 What has been the greatest education challenge during the pandemic?
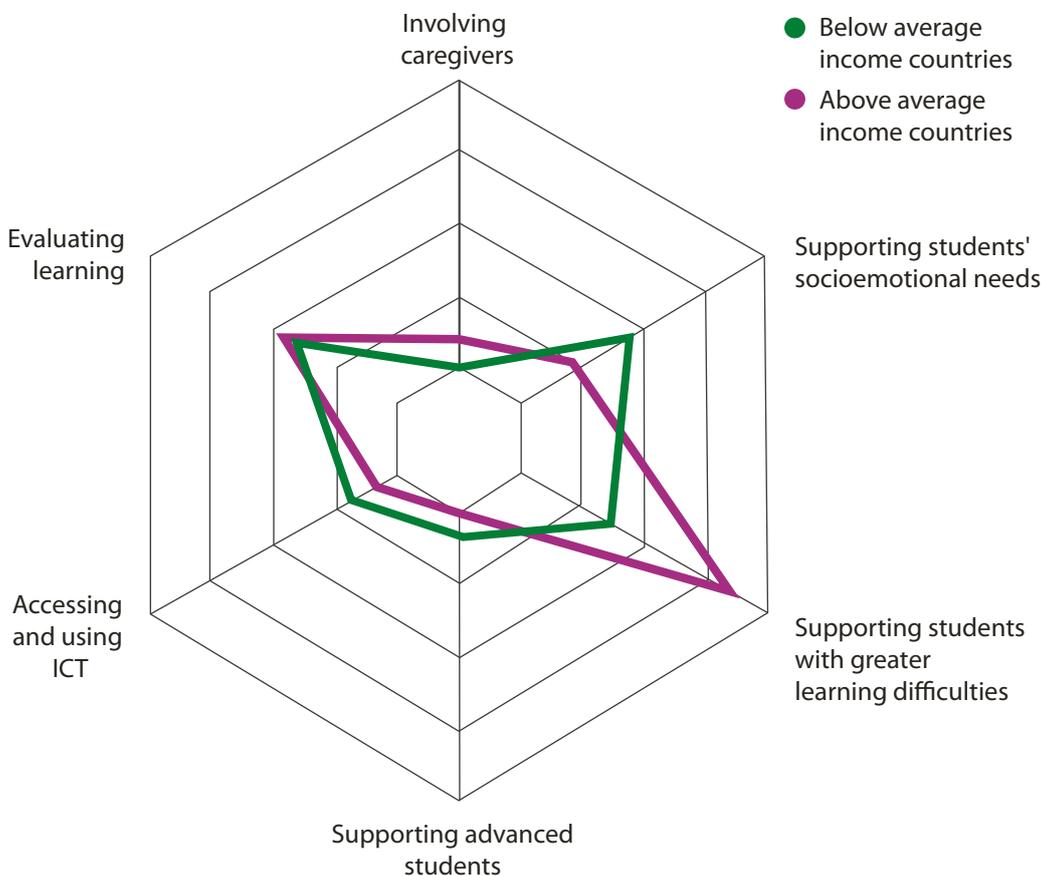
Teachers in low-income countries report being less prepared to teach students with special learning needs.

These teachers also report being less prepared to conduct formative assessments as part of their teaching.

Source: Näslund-Hadley et al. 2023.

The crisis offers a "leapfrog moment" to transform education

Most of the region's education systems were conceived before the recent gains in understanding how students learn. Although the rhetoric around education has advanced, the predominant education model in the region remains one that frames learning as a transfer of knowledge. Based on this notion of schooling, pre-pandemic classrooms tended to organize space in straight rows, and expository classes continued to predominate, with teachers proposing that students copy from the blackboard and memorize facts and figures. While there is no one-size-fits-all pedagogical approach, classroom practices should engage students, involve discussions with students, foster a positive learning climate (Richman et al., 2019), and allow students to inquire about and solve problems (Bando et al., 2019).

Many regional education systems were in crisis even before the pandemic, showing measurable achievement gaps and low levels of learning according to both international tests and local assessments. The current crisis offers the opportunity to harness the disruption created by the pandemic to transform education and change how and what students learn. Teachers regionwide are aware of this opportunity to transform how they teach. When asked to identify their greatest need for professional development, they respond by identifying pedagogical practice skills. Digital teaching skills are cited as the next most important need (see figure 1.3).

Figure 1.3 Training needs of teachers in Latin America and the Caribbean: during the pandemic and post-pandemic

● Pandemic
● Post-Pandemic
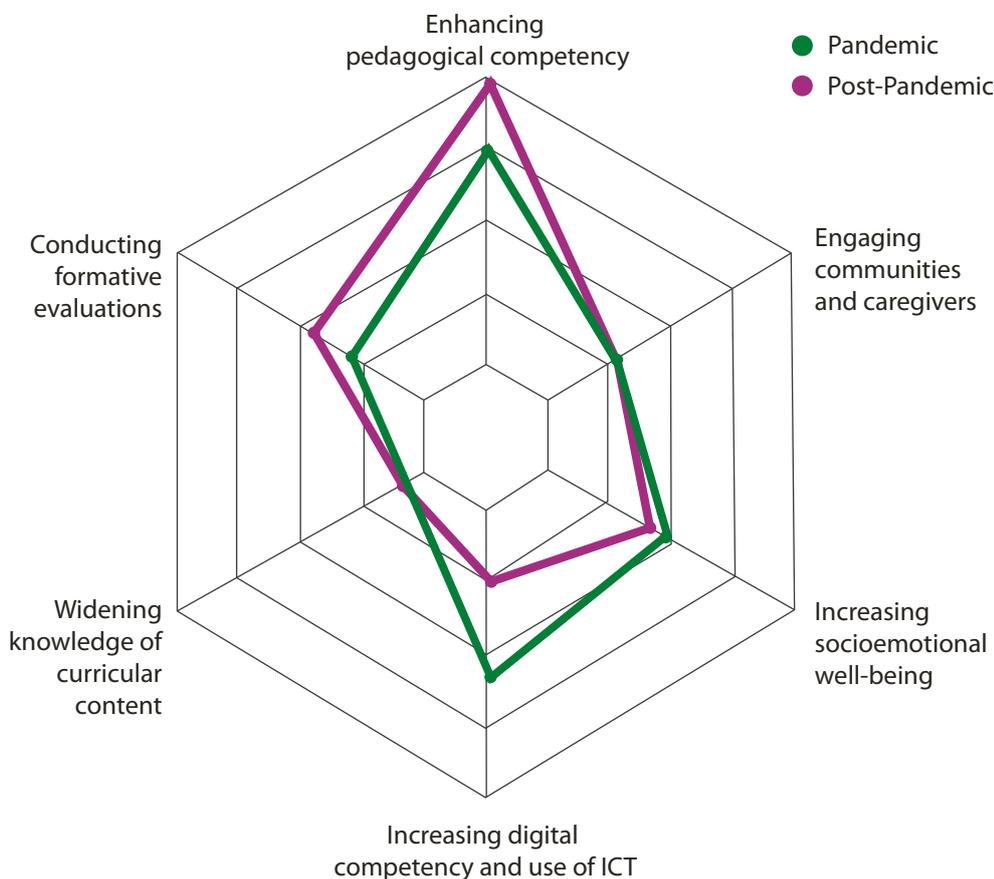
Teachers' greatest professional development need during the pandemic and looking ahead is the development of pedagogical competencies.

During the pandemic, teachers seek training in digital competencies and use of information technology.

Source: Näslund-Hadley et al. 2023.

Hybrid education is here to stay

During the pandemic, the region's education systems have made massive investments in education technologies. These investments have great potential to transform education in the region. Indeed, a vast majority of teachers, parents, and policy makers in Latin America and the Caribbean predict that hybrid teaching and learning—some combination of in-person and virtual instruction—will remain indefinitely (Näslund-Hadley et al., 2021). Even those teachers in the region whose schools have above-average math scores on the Programme for International Student Assessment (PISA) consider experiences in hybrid education to be the greatest lesson learned from the pandemic (figure 1.4). But their peers in systems with the lowest math scores do not report the same. It is likely that teachers in countries with higher math achievement were already using more evidence-based pedagogical approaches than their counterparts in lower-achieving systems (Näslund-Hadley et al., 2023).

Quality instruction is not assured, however, by simply shifting to new technologies while continuing to rely on a pre-pandemic instructional model, as previously noted. This much is evident from the international digital device distribution programmes that have failed to improve learning.

Instead, a comprehensive set of elements is necessary to ensure quality hybrid education, including connectivity, physical infrastructure, curriculum adaptation, and pedagogical practices (figure 1.5). Such broad investments open the way for thoughtfully and strategically designed hybrid learning experiences grounded in research-based pedagogical practices that blend digital learning (flexibility, repeat viewing/listening, rich media content) with high-quality face-to-face instruction (student interaction, hands-on laboratory experiments).

Figure 1.4 What is the greatest lesson learned during the pandemic?

Mathematics scores on PISA exam across the education system
- ● Below average
- ● Above average

Teachers from higher-achieving education systems—as measured by math scores—perceive the use of hybrid learning strategies as the greatest lesson learned on how to improve post-pandemic education.
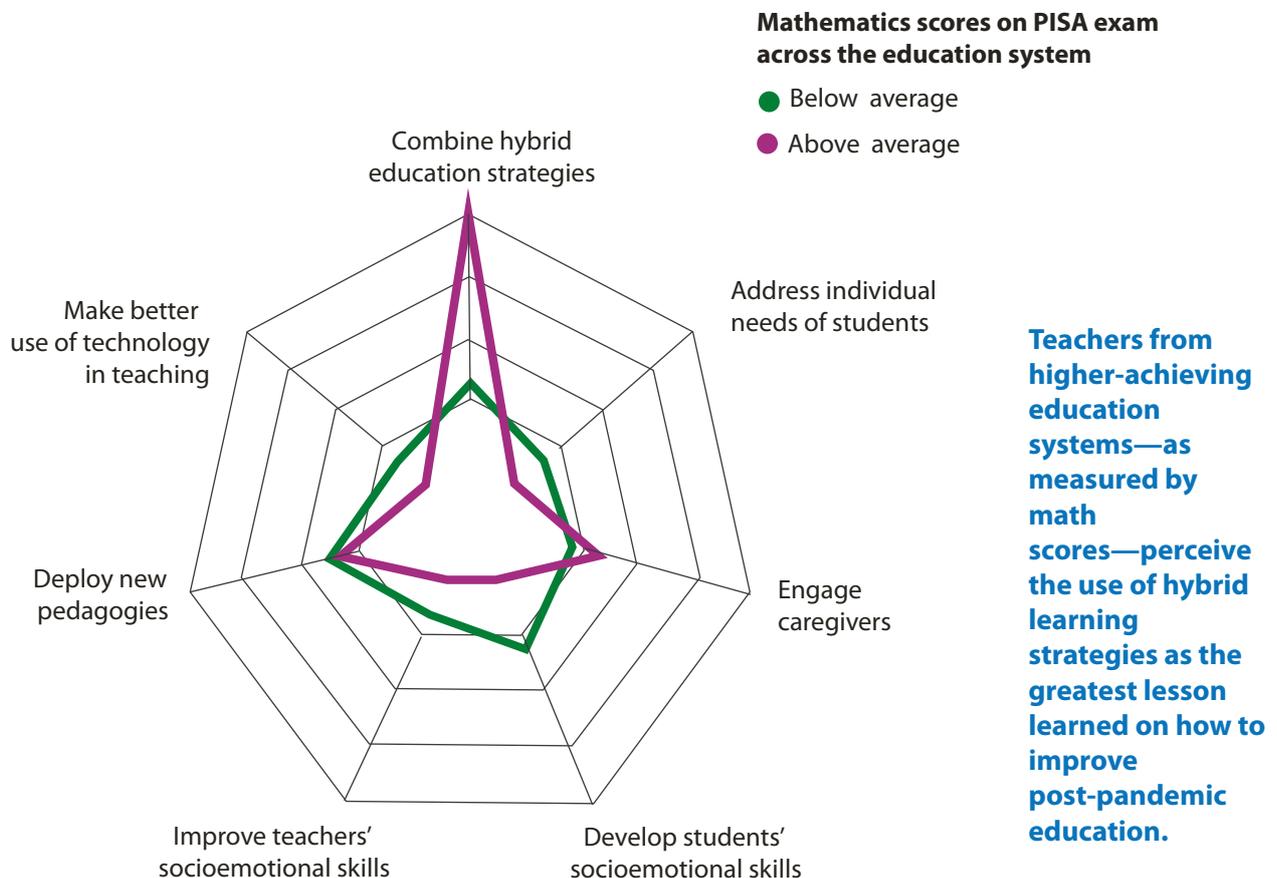
Source: Näslund-Hadley et al. 2023.

Figure1.5 Essential inputs for quality hybrid education

Connectivity	Physical infrastructure and technology	Curriculum adaptation	Pedagogical practices	Human resources
Digital content platforms	Flexible modalities	Skill certification	Education management and financing	Edtech ecosystem
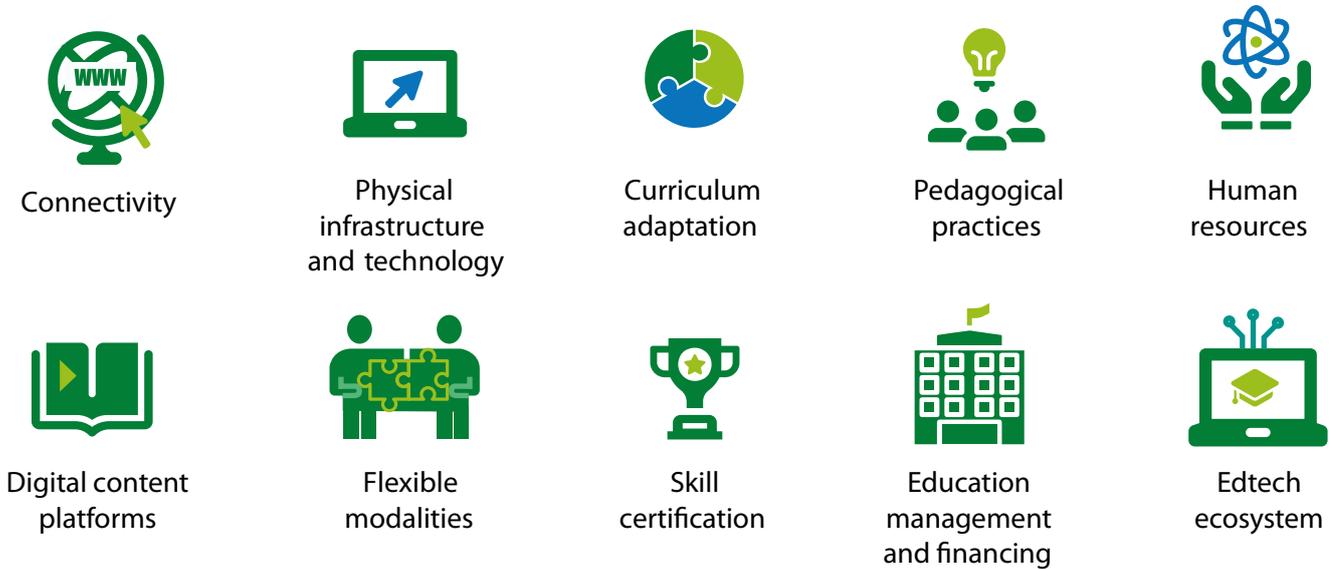
Source: Authors.

Teachers need support and professional development to teach in the era of COVID-19

Professional development for teachers has been beset by uneven quality and low priority throughout the region (Navarro and Verdisco, 2000; Stanton, 2019). Most teachers have learned to deliver scripted content designed for face-to-face settings, making the transition to remote and hybrid teaching more challenging. Although many teachers reported pre-pandemic professional development and experience using information and communication technology (ICT) (78 percent in Colombia and 70 percent in Chile and Mexico), the focus was on its use in face-to-face instruction, making it of limited use for a remote education setting (TALIS, 2018). During the pandemic, teachers from education systems with lower ICT capacity received less professional development than their peers in better-resourced education systems (figure 1.6), likely exacerbating skills gaps in ICT for teaching (Näslund-Hadley et al., 2023).

According to results from a regional survey (Näslund-Hadley et al., 2022b), education experts, teachers, and ministries of education agree that to prepare teachers for the "new normal," pedagogical processes are the foremost priority (figure 1.7). Developing better pedagogical skills for hybrid education requires practicing everything from student engagement to chat to small-group work on Zoom and managing breakout rooms with virtual boards and video simulations of lab experiments. Creative improvements in professional development for hybrid education emerged during the pandemic in different parts of the world, including Latin America and the Caribbean. We present some of those models in the cases described in chapter 3.

Figure 1.6 What type of training have teachers in your education system received during the pandemic?

Source: Näslund-Hadley et al. 2023.

Teacher professional development during the pandemic was unequal.

Teachers in education systems with low ICT capacities reported receiving less professional development and training during the pandemic.
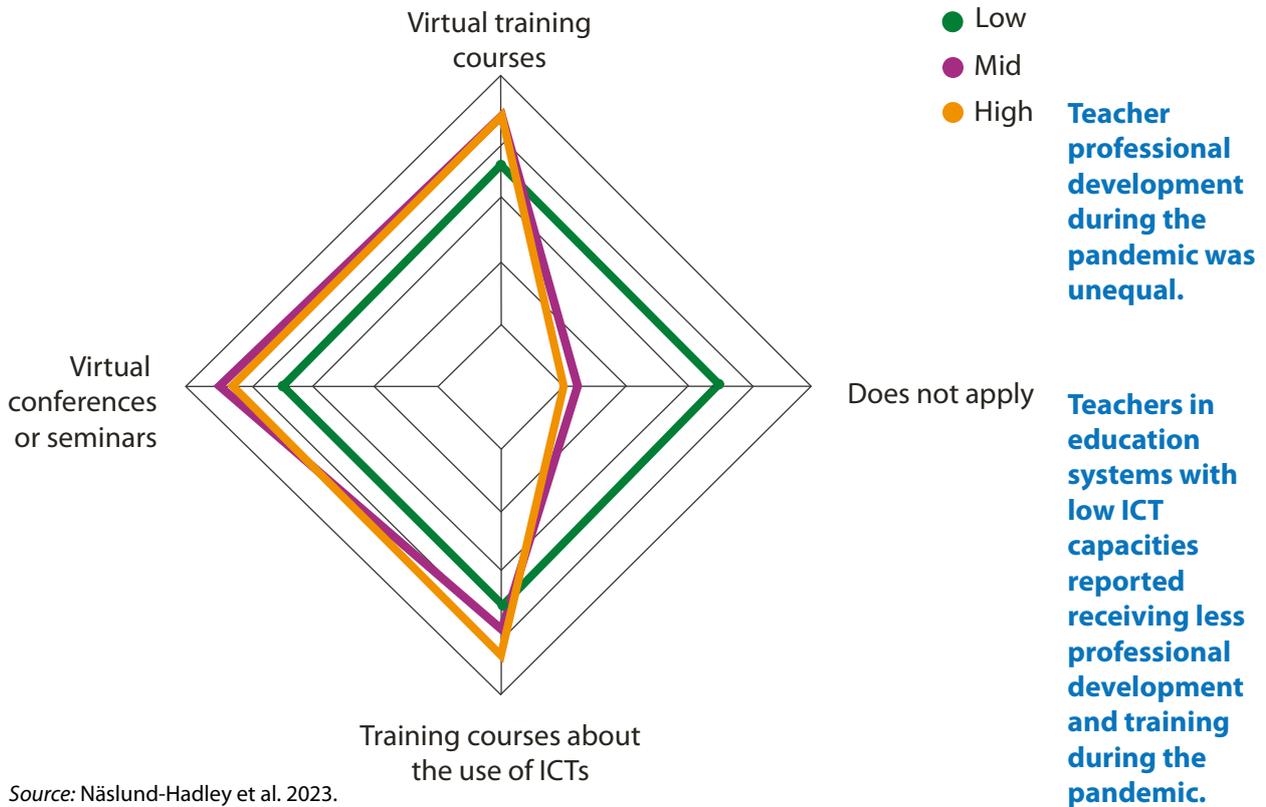
Figure 1.7 Training needs of teachers in Latin America and the Caribbean: according to practitioners, education experts, and teachers

Source: Näslund-Hadley et al. 2023.

Teachers, ministries of education, and other education experts agree on the importance of developing pedagogical competencies.
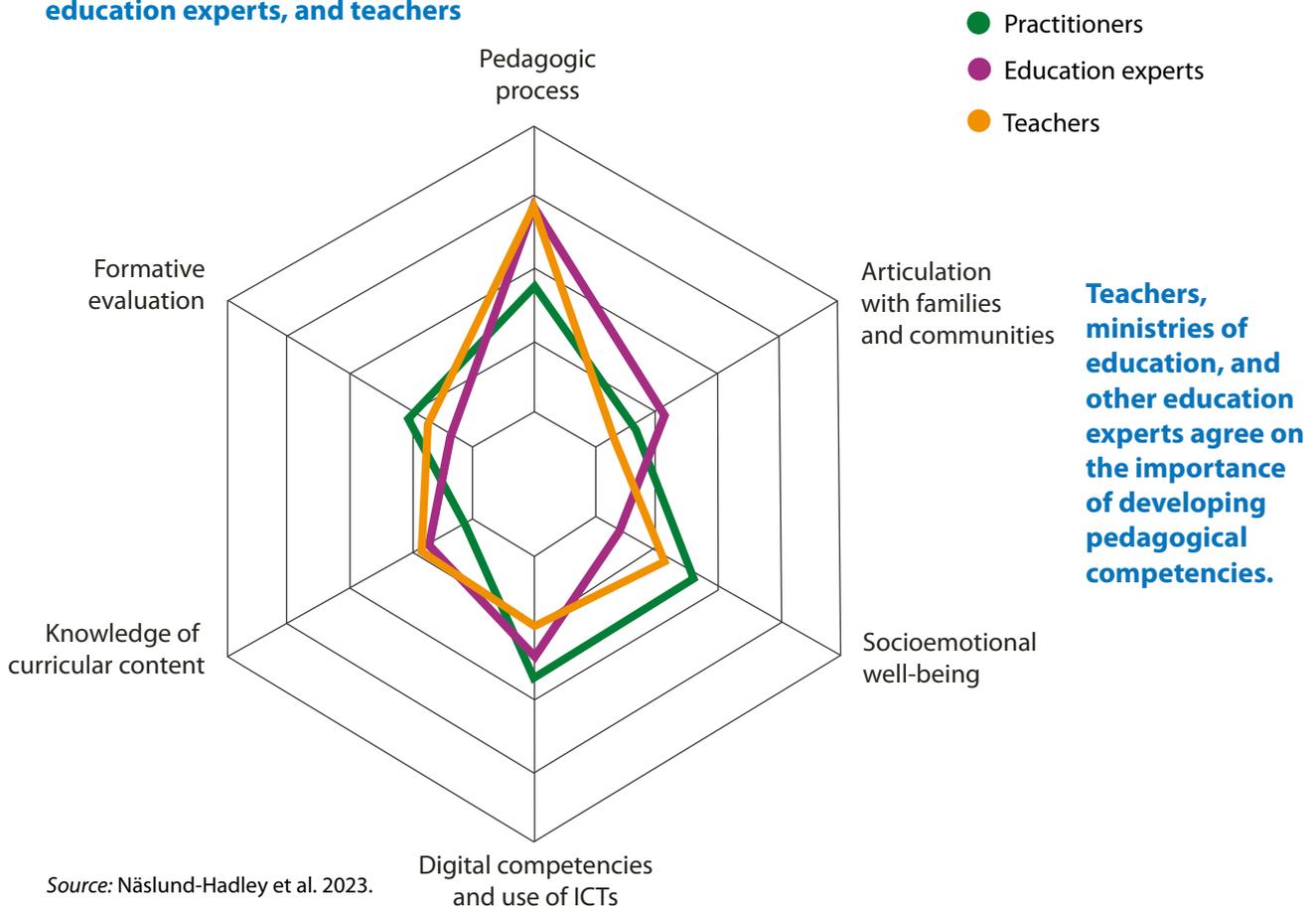
Chapter 2

Improving learning outcomes of pre-K to 12th-grade students in face-to-face, remote, and hybrid modes
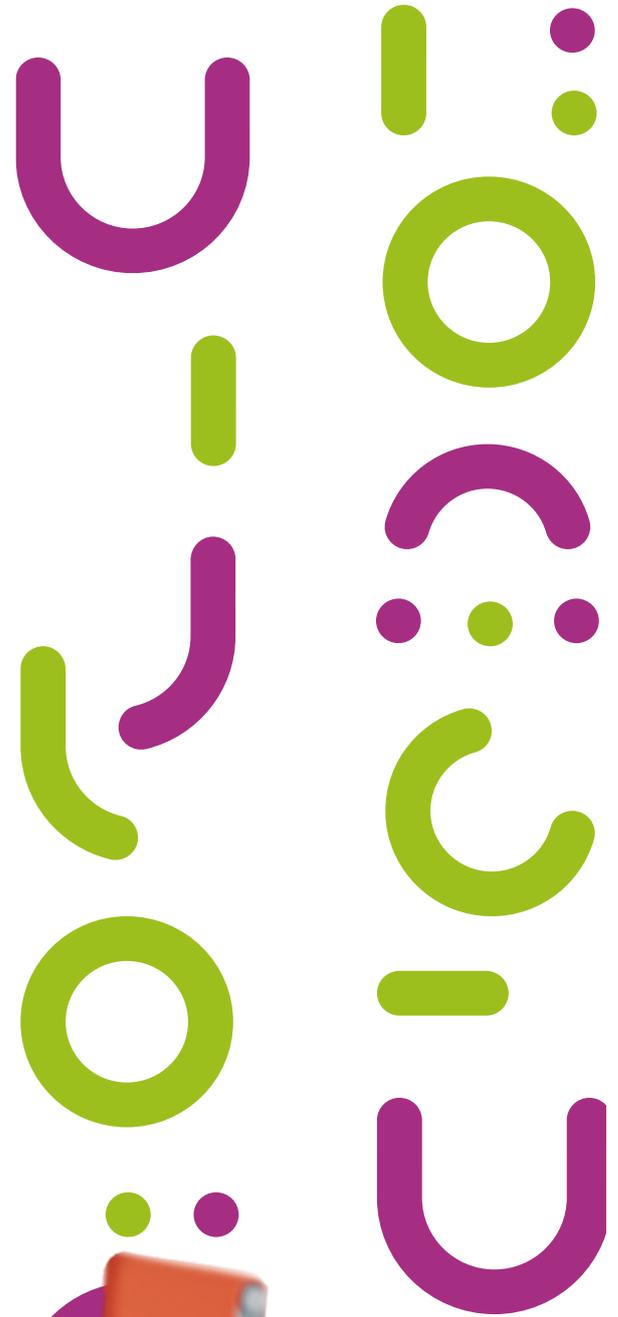
Effective, well-educated, and well-prepared teachers are at the core of successful education systems around the world

The United Nations Sustainable Development Goal # 4 calls nations to "Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all." UNESCO's Education 2030 Framework for Action states that "This requires relevant teaching and learning methods and content that meet the needs of all learners, taught by well-qualified, trained, adequately remunerated and motivated teachers, using appropriate pedagogical approaches and supported by appropriate information and communication technology (ICT)…" (UNESCO, 2016, p. 28).

The premise that there is no effective education system without effective educators has been confirmed once again during this world education crisis that COVID-19 has created (e.g., Darling-Hammond and Hyler, 2020)

As a starting point for analyzing the elements of high-quality teacher education in hybrid and remote education, we describe the characteristics of effective teachers.

There is little debate as to what makes a teacher excellent and effective (see, for example, Darling-Hammond, 2017; Darling-Hammond et al., 2017; Darling-Hammond and Hyler, 2020; Schleicher, 2012; Reimers, 2020).

Effective teachers are quality teachers who have participated in rigorous professional preparation and development, starting as pre-service teachers pursuing their initial license or certifications in post-secondary education programmes and continuing for the duration of their careers as in-service educators.

Teaching effectively requires teachers' intellectual energy and agency, emotional self-regulation, capacity to connect self, subject, and students, and a set of knowledge, skills, and dispositions that are developed through rigorous preparation and lifelong learning.

But the pandemic brought some changes, notably the new emphasis on remote and hybrid modes of teaching. Table 2.1 summarizes the essential qualities of an effective teacher, with emphasis on the qualities needed for teaching remotely and in hybrid mode.

Table 2.1 Qualities of effective teachers before and after the pandemic

Essential and specific knowledge and skills of the teaching profession	• Pedagogical content-knowledge for all modalities of teaching • Pedagogical skills that respond to all modalities of teaching • Use of educational technology in the classroom and outside it, not only to support face-to-face teaching but sometimes to serve as the most important teaching modality • Skills to identify appropriate technologies to use given content and learning objectives • Curriculum planning and development for face-to face, remote, and hybrid teaching • Content knowledge • Assessment and evaluation in face-to-face, remote, and hybrid settings • Individual learning differences and effective responses in all teaching settings • Teaching practices (supporting the learning process, application of content) • Classroom management, organization, and disciplinary techniques. Emphasis on different techniques of group work, cooperative learning, and organization of learning experiences when teaching in hybrid or remote modes.
Foundational knowledge that informs teaching practices	• Human development and developmentally appropriate teaching skills, with special attention to developmental differences in planning teaching and learning experiences in hybrid and remote formats. • Socioemotional learning and culturally responsive teaching, paying particular attention to (a) helping students engage with others, (b) establishing social interactions, and (c) responding to emotional needs even when in remote or hybrid settings.
Partnerships for effective support of all students	• Establishing and maintaining effective home-school partnerships, both face-to-face and in remote format, to support learners. These partnerships are built on collaboration and deep empathy. • Effective and respectful partnerships with families, communities, public institutions, and other entities to collaborate in the social responsibility of educating learners. • Effective professional partnerships (teachers, principals, psychologists, social workers, health professionals, etc.). Special emphasis on developing networks of teachers and teams to support teaching whether face-to-face, remote, or hybrid.
Personal characteristics of a professional educator	• Professional ethics, with a strong emphasis on ethical behaviour and empathy toward communities whether teaching face-to-face, remotely, or in hybrid format. • Understanding of and respect for the diverse social contexts of students, their families, and their communities. • Strong desire to continue learning as expressed in self-initiated professional development, especially to strengthen and practice remote and hybrid teaching skills, evaluation processes, and responses to the socioemotional needs of students.

Source: Authors.

Preparing and supporting the professional development of effective teachers is the goal and responsibility of teacher education programmes, which are most effective when housed in institutions of higher education and operating in partnership with educators in Pre-K through 12 school settings. The process of preparing teachers should be similar to how effective physicians are trained in medical schools working in partnership with hospitals.

Teacher professional development includes the following phases: (1) pre-service education; (2) induction into the profession; and (3) in-service education (figure 2.1). Competencies to teach face to face, remotely, and in hybrid formats are an essential focus of all three phases.

Figure 2.1 Phases of teachers' professional development

Phase 1: Pre-service teacher education

Phase 2: Induction to the profession

Phase 3: In-service education
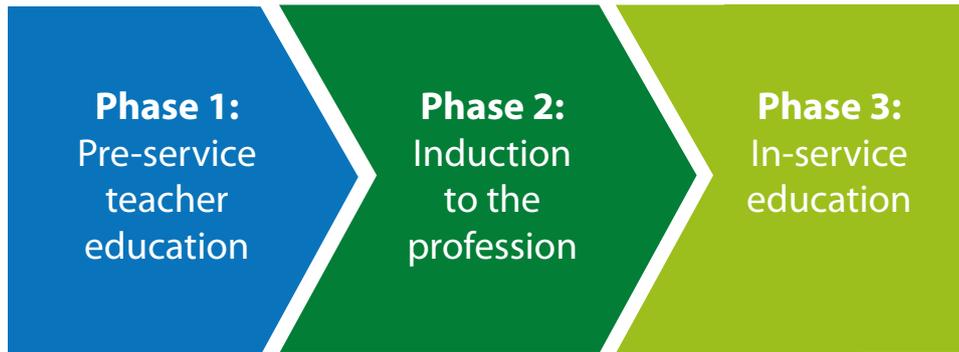
Source: Authors.

Figure 2.2 Pre-service teacher education

The four pillars of the profession continue to guide both the induction into the profession and the in-service education of experienced teachers. Which pillar is emphasized depends on individual and system needs. The new need to learn to teach remotely and in hybrid mode calls for an emphasis on teaching methods and their practice in hybrid educational settings.

General content knowledge of subject matter courses and experiences (the *what* of teaching)

Teaching methods courses, and experiences (the *how* of teaching in multiple modalities, including hybrid, online, and remote)

Education-relevant courses and experiences that support methods courses (human development, Universal Design for Learning, socioemotional learning, backward design, etc.)

Field experiences throughout the programme and student teaching for a significant number of hours/days in consecutive weeks/months

There are four areas of pre-service teacher education. These constitute the pillars of the profession. Effective teacher-preparation programmes integrate these four areas seamlessly. They are separated only for the purpose of analysis.

All four areas must now include knowledge of techniques on how to teach in hybrid format, the development of skills to teach in different modes, and the opportunity to practice those skills not only face to face but in remote and hybrid settings.

Source: Authors.

As professionals, teachers continue with their professional development in a life-long, career-long process. The nature of their further study, reflection, and practice over the years depends on a number of variables:

» Self-identified needs, such as a desire to self-improve and continue learning or to assume new responsibilities

» Results of annual assessments and evaluations

» New trends in their field

» External needs and circumstances, such as the need to learn new material or how to teach using technology outside the classroom to reach students in hybrid or remote format

» New initiatives in their school, district, region, or country

» Assignments to teach new or changing populations (immigrants, for example) or to assume new responsibilities in the classroom, school, or district

There is a difference between:

» Emergency professional development, which uses short and very focused training, workshops, on-the-job experimentation, and trial and error to respond to the immediate need for remote and hybrid teaching skills to decrease the learning loss of students

and

» Established professional development, which incorporates lessons and previous experiences from the emergency phase, incorporating remote and hybrid teaching into the larger set of pedagogical expertise that teachers learn and practice regularly in their initial and ongoing professional development

An effective programme of professional development for remote and hybrid teaching includes six types of preparation (figure 2.4).

Figure 2.3 The six components of effective professional development for remote and hybrid teaching

Digital literacy, collaboration, communication, learning, and teaching in hybrid mode.

A deep understanding of what and how to teach to promote significant learning.

Reflection on the preconceptions and beliefs about hybrid models and the purpose of incorporating technology in education.

The ability to integrate technology into teaching in face-to-face, virtual, and hybrid environments. This includes developing and implementing formal methodologies and conducting rigorous assessments. It also includes the ability to select tools and materials and to create digital content.

Competencies in collaborative work and the exchange of experiences and good teaching practices.

The ability to recognize one's own educational needs and those of students, and to help students and their families increase their participation and engagement in the learning process while respecting and protecting their privacy.

Source: Authors.

Aside from continuing to strengthen teachers' professional skills, the pandemic has shown the need to prepare teachers to teach synchronously and asynchronously in hybrid format and remotely (UNESCO, 2020) (table 2.2).

Table 2.2 Synchronous and asynchronous learning

Synchronous learning, usually online	Asynchronous learning
Teacher and students meet virtually for real-time lessons. Synchronous learning happens when teachers and students communicate simultaneously in the same virtual setting through technological tools and platforms.	Students participate in self-paced, on-demand learning via phone, computer, radio, TV, videos, books, and other sources. Teachers and students do not interact directly with one another at the same time. Teachers guide learning but do not share space or time with students.

Source: Authors.

When teachers have the skills, knowledge, and experience to teach remotely and in hybrid formats, they are able to:

» Decide on the modality to teach specific content based on the student population and students' circumstances (accessibility, grade level, etc.)

» Plan and teach lessons with effective pacing (self-paced, group-paced, teacher-paced) and organization

» Plan whether a lesson is a full-group lesson, or groups are divided into smaller teams

» Identify when individualized teaching is needed

» Decide on the kind of pedagogy to be used (expository, practical, exploratory, collaborative) for different subjects and segments of the curriculum

» Plan and implement the kinds of assessments that will be conducted in person and remotely, taking advantage of new technologies to help students self-assess their learning and progress

» Plan and implement formats in which to exchange feedback with students

» Use different strategies to engage with students remotely and to help them engage with one another

» Use strategies to monitor, support, and respond to the socioemotional needs of students regardless of whether the class is taught face to face, remotely, or in hybrid format

» Recognize their own educational needs

» Promote students' active participation

» Engage other adults, family, guardians, and other caregivers into the learning process

» Respect and preserve the privacy of students' data

Online and hybrid teaching was an option in teachers' professional development before the pandemic. Today it is a needed set of skills. Frameworks and standards devised to guide pertinent professional development before the pandemic may prove adaptable to the new circumstances. Those frameworks are summarized in box 2.1 and in the appendix.
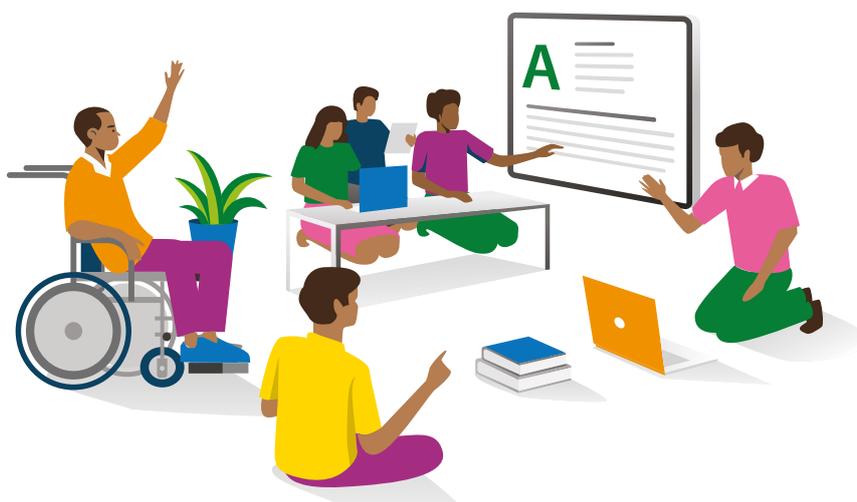
Box 2.1

Five frameworks of online and hybrid teaching developed before the pandemic

Standards for teaching online and using technology in the classroom and outside it are not new. But most existing guidelines and standards come from recommendations generated when online and hybrid teaching were thought of as options to supplement the "regular" face-to-face classroom teaching expected in most Pre-K through 12 schools prior to the pandemic.

Five frameworks of online and hybrid teaching developed before the pandemic are listed below. They should be consulted and adapted to current times, needs, and contexts. Now that hybrid and remote teaching are common practice in most schools worldwide, adjustments may be necessary to emphasize the difference between using these techniques to supplement face-to-face teaching and using them as the only teaching format over a significant amount of time.

ICT Competency Framework for Teachers (UNESCO, 2018)

» European Framework for the Digital Competence of Educators (Redecker, 2017)

» International Society for Technology in Education standards (ISTE, 2017)

» National Standards for Quality Online Teaching (Virtual Learning Leadership Alliance and Quality Matters, 2019)

» Blended Learning Teacher Competency Framework (Powell, Rabbitt, and Kennedy, 2014)

The five frameworks are described in more detail in the appendix.

Chapter 3

Case studies of teacher education before and during the pandemic

This chapter summarizes case studies from eight countries (figure 3.1) where information and communication technologies (ICTs) were integrated in teachers' professional development programmes, involving either remote or hybrid modes of learning. Some of these initiatives were underway before the COVID-19 pandemic, providing resources for schools to set up distance learning for students more easily.

The case analyses include background information on programme design, implementation, monitoring, and adjustment. Interviews with key actors highlighted information on the pedagogical approach and technologies used, the learning mode, key challenges faced amid the pandemic, and visions for the future.

The take-aways from each case highlight key aspects that are important to consider for remote and hybrid education based on both successes and challenges identified in each country.

Figure 3.1. Case studies of teacher professional development in hybrid education

Finland
Teacher Education Development Programme

Singapore
Teaching Scholars Program

Portugal
Digital Transition Plan

Costa Rica
FOD-MEP

Peru
Aula Digital

Nigeria
Edo BEST

Uruguay Fundación Ceibal

Argentina INFoD
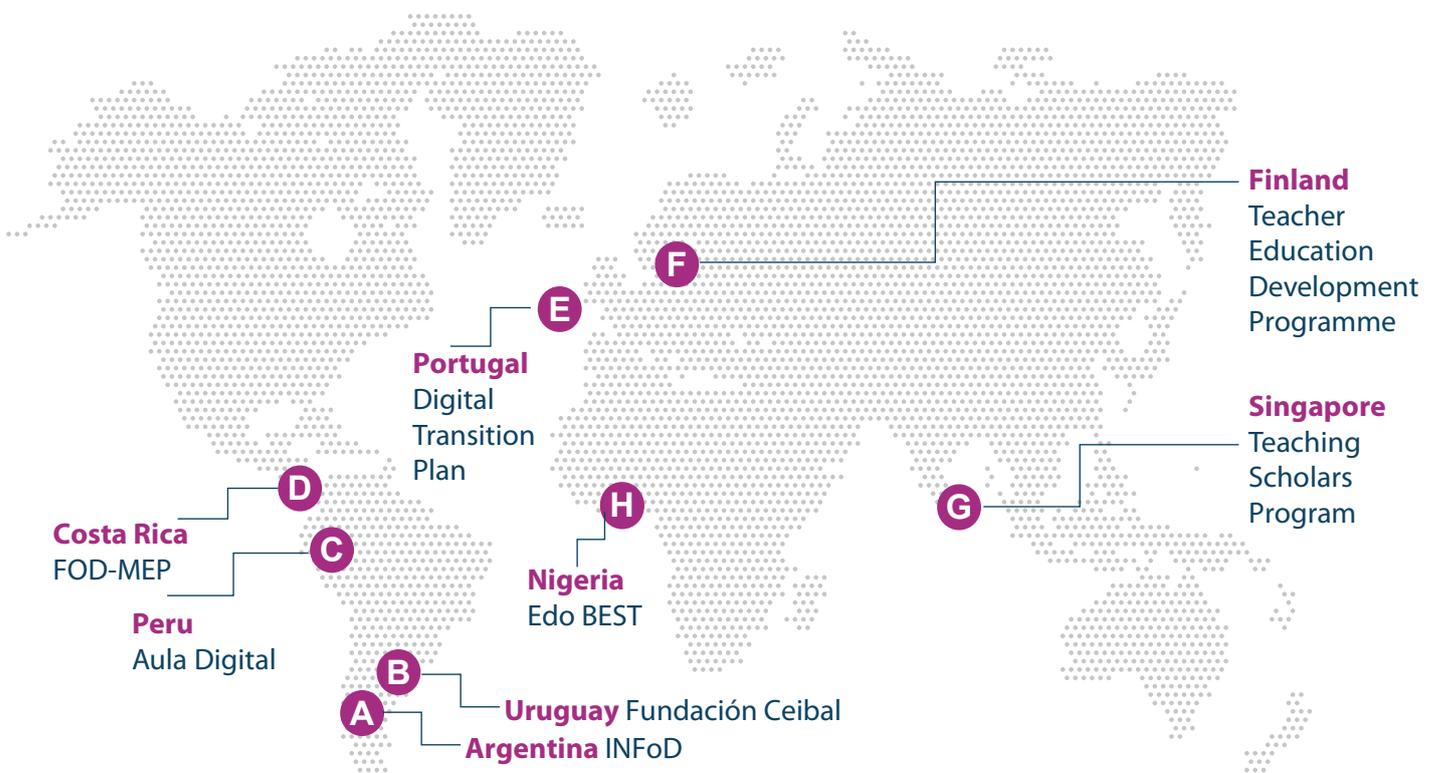
Source: Authors.

The designations employed and the presentation of material on this map do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations concerning the legal status of any country, territory, city or any area or of its authorities, or concerning the delimitation of its frontiers or boundaries
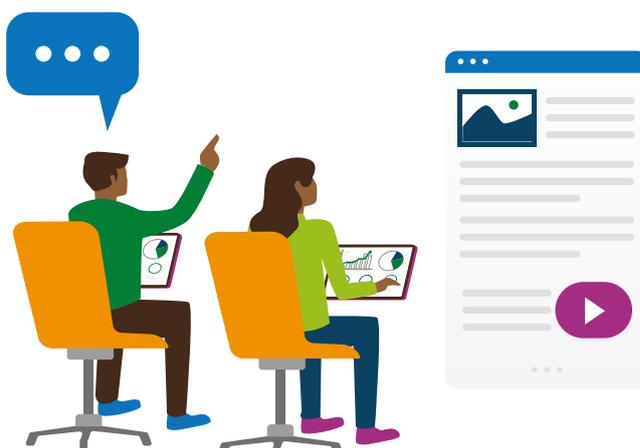
A. INFoD, **Argentina**

The National Institute for Teacher Education (INFoD), created in 2008, transitioned to include digital technologies with a pedagogical focus in their pre- and in-service education through different lines of action in accordance with different administrations and programmes.

The programmes "Conectar Igualdad" and "Nuestra Escuela" offered courses in ICT for teachers at different levels of the educational system. In 2016, due to government changes, there was a progressive closure of postgraduate degrees, with the last cohort graduating in 2018.

In 2020, many teacher education initiatives related to the use of ICT were promoted. INFoD conducted 63 eight-week tutor-led courses and 26 self-directed courses with an estimated 480,000 teachers participating. It also offered tutorials and guides for working online.

Envision and understand

In the context of the COVID-19 pandemic, an eight-week tutored programme on educational practices with digital tools was developed. This course is taught twice a year, with up to 5,000 participants from the higher institutes of teacher training (Institutos Superiores de Formación Docente, ISFDs).

Currently, this is the only offering specific to technology topics. However, due to the pandemic many programmes have expanded to include a component on how to use ICTs to improve teaching and learning. These courses are implemented through virtual classrooms. By working in a virtual environment, the courses anticipate that participants will appropriate digital tools through their use, integrate ICTs into their work culture, and discover the benefits of networking and sharing relevant experiences.

Decide and design

» Participants: Teachers, leadership teams, supervisors/inspectors, tutors, librarians, assistants, teacher trainers, pre-service teacher students, jurisdictional technical teams, school orientation teams, pedagogical advisors.

» Educational level: Early childhood, primary, secondary, and higher education.

» Model: Tutored (800 tutors in charge of 2,300 classes that can have up to 90,000 enrollees).

» Objective: Pedagogical inclusion of ICTs in teacher preparation and instruction in different disciplines.

» Modality: Virtual (hybrid mode prior to pandemic).

» Assessment: Individual.

» Certificate: Conditional on approval.

→ For those with a teaching degree, this course provides a certificate and score.

→ Courses have national validity, but scores vary according to each jurisdictional definition.

» Monitoring: Conducted via worksheets by project managers who follow up with students.

Enable and execute

The course begins with a general presentation of virtual platforms, their characteristics, and their possible educational uses, and expands the analysis and implementation of other cultural tools and products (e.g., visual presentations and videos, digital infographics, tools for collaborative work, use of data, etc.). It also promotes the implementation of a class proposal designed by each participant.

Virtual classrooms of 50–60 students are monitored by a tutor. Tutors work with coordinators and discipline specialists with expertise in virtual modes. Coordinators provide training and support to tutors.

Specific guidelines for tutors' work were developed, but more support for both tutors and students may be required.

Monitor and adjust

During the pandemic, it was necessary to include synchronous learning events, both involving the support of a tutor and not. These served to strengthen classroom relationships and are now mandatory in all education proposals. New formats such as workshops and worktables with specialists might be included. The following steps could be taken to improve results:

» Do more to guide teachers in creating course contents.

» Strengthen collaborative work between teachers and ask them to reflect on their practices.

» Include themes related to developing digital citizenship following the United Nations Educational, Scientific and Cultural Organization's (UNESCO's) framework for Latin America.

Key take-aways

Successful lessons

» Offer continuous education programmes that focus on pedagogical tools and use of technology.

» Implement courses through virtual classrooms that allow for the appropriation of digital tools and practice in collaborative environments.

» Include new formats and more synchronous spaces that allow for stronger, empathetic relationships.

» Form work teams with differentiated functions (coordinators, specialists, tutors), but who work together to support remote and/or hybrid learning.

» Develop additional guidelines for tutors working virtually.

Remaining challenges

» Strengthen teachers' collaborative work and development of course materials.

» Include themes related to digital citizenship.

» Focus on the recipient; ground theories in concrete practices.

» Challenge established viewpoints, break format molds, and promote the new. Such experiences prepare teachers to work in different modalities.

B. Plan Ceibal, Uruguay

Plan Ceibal was created in 2007 to foster national inclusion and equal opportunity and support Uruguayan educational policies with technology.

Since its implementation, each child and adolescent who enters the public educational system in the country has access to a personal computer with a free Internet connection from the school.

Plan Ceibal provides a set of programmes, educational resources, and teacher training that seeks to transform teaching and learning methods. It benefits both established teachers and future ones enrolled in the teacher education programme of the National Public Education Administration (Administración Nacional de Educación Pública, ANEP). The plan was developed along with ANEP's Teacher Education Council (Consejo de Formación en Educación, CFE).

Envision and understand

As Ceibal increased its presence in primary schools, the need for teacher training in the use of the relevant new technologies became clear.

Since 2014, Ceibal has worked with the Global Learning Network, which provided a conceptual framework connecting technology with pedagogy, and aligning Ceibal with the goals of the educational authorities.

Decide and design

Ceibal offers free comprehensive professional development for all teachers nationwide, at all levels (early childhood education, primary, middle school, high school, and pre-service) and in both public and private school.

The plan includes multiple modalities, from online virtual courses to in-person strategies (workshops and meetings that are now synchronous due to the pandemic). It also includes a postgraduate degree from ANEP-CFE that certifies in-service teachers in knowledge and emergent practices around the creation and use of Open Education Resources.

A team of content experts is in charge of course design. There are also calls for proposals from universities and noneducational institutions. The approaches seek to be as interdisciplinary as possible.

The teaching training models have progressively come to include new topics such as leadership, socioemotional education, rethinking assessment, design thinking as a methodology, digital citizenship, art, and science, technology, engineering, and mathematics (STEM) fields.

Enable and execute

Access to Ceibal's teacher education has no institutional requirements. Any teacher can sign up independently, without needing a system authorization.

Not all courses are accredited (only about half of the courses offer certifications). Educational authorities validate the courses on a case-by-case basis. Several specific institutionalized and coordinated programmes offer credits for teachers' pre-service education.

Due to the pandemic, new formats were introduced (webinars, TV programmes, courses, talks). New topics were also addressed such as the responsible use of technology, digital well-being, and emotional support.

Monitor and adjust

Ceibal, through the CEIBAL Foundation, proposes a research agenda for external teams and has a sectoral fund with the national innovation agency. The new academic approaches that emerge from these initiatives help in understanding the impact of classroom projects. Usually, these involve long-term projects of 12–18 months.

Monitoring and evaluation are done in coordination with the education management office. Through a collaborative work dynamic, standards are proposed, as well as instruments to collect specific data, to monitor the fulfilment of project objectives.

The Ceibal plan adopted the International Society for Technology in Education (ISTE) standards, based on which Ceibal's educational offer was revised and organized. There are efforts to develop a new management system to organize the course offerings on a new platform that proposes personalized educational tracks according to a self-assessment of teachers' competencies.

Key take-aways

Successful lessons

» The evaluation and diagnosis carried out by the Global Learning Network introduced the notion of competencies and a conceptual framework that connected technologies with pedagogy, legitimizing and providing a direction to Ceibal.

» Ceibal offers a comprehensive professional development set of opportunities through multiple modalities (from virtual to in person).

» The course design allows for interdisciplinary approaches and the education proposal has progressively opened up to include a wide range of topics (leadership, socioemotional education, rethinking assessment, design thinking as a methodology, digital citizenship, and others).

Remaining challenges

» Develop a new management system to organize the course offerings on a new platform that proposes personalized educational tracks according to a self-assessment of teachers' competencies.

» Raise awareness of social and educational inequalities that became more evident due to the pandemic.

» Ceibal at Home requires training teachers and providing them support in interacting with students through digital platforms and courses, both synchronously and asynchronously.

What is essential for hybrid education moving forward?

The proposal must:

» Include a dialogue and articulation between technology and pedagogy from the beginning;

» Have an interdisciplinary logic;

» Be linked to teachers' needs and include flexible paths with mandatory core courses;

» Have a clear competency framework that organizes and illustrates the different skills and competencies; and

» Include pre-service education, a trainers' training component, and a continuous education component.

C. Aula Digital, **Peru**

In operation since 2018, Aula Digital Peru includes four lines of action: teacher in-service education, schools' technological infrastructure, virtual platforms, and educational content.

To date, it has reached 1,200 schools, and 14,000 principals and teachers in 21 regions nationwide. Its main objective is to promote the formulation, implementation, evaluation, and systematization of educational projects using ICTs.

The programme is implemented by Fundación Telefónica, together with educational authorities in each region.

Envision and understand

When it started, the project focused on the use of technological tools and digital competencies, evolving toward a more comprehensive vision.

It uses as reference the Digital Competences Framework (UNESCO) and the local frameworks Marco de Competencia Digital Docente and Marco del Buen Desempeño Docente (MINEDU).

As regards the work methodology, the project has several support components to strengthen the pedagogical use of digital tools: field monitors work locally and are supported by regional coordinators (working in the project's central offices) and lead teachers in each school.

The project meets the conditions of a professional situated learning approach.

Decide and design

The Aula Digital Teacher Education Plan specifies the development of four capabilities to achieve digital competence:

» Informational literacy

» Communication and collaboration in digital environments

» Creating learning content using technologies

» Use of technologies for the teaching-learning process

The programme has three progressive levels that include learning modules. Both virtual and in-person learning is facilitated by three teacher-oriented platforms: Aula Virtual, Moodle (a space where educational experiences are periodically published), and a gamified app called "Oráculo Matemático."

Enable and execute

Programmes are implemented by local governments and schools through formal agreements with the regional education directorates (Direcciones Regionales de Educación, DREs) and the local units of education management (Unidades de Gestión Local, UGELs).

The official accreditation and certification mechanisms for the annual participation of teachers are determined through signed agreements with the local education governments.

Project heads are supported by regional coordinators, field monitors, and lead teachers in schools, among others.

Monitor and adjust

The programme has been validated by the UNESCO Lima office as a professional situated teacher learning experience. It was evaluated in 2020.

Self-assessment instruments (at the individual and macro level) are needed to align with the expected standards for teacher performance. Also, a systematic strategy to collect documented evidence on teachers' collaborative work is important to formulate learning experiences.

There is a need to strengthen spaces where teachers can share and interact.

The programme needs to prepare teachers as content (digital) creators and work to visualize these contents, while creating standards and mechanisms for self-assessing the content produced.

Key take-aways

Successful lessons

» Adopt a comprehensive strategy, encompassing and integrating various dimensions of any intervention in an educational community (preparation, management, platforms, equipment).

» To make the strategy viable, draw on the leadership of educational communities.

» This is a professional situated learning model with systematic instances of teacher support and accompaniment (field monitors, regional coordinators, and lead teachers).

» Communicate content, methods, and time frames in a constant dialogue with each community.

» The project must also go hand in hand with public policy through the interpretation and elaboration of proposals at the different levels of government.

Remaining challenges

» Need to develop self-assessment instruments to evaluate teachers' performance and systematic strategies to collect and document evidence regarding teachers' collaborative work.

» Need to strengthen spaces where teachers can share and interact, including emotional aspects.

» Need to prepare teachers as creators of digital content and work to make this content visible and create standards and assessment mechanisms to evaluate it.

D. PRONIE MEP-FOD, Costa Rica

The Omar Dengo Foundation (Fundación Omar Dengo, FOD) is a nonprofit organization that develops innovative educational proposals to support the use of new technologies. Since its creation in 1987, it has developed and implemented national and regional projects in the field of human development, educational innovation, and new technologies.

Created in 2008, the Institute of Professional Development (Instituto de Desarrollo Profesional Uladislao Gámez Solano, IDPUGS), attached to the Ministry of Public Education (Ministerio de Educación Pública, MEP), is in charge of training, updating, and improving processes for in-service teachers.

Since 2011, the National Programme of Educational Informatics (PRONIE MEP-FOD) has been financed by the MEP. This includes hiring advisors and acquiring equipment (1:1 model, laboratories, mobile labs). Two of their operation modes are: Learning Using Mobile Technologies (ATM) and the Educational Informatic (LIE++).

Envision and understand

FOD works with the MEP and seeks to align its programmes with the educational policy objectives of the ministry. Specifically, FOD works with IDPUGS every year to develop a collaborative diagnosis and propose a continuous training plan, so IDPUGS can then recruit full-time teachers.

Since 2011, the National Programme of Educational Informatics has grown and begun a new modality: learning using mobile technology. The programme provides classroom equipment under different schemes: the 1:1 model, a laptop for each pair of students, and mobile laboratories.

At the same time, a process for teacher professional development began, which was designed based on agreements and negotiations with the MEP. While prior to this initiative only ICT teachers at each school were trained, these formative actions sought to progressively reach all teachers.

Decide and design

The training and advisory components of PRONIE MEP-FOD strengthen teacher competencies in the path toward technological appropriation, innovation, and pedagogical practice.

In 2014, a virtual campus (UPE) was established for teacher training implemented by FOD and MEP.

UPE is an open platform where participants have access to a wide range of online courses—mediated and self-managed—and learning communities, providing support for professional development and strengthening 21st-century competencies.

Most of what is offered (70 percent) is elective, and few courses are accredited. Modules and courses have various formats: online courses, webinars, bimodal training, and in-person mini workshops.

Courses may follow a teachers' update plan or use the Digital Competencies Framework, based on the teaching framework developed by the European Union.

Enable and execute

The working team that implements the PRONIE MEP-FOD is composed of an FOD team and an advisory group from MEP.

The advisory group includes teachers who have worked with students and are knowledgeable of the public system. Currently, the foundation has 10 offices across the country where it coordinates the work of 82 advisors to access the beneficiary groups in each zone.

At the beginning, national advisors would visit teachers at schools in person. But when the offerings expanded, they began to use technological channels such as WhatsApp and social networks.

Monitor and adjust

More can be done to assess the performance of educational informatics teachers.

FOD formative proposals are in process. In the context of the pandemic:

» The course offerings were expanded, and more spots were opened.

» All training needed to be virtual, and teacher support also shifted to a fully virtual mode.

» Teachers were supported through team workshops and mini tutorials.

» Platforms from other partners of FOD were added and new consultation sites appeared in the framework of "Aprendo en casa" ("I learn at home").

» Informative live events were developed through social networks.

Key take-aways

Successful lessons

» During the pandemic, the work and experience accumulated by FOD was very relevant. The foundation already had strategies in place such as virtual platforms, remote accompaniment modes, regional networks for sharing and analyzing practices, and a national advisors' network to provide support during the pandemic.

» The long-standing relationship and joint collaboration between FOD and MEP were key to the successful response to educational needs during the pandemic.

» The combination of different professional profiles, both from FOD and MEP, facilitated constructive dialogue with public sector partners.

Remaining challenges

» Consider how to best facilitate autonomous study and also to use technologies in the classroom.

» Capitalize on the lessons learned from the pandemic to facilitate the inclusion of new generations of teachers familiar with virtual work, as well as those who find it difficult to adapt.

» Ensure access to education for all by designing learning virtual content and platforms that consider the heterogeneity of students.

E. Digital Transition Plan, **Portugal**

Portugal's Digital Transition Plan is implemented by the Directorate-General for Education (DGE) as part of the education axis of the National Initiative on Digital Competencies (INCoDe.2030).

The project (2020–23) is being implemented by the DGE in collaboration with the universities of Lisbon and Évora. This government-sponsored programme has benefitted 99,740 primary and secondary schools that voluntarily agreed to participate.

Prior to its implementation in 2020, two pilot projects were implemented to test the main strategies of the plan: Digital Competences for Teachers (January–June 2019), a project focused on teacher training; and Ecossistemas de Desenvolvimento Digital (September 2020 to January 2021), a project focused on the integration of ICTs in the broader school context.

Envision and understand

The Digital Transition Plan was created with the aim of empowering teachers and schools with digital competencies to transform education. The plan outlines three main actions:

» In-service training to develop teachers' digital competencies

» Development of schools' Digital Action Plans based on a self-evaluation process

» Provision of digital resources

Key partners for this project are the 91 teacher training centers (Centro de Formação de Associação de Escolas, CFAE) in Portugal, which group schools in the same geographic area and provide in-service training. Teacher trainers and digital ambassadors were selected from CFAEs and trained for the programme.

Portugal's government provided every student and teacher with laptops and access to Internet hot spots.

Decide and design

Teacher training component
The teacher training strategy is based on the DigCompEdu Framework and utilizes a check-in tool to self-diagnose a teacher's digital proficiency level.

The training programme is divided into three levels of digital proficiency, aligned with DigCompEdu:

» Level 1: Explore and adopt digital competencies.

» Level 2: Reflect, collaborate, share, and critically use digital pedagogies.

» Level 3 : Adopt innovation and leadership on digital pedagogies.

Classes were also organized by curricular areas, and 573 certified teacher trainers were trained online at one of the three programme levels.

School empowerment component
» School digital teams (principal + two teachers) used the SELFIE tool to self-evaluate and diagnose their digital competencies, reflect on the results from those evaluations, and develop a Digital Development Action Plan with the support of digital ambassadors.

Enable and execute

Teachers were trained in 25-hour workshops divided into two- to three-hour sessions once a week (or every other week).

Online workshops were collaborative in nature. For a third of the session a particular competency or digital resource was discussed, and for the rest of the session teachers worked together to explore and create lesson plans and activities with those tools and resources.

After the session, teachers implemented their plan with their own students. At the following session, teachers would share the results of their implementation, reflect on it, and receive feedback from their peers and trainer.

Monitor and adjust

While teachers were trained online, their classes looked different due to pandemic restrictions. In this sense, the programme provided competencies for teachers to implement digital tools in different learning environments.

Partnering with teacher training centers was key to convincing teachers and principals to participate in the programme.

Although the diagnostic tools used were based on teachers' self-evaluation, they provided valuable information for developing training strategies that were in accordance with the teachers' perceived proficiency levels. This helped teachers feel more comfortable in their groups.

The provision of technological infrastructure (equipment and connectivity) was not enough to enable the integration of ICTs. Teachers needed to be supported through this transition and they realized this was an opportunity to develop their digital competencies.

Key take-aways

Successful lessons

» The integration of diagnostic tools helps in understanding the difficulties that teachers encounter, and thus design better approaches to address them.

» Training strategies need to be connected to the current context. Teachers were able to use the skills they developed in workshops to make context-specific plans and implement what they learned in their classrooms.

» The training model created communities of sharing and support for trainers and teachers and among participant teachers.

» Training focused on effectively integrating ICTs in teaching pedagogies. It is important to explore how teachers' specific competencies can be promoted by integrating these tools in their activities.

Remaining challenges

» Convincing all teachers and principals to participate in the project proved difficult. Working with teacher education centers and having digital ambassadors in each school are key to recruit and engage schools in the process.

» Providing technological infrastructure (equipment and connectivity) is not enough to enable the integration of ICTs. Teachers require additional support and specific training to develop digital competencies.

» Teacher education and training need to be individualized to the teachers' needs and context, as not every teacher is at the same proficiency level.

» Self-diagnostic tools, although highly valuable and useful, provide only a subjective perception of teachers' digital competencies and proficiency levels.

F. Teacher Education Development Programme, **Finland**

Finland has a decentralized education system that promotes teacher professionalism and autonomy. Pre-service education in the country has an important research orientation through a 5.5-year master's programme. In-service professional development is offered both at the national level by the government and organized at the local level through municipalities and networks of schools and teachers.

In 2016, through a collaborative and research-based consultation process, the Teacher Education Development Programme developed a new set of national aims and strategic competencies to guide teacher education and professional development.

Envision and understand

The Teacher Education Forum organized a comprehensive literature review (including seminal work from the Organisation for Economic Co-operation and Development, the European Union, and UNESCO) and a process of consultation with teachers and teacher education experts nationwide to identify the main challenges in the education system and prioritize aspects related to teachers' knowledge and education.

Regarding teacher competencies, the top priorities mentioned among participants were related to learning-to-learn, along with competencies for effective teacher collaboration.

In terms of ICT development, Finland possesses a robust technological infrastructure, and various strategies and development projects at the national and local levels have emphasized digital skills and competencies ("digi-pedagogies") since the 1990s.

Decide and design

Three strategic competency goals were defined:

» A broad and solid knowledge base (including different pedagogies, digital skills, and skills to promote collaboration and work with diversity among learners).

» Competencies in generating novel ideas and educational innovations.

» Competencies in developing teachers' own expertise as well as their schools.

Six strategic action guidelines were defined according to the national goals for teacher education. These guidelines oriented teacher education programmes and were implemented (2018–21) through government-funded, research-oriented pilot projects developed by Finnish universities in collaboration with schools and networks.

Enable and execute

» Reflection through mentoring: During pre-service training, student teachers are assigned a faculty mentor that supports reflection processes around teachers' beliefs, values, and practices. For teachers in the early stages of their career, a peer-group mentoring programme (Verme) provides space for sharing experiences, collaboration, and peer learning supervised by a trained mentor.

» Tutor-teacher model: A peer training model features trained tutor-teachers at each school to support teachers in the use of digital tools, how to organize inclusive education, and how to promote the learning of transversal competencies in their own classrooms.

» Practice and research-oriented education: Throughout their pre-service programme, student teachers have several practice periods in schools after the first year. Also, their thesis and research projects provide opportunities to connect theoretical work with practical applications.

Monitor and adjust

Despite the rather smooth transition to distance learning supported by technological infrastructure and digi-pedagogies, challenges have highlighted the urgent need to develop the socioemotional skills and the well-being of students, teachers, and principals, as well as new strategies to promote collaborative work among teachers and students.

The transition to online learning was facilitated by the technological infrastructure in most Finnish schools, as well as specific strategies to support teachers in the use of digital tools (e.g., teacher-tutors).

Teacher education shifted to online lessons and the practice component was also performed online. However, moving forward, multimodal or hybrid models of education are preferred.

The different pilot development projects that started as part of the Teacher Education Development Programme are being finalized this year and the results of their monitoring processes will inform teacher education and the inclusion of new strategies for teaching.

Key take-aways

Successful lessons

» Teacher education promotes professionalism and autonomy, emphasizing competencies and skills that allow planning and decision-making at the local level.

» Multiple opportunities for teacher collaboration and networking within and across schools are most effective. Networks allow teachers to share information regarding innovative pedagogical approaches, such as the use of digital tools or personalization of learning.

» Individualized support of teachers, through mentoring and tutors during the initial and induction phases of their training, is necessary. Teacher-tutors also supported teachers in the use of digital tools.

» A research orientation that prepares teachers to become consumers and producers of educational knowledge is important.

» Investments in digital infrastructure and the development of digi-pedagogies facilitated the transition to online learning.

Remaining challenges

» There is an urgent need to focus on developing socioemotional skills and enhancing the well-being of students, teachers, and principals, as well as new strategies to promote collaborative work among teachers and students.

» A full online mode proved challenging. Moving forward, multimodal or hybrid models of education are preferable.

» The COVID-19 crisis made evident some inequalities in the system. Hence, students who lacked technological infrastructure or parental support, or teachers who experienced more digital challenges were less engaged during the distance teaching and learning period. In general, most teachers perceived that the workload was higher than in a normal situation, usually report in stress and burnout.

G. Teaching Scholars Programme, Singapore

The National Institute of Education (NIE) is in charge of teacher preparation and the implementation of teacher professional and school leadership development programmes in Singapore.

In partnership with Singapore's Ministry of Education, it offers two university-based pathways for initial teacher preparation: the Teaching Scholars Programme (TSP) and the Post Graduate Diploma (PGDE).

The TSP, which was launched in 2014, is a four-year undergraduate programme that augments a bachelor of arts/science degree with an accredited preparation for the teaching profession.

It is implemented by NIE and the Nanyang Technological University in collaboration with and full sponsorship from the Ministry of Education of Singapore.

Envision and understand

TSP combines teacher preparation with a degree programme, where students graduate with a bachelor of arts/science degree in a specific content area besides receiving teaching credentials.

The programme's main objective is to provide student-teachers with a holistic values-based programme that integrates a rigorous curriculum, innovative pedagogical approaches, and a practical orientation toward learning.

The first two years are focused on education studies that provide the key concepts and principles of education, along with the curriculum and subject studies that focus on specific pedagogical content knowledge and strategies for teaching a particular subject.

During the third and fourth years, students take courses in two disciplines that cover the content specialization required for their degree majors.

During these stages student-teachers also develop practice-oriented projects.

Decide and design

» Values-based approach: The V3SK framework proposes a three-component paradigm involving teachers' skills and knowledge but firmly grounded in the values that Singaporean teachers must have. The three proposed values are:

→ Learner-centered education

→ Teacher's identity (professionalism and respect)

→ Service to the profession and community

» Practical orientation: Student-teachers participate in several school-based practicum components of increasing length and depth as they progress toward their senior year. School-based experiences can also be completed overseas in a five-week international teaching assistantship practicum at a partner international university.

» During the practicum, student-teachers are mentored and guided by their school coordinating mentors, cooperating teachers, and NIE supervisors through systematic observations, assistance, and advice.

Enable and execute

Technological pedagogies

» Collaborative classrooms: Seating arrangements that allow for group discussions and collaborative work, as well as technological devices and digital platforms that facilitate collaboration.

» Student learning space: A management system across schools where teachers can build and share pedagogical resources.

» Digital literacy modules: In these modules, students can learn about the technological resources available, how to use them, and carry out small projects related to their personal interests.

Reflection and self-awareness

» E-Portfolio: Digital platform for students to reflect on their learning, track their knowledge, and collect digital projects they develop throughout their training. They can share their work and reflections with peers and tutors and receive feedback.

» Meranti Project: Immersive and experiential programme led by experienced teachers where students meet with their peers and professors to reflect on and discuss their experiences, challenges, and aspirations.

Monitor and adjust

Digital resources already in place facilitated the transition to online learning. For example, the Student Learning Space (SLS) platform provided teachers with several tools and resources they could adapt and use to teach online. However, teachers faced many challenges when learning how to adapt these tools for their practice in online environments.

Moving forward, the NIE's programmes aim to emphasize different ways in which teachers can work with these resources to tailor them for their classes and students' needs.

There is a need for a paradigm shift to develop a new model for teaching. It is important to consider which pedagogical approaches and resources are most advantageous for various groups of students (e.g., online, flipped classroom, in person).

Socioemotional learning (building resilience, managing and expressing emotions) should be more strongly emphasized.

An expanded focus on students' environments and communities is needed to develop better approaches to support them.

In-person interactions are important. Hybrid models seem more promising to avoid learning loss while preserving face-to-face learning.

Key take-aways

Successful lessons
» Teacher education is grounded in strong values that put students at the center, highlight teachers' identity, and promote professional communities.

» Practice components in which students apply theory and experience different learning environments through practicum opportunities are important.

» Reflection on and self-awareness of teachers' own identity and learning process is enhanced through the use of e-portfolios and collaborative spaces such as the Meranti Project.

» Guided practice and reflection are supported by mentoring structures.

» Digital resources must be made available. Focusing teacher training on their pedagogical use supports a variety of student needs. The use of certain technologies for specific learning purposes and groups of students should be identified.

Remaining challenges
» A paradigm shift is needed to develop a new model for teaching. Teachers need to transition from mediators of learning to also becoming designers of learning environments.

» New learning environments should emphasize the personalization of learning.

» Students' well-being and socioemotional learning are imperative. Special attention should be paid to the environments and communities surrounding them to develop better approaches to support them.

» In-person interactions are important. Hybrid models seem particularly promising since they prevent learning loss while preserving the benefits of face-to-face learning.

H. Edo BEST, Nigeria

The Edo Basic Education Sector Transformation (Edo BEST) initiative was launched in 2018 by the governor of Edo State (Nigeria) and the Edo State Universal Basic Education Board (SUBEB).

Edo BEST is the flagship initiative of the Edo State government, which aims at transforming the public education system and learning outcomes.

The strategy was implemented statewide, and from 2018 to 2020, more than 11,000 primary teachers were trained. Edo BEST 2.0 will expand to junior secondary teachers and pre-service teachers.

In 2020, the Edo BEST strategy was adapted to home-based learning and implemented as EdoBEST@Home.

Envision and understand

Conceived as a whole-system reform, Edo BEST aims to develop a highly skilled, well-supported, and motivated teacher workforce that, when coupled with improved infrastructure and integrated school management systems, will deliver learning and restore confidence in public schools.

The Edo BEST approach is based on five pillars:

» Governance and institutional development of SUBEB and local government education authorities.

» Teacher's professional development and quality assurance.

» Providing students with the right curriculum and learning tools.

» Provision of school infrastructure.

» Community engagement.

Decide and design

Bridge International Academies (a technology-based education provider) and the Edo SUBEB were in charge of Edo BEST's implementation. The main strategies were to:

» Provide teaching and learning resources (e.g., textbooks, homework books, lesson guides via tablets, standardize timetables).

» Train and coach in-service teachers in effective classroom management, the quality delivery of the Nigerian national curriculum, and the use of ICTs.

» Implement technology-supported quality assurance system based on constant monitoring and feedback.

The Edo BEST intervention was also designed to increase familiarity with ICTs and leverage these to provide learning supports beyond the experience of most Edo teachers.

Enable and execute

Teachers engaged in face-to-face training sessions on child-centered teaching philosophy, best practice classroom management techniques, content and grade-level aligned textbooks, and the use of tablets as a teaching resource and a tool to track pupils' attendance and learning.

Teachers were given a tablet with scripted lesson guides based on the national curriculum. Lesson guides aimed at being student centered and specified times for demonstration and student feedback.

Once teachers returned from training, a leadership development officer (LDO) with pedagogical experience visited each school every one to two weeks, providing coaching and individualized feedback to teachers.

Based on the students' data gathered through the tablets, the LDOs supported teachers to use the digital guided lessons and tablets to track and monitor learning.

Monitor and adjust

As a response to the pandemic, Edo BEST adapted to a mobile-based remote learning programme, EdoBEST@Home, which capitalized on existing resources from the main programme (teachers are already trained to use technology in their classrooms and benefit from a rich repository of digital resources such as teaching guides and practice exercises for students).

Because of a lack of connectivity and computers in many households, teachers had to provide support through mobile-based solutions. In some instances, virtual classrooms were set up.

Teachers received training and support in how to create online classes, deliver lessons in small learning pods where Internet access was lacking, assess students regularly through WhatsApp quizzes, and engage with parents and students.

LDOs logged into WhatsApp and virtual sessions, monitored teachers' practice, and provided feedback and support.

Now that teachers are familiar with ICTs, the new version of the programme aims to develop more pedagogical uses of technology in the classroom and engage parents in new online systems.

Key take-aways

Successful lessons

» Edo BEST provides an example of interventions undertaken in a low-income context. Partnership with Bridge International Academies was essential to develop a comprehensive strategy based on a common curriculum and provision of instruction resources.

» The strong ownership and involvement of SUBEB were key to ensure project sustainability.

» An integrated approach of coaching, targeted feedback, and guiding lessons as a big part of the success of Edo BEST to empower teachers in the classroom.

» The EdoBEST@Home adaptation in response to the pandemic capitalized on the infrastructure, resources repository, and skills that Edo BEST had developed.

» The strategies developed through Edo BEST and the EdoBEST@Home edition were sensitive to contextual needs and challenges (e.g., low connectivity and technological infrastructure).

Remaining challenges

» The initial quality of teaching in Edo required an in-service approach in which tutors provided basic support to teachers and trained them in the integration and use of technology. Moving forward, teacher preparation and training efforts need to focus on building teachers' capacity to develop their own pedagogical materials.

» While Edo BEST was the first step toward bringing technology closer to teachers at a basic level, the next steps will include training teachers to plan and develop their own transformative lesson plans.

Chapter 4

Preparing teachers to teach effectively in face-to-face, hybrid, and remote environments: A framework for teacher education

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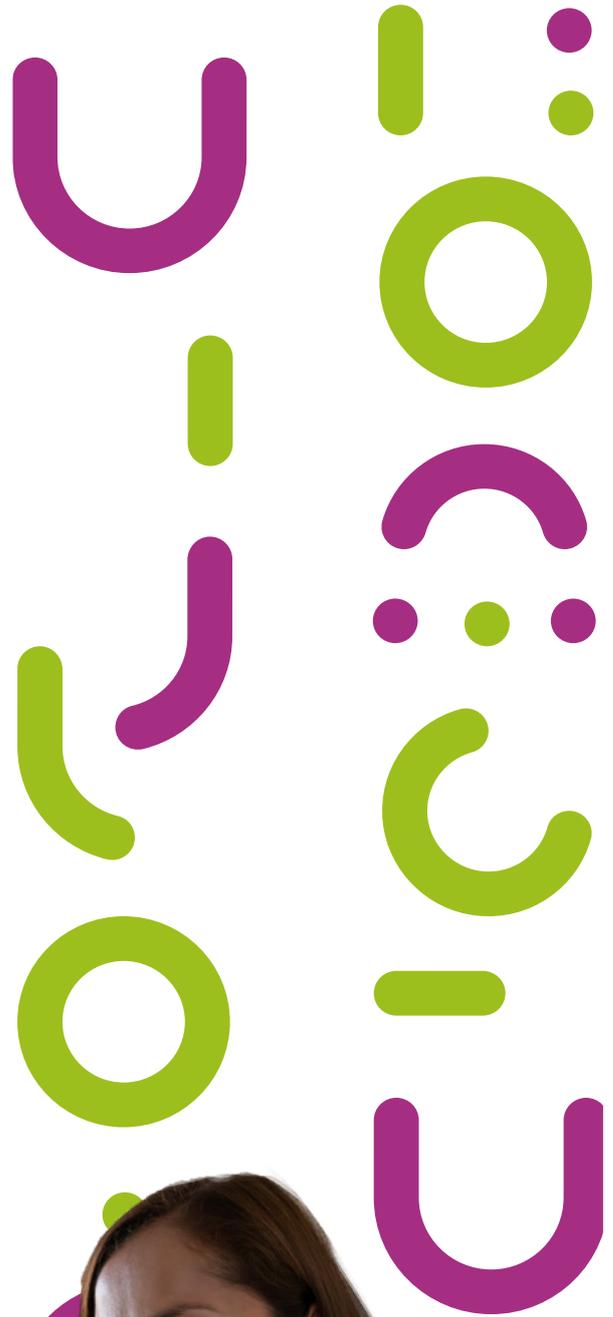
Presented here is a framework for improving new and in-service teachers' professional development to enable them to teach with equal effectiveness in face-to-face, remote, and hybrid settings. The measures of that effectiveness are that teachers will:

» Teach at grade level—so all learners meet the standards for their grade—using pedagogical practices appropriate to the educational mode chosen.

» Engage and motivate learners to want to learn and reach their potential in service to themselves, their families, and their communities.

» Support every learner in their socioemotional and cognitive development as they become healthy, productive members of their communities and societies.

» Master the pedagogical and technical skills needed to know when and how to apply the technological tools appropriate to grade levels, curricular goals, and sociocultural needs.

This framework grew out of a review of the literature; case studies from Latin America and the Caribbean and other regions discussed in chapter 3; information gathered from conferences and webinars; and material collected from experts in the field, including members of the IDB-UNESCO Advisory Committee on Teacher Professional Development in Hybrid Education, and feedback from members of the Red Kipus, a network of institutions, researchers, and specialists in teacher education in Latin America and the Caribbean.

Two sets of standards guide this framework for teachers' professional development in hybrid, remote, and face-to-face education.

» Standards for teacher performance in face-to-face, remote, and hybrid teaching (What effective teachers know and do).

» Standards for teacher education programmes, performance in the preparation of teachers who teach face-to-face, remote, and in hybrid mode effectively (What teacher professional development programmes teach effective teachers).

Standards for teacher performance across settings

Effective teachers possess competencies across four professional areas and in all settings.

First, they possess foundational knowledge and skills specific to the teaching profession (table 4.1):
» Subject-specific and general pedagogical content and practice

» Use of technology in the classroom and outside it

» Curriculum planning and development, including universal design for learning

» Assessment of students and of themselves

Second, they understand teaching practices and organization (table 4.2):
» Individual learning needs and differences

» Social and cultural contexts suitable for teaching and learning

» Classroom organization and management

» Child and adolescent development

» Socioemotional learning and culturally appropriate teaching

Third, because they want each student to be supported at the household level, they collaborate with families and fellow professionals (table 4.3).

Fourth, they possess the characteristics required of professional educators (table 4.4):
» Self-reflection

» Self-initiated professional development and desire to learn and improve

» Ethical practices

The following tables present our proposal for competency standards expected of new teachers (those in their first three years in the profession) and of more experienced teachers. Now that the profession is confronting the pandemic and its consequent learning losses, we offer remarks on hybrid teaching in each section on the four competencies. Naturally, these standards should be adapted to social and cultural contexts. Here, we are informed by the needs of Latin America and the Caribbean, but the recommendations can be implemented around the world, as long as they accommodate sociocultural needs.

Table 4.1 Foundational knowledge and skills specific to the teaching profession

Knowledge of subject content	**Teachers must know:** • The subject(s) they are to teach well enough to share both content and resources while engaging students in learning. • How to identify the foundations for each grade level that students must master before moving on to more advanced and specialized content. • How to identify suitable grade level content, knowing what students can explore independently (or with minimal guidance) and what content requires direct explanation, demonstration, and practice. • How to help students make connections across a range of subjects and then how to build on those connections when learning new content across different modes of instruction. **Hybrid and remote competency specifically requires that teachers should be able to:** • Identify foundational content for students to master at their grade level in order to lessen learning losses incurred during the pandemic, emphasizing that content in their lesson and unit plans. • Understand which content, according to grade level, can be learned independently (or with minimal guidance), and which requires direct instruction, either in person or remotely.
General and content-specific pedagogical knowledge and its application in all settings	**Teachers must know how to:** • Organize and present content to be learned in all modes in ways that engage students, are developmentally appropriate, build on prior knowledge, relate to their lives and sociocultural contexts, and encourage higher-thinking and problem-solving skills. • Select and use teaching methods and techniques appropriate to the content to be learned and the skills to be developed and that match content and pedagogy in all modes. • Select and use different pedagogical tools depending on content, grade level, and student age. For example, teachers will know when to use project- or problem-based learning, group vs. individual work, self- or group-paced opportunities, direct teaching and modeling, exploratory learning, and so on. • Select and use technologies that are suited to the content and respond to the needs of students. • Organize learning opportunities for a given type of content using multiple forms of communication and practice, in all modes and including individual and group work. For example, teachers may present materials face-to-face or remotely, synchronously or asynchronously (for example, videos, radio, podcasts, reading packets, live self-directed experiences, etc.). **Hybrid and remote competency specifically requires the following:** • Teachers should be able to plan and implement multiple opportunities to learn content in person, remotely, and in hybrid mode so that students are exposed to that content in multiple ways. This increases the chances that students will be able to access the information in a format that responds to their learning needs, availability, and knowledge level. • Teachers will teach students how to work in the different modes, helping them to develop skills to access information remotely; to connect remotely with synchronous activities; and to locate information in virtual sites, paper packets, and readings. Teachers will instruct students in the use of platforms and digital systems that enable them to guide their learning autonomously. • Teachers will develop opportunities for students to do individualized and independent work as a way to help them make up for their learning losses. Several different modes should be offered so that students can explore the same content, self-assess their learning, and practice.

Use of technology in the classroom and outside it	**Teachers must know how to:** • Plan, organize, and present the content to be learned in all modes and in ways that engage students, are developmentally appropriate, build on prior knowledge, and are relevant to their lives and sociocultural contexts, and encourage higher-thinking and problem-solving skills. • Select teaching methods, techniques, and technologies suited to the content to be learned and skills to be developed and that match content and pedagogy in all modes. • Select pedagogical tools and technologies appropriate to the content and students' grade level and age. For example, teachers must know when to use project-based learning, problem-based learning, group work vs. individual work, self- or group-paced opportunities, direct teaching and modeling, and exploratory learning, among other techniques. • Select technologies and modes to plan assessments that are developmentally appropriate, that match the content to be taught, and that respond to students' needs. • Organize learning opportunities for a given type of content using multiple forms of communication and practice, in all modes and including individual and group work. For example, teachers may present materials face-to-face or remotely, synchronously or asynchronously (for example, videos, radio, podcasts, reading packets, live self-directed experiences, etc.). **Hybrid and remote competency specifically requires that teachers know how to:** • Plan multiple opportunities for students to learn in all modes so they are exposed to the same content in multiple ways, thereby increasing the chances that they will be able to access the information in a manner that suits their learning needs and content knowledge. • Teach students how to work in the different modes, helping them to develop skills to access information remotely; connect remotely with synchronous activities; locate information on virtual sites, in paper packets, and in readings; and learn how to use different platforms and digital systems that enable them to guide their learning autonomously. • Develop learning opportunities for students to do individualized and independent work. Offering students ways to explore content and assess their own learning can help address the learning losses they may have suffered during the pandemic.
Curriculum planning and development; universal design for learning (UDL)	**Teachers must know how to:** • Design lesson plans to teach and assess specific content and experiences in all modes. • Design integrated unit plans so students can integrate content knowledge across subjects and modes. • Design UDL learning and assessment opportunities (lessons and units) so opportunities are accessible to all students at all levels of ability and learning needs, regardless of mode. • Select, interpret, and implement curricula designed by others, while adapting those curricula to their own classroom and context (including the mode to be employed). **Hybrid and remote competency specifically requires that teachers know how to:** • Reorganize and adapt lesson and unit plans (existing curriculum) for use in remote and hybrid modes, both synchronously and asynchronously, while selecting what is appropriate for and accessible to students. • Organize content to be taught, practiced, and evaluated in a manner appropriate to the mode in which it will be offered. Lessons should include strategies for delivering and practicing content and for assessing understanding, across all modes.

Student assessment	**Teachers must know how to:** • Assess student learning to ensure lesson objectives have been met, measure progress in each subject area, and use that information not only to help students learn but also to revise the curriculum and pedagogical experiences. • Employ assessments that are appropriate to circumstances (face-to-face or remote), so that ongoing assessment yields reliable evidence of learning. • Develop and implement different formats for formative and summary assessments for lessons taught in different modes. • Use different platforms and new technologies to complete a variety of assessments so that students can demonstrate their learning and understanding in multiple ways (from written assignments, to videos, voice recordings, games, presentations, specific projects and activities, etc.). • Teach students to self-assess their understanding and seek support when they need it. **Hybrid and remote competency specifically requires that teachers know how to:** • Apply techniques to assess student learning, applying educational technology in all modes. • Explain to students the different modes in which knowledge is transmitted so that students can then use those modes to demonstrate that they have met the lesson plan's goals, especially when remote and hybrid modes are used. • Use multiple forms of assessing the mastery of knowledge so students are not limited to certain ways of being assessed for their mastery of knowledge.
Self-assessment	**Teachers must know how to:** • Practice regular self-assessment, collecting data from their students and colleagues and using that information to improve their teaching and and implement changes as needed to ensure that students learn and develop in a satisfactory manner. • Seek support from colleagues and supervisors to improve areas self-identified for strengthening. **Hybrid and remote competency specifically requires that teachers know how to:** • Access new teacher resources to help them improve their practice (for example, recording themselves as they teach and watching the recording by themselves or with others).

Source: Authors.

Table 4.2 Teaching practices and organization

Individual learning needs and differences	**Teachers know how to:** • Identify the individual learning needs of all students in the group and design lesson plans and educational experiences that match those needs. • Supply the extra forms of support needed by students in the classroom, whether that means special education aids, adaptive technologies, different pacing, or different strategies so that all students meet the learning objectives identified in the curriculum. • Apply theories and research on individual differences and learning needs and how to plan curriculum, learning experiences, and assessments that support each student's learning and development. • Identify the accommodations and adaptations needed in all modes so that the content expressed in the lesson plan can be experienced by all students regardless of their learning needs and differences. • Identify the most appropriate technology to match the students' learning needs and the material presented in the lesson plan. Use technology appropriately in all teaching modes. **For new hybrid teaching:** • Identify the different learning needs of students and prioritize the use of specific technological tools to support those needs, especially students requiring adaptive technologies to meet the objectives of the lesson plan. • Learn about adaptive technologies available to all students, train students to use those technologies, and regularly assess their use.

Classroom and group organization and management	**Teachers know how to:** • Use effective strategies to organize groups of students in person, remotely and in hybrid format for effective learning. • Create safe and engaging environments to teach students self-monitoring behaviour, management skills, and understanding of the impact of their behaviour in others, whether face-to-face, remotely, or in hybrid classrooms. • Flexibly apply different strategies of classroom and self-management while emphasizing the socioemotional well-being of all students, whether on person, remotely, or in hybrid classrooms. • Think of a "classroom" in a virtual and hybrid format, and know how to apply different techniques and practices of classroom management that apply well to all kinds of modalities and settings. **For new hybrid teaching:** • Teachers pay special attention to managing the group's interaction, collaborations, and relationship building when teaching remotely and in hybrid format. • Teachers pay very close attention to the socioemotional well-being of all students, create opportunities for students to interact with one another, work in groups and individually, and offer spaces and times for group work. • Teachers teach students to self-monitor their behaviour and emotional well-being, and how to seek help especially when feeling isolated, disconnected, and in need of social interaction with peers both in structured and nonstructured environments.
Child and adolescent development	**Teachers know how to:** • Describe theories and research on child and adolescent development (typical and atypical, especially cognitive, social, and emotional development); apply that knowledge to lesson plans; and use educational technology appropriate to students' age and grade. • Stay up to date on the science of learning and, based on that science, select the best tools (including technology-based tools) to prepare developmentally appropriate lesson plans. • Use principles that harness developmentally appropriate practices to plan learning experiences, assessments, classroom management, and mechanisms to connect students being taught remotely or in hybrid modes. **For new hybrid teaching:** • Evaluate educational technology and adaptive technology tools based on students' level of development and grade level. • Pay close attention to student behaviours as developmental indicators of unmet needs and identify supportive adults who should be informed of the findings and brought into partnerships to address them.
Social and emotional learning	**Teachers must know how to:** • Support and advance socioemotional learning so that students become healthy, responsible, civically engaged members of their societies who understand themselves and others. • Use socioemotional learning and development principles to guide classroom practice, both remotely and in person, offering students multiple opportunities to interact, learn from one another, and develop social and emotional skills such as empathy, resilience, and grit. **Hybrid and remote competency specifically requires that teachers know how to:** • Give priority to the emotional and social well-being of students who are learning remotely, especially those who are doing so asynchronously and thus have no opportunity to interact with peers or the teacher. For this, teachers should ensure that the strategies they use to teach content encourage interactions (even if at a distance and asynchronously) and keep them in communication with students' homes.

Source: Authors.

Table 4.3 Collaboration with partners in learning

Collaboration with families, caregivers, and other adults in students' lives	**Teachers know how to:** • Develop and maintain relationships with family members and caregivers as partners in education, asking for information relevant to plan lessons that meet students' individual needs, preferences, and interests, and collaborating with families' and caregivers' requests and needs. • Keep open lines of communication with families and caregivers when it is not possible to meet in person, using phones, social media, and other forms of communication facilitated by technology whenever possible. • Encourage families and caregivers to reach out with information, concerns, or questions about their student. • Be supportive of families' and caregivers' needs and circumstances and facilitate the development of community among families and caregivers in the same school or grade by sharing group information and developing channels of communication using methods easily accessible by all (social media posts, group chats, meetings, etc.). **Hybrid and remote competency specifically requires that teachers:** • Make a special effort to engage with families and caregivers and keep lines of communication open in both directions while facilitating the building of community.
Collaboration with professionals	**Teachers know how to:** • Develop and maintain professional partnerships with colleagues and other professionals who support the education process of their students, including professionals in the same school (principals, teachers, specialists) and outside of the school building. • Identify different means of communication and support with these partner professionals to be able to have continuous support regardless of whether the students are in class in person, or hybrid or remote education modes. **Hybrid and remote competency specifically requires that teachers:** • Learn how to build and strengthen professional interactions and partnerships using means of communication and interaction that are effective both in person and in remote, and hybrid formats, and learn how to use educational technology, adaptive technology and other forms of technology, including popular social media channels, to strengthen supportive relationships with colleagues who are part of the teaching and professional team that supports students.

Source: Authors.

Table 4.4 Personal characteristics

Self-reflection and professional development skills	**Teachers must know how to:** • Engage in professional development activities and opportunities that respond to self-perceived needs for professional and personal improvement. • Take advantage of and participate in professional development opportunities that can help teachers strengthen areas that have been self-identified or identified in regular processes of assessment and evaluation by peers or supervisors, and remain actively engaged in their own learning, both in person and remotely. **Hybrid and remote competency specifically requires that teachers know how to:** • Take advantage of multiple free and open-to-the-public webinars and other forms of learning and professional development, both in person and remotely, to continue with their professional growth. • Learn to use new educational technology in the classroom and train themselves on how to teach more effectively in hybrid and remote modes, synchronously and asynchronously.
Professional and personal ethics	**Teachers know how to:** • Apply ethical principles to guide their personal and professional behaviour consistently. • Use ethical principles laid out in the codes of ethics of the profession as they guide their behaviour toward their students, students' families, and other members of the school community, regardless of whether their teaching is done in person, remotely, or in hybrid mode. • Support and contribute to revisions of professional codes of ethics and practices in their learning communities. **For new hybrid teaching:** • Exhibit ethical behaviour, especially during situations of high vulnerability for students and families. They apply ethical codes in every circumstance. • Apply data privacy rules and regulations at all times. Teachers understand, plan, and implement measures to protect the privacy of their students and their families.

Source: Authors.

Standards for teachers' professional development programmes

Given the new skills that all teachers, new and experienced, must master to teach in face-to-face, remote, and hybrid modes, all institutions involved in professional development are called to action. In the emergency occasioned by the pandemic, the priority is to offer effective professional development opportunities and to do so quickly. Later, given more time, professional development programmes can be revised (from initial preparation to offers for experienced teachers) so that teachers meet the new professional demands and are supported in the process.

Professional development programmes must meet performance standards. These standards can serve as useful guides for institutions of teacher education as they design or redesign their programmes. Each programme must address the sociocultural needs and characteristics of a particular location.

The standards proposed here are informed by national and international standards for teachers and teacher educators, such as the programmes presented by UNESCO, UNESCO/ILO, INTASC, CAEP, Virtual Learning Leadership Alliance and Quality Matters, among other organizations. Five sets of such standards are described in the appendix (Council for the Accreditation of Educator Preparation, 2022; Council of Chief of School Officers, 2011; Powell, Rabbitt and Kennedy, 2014; ISTE, 2017; Redecker, 2017; UNESCO, 2018; UNESCO/ILO, 1966; Virtual Learning Leadership Alliance and Quality Matters, 2019).

We have organized the standards for professional development programmes into categories that can be adapted to different sociocultural characteristics of particular institutions and regions. The categories are foundational and specific knowledge and skills (table 4.5), partnerships for effective support of all students (table 4.6), and personal characteristics of teachers (table 4.7).

Table 4.5 Foundational and specific knowledge and skills

Content	• Learning experiences that help teachers acquire broad knowledge about content learned in school settings, content that is specific to the level of the teaching license and the circumstances of the students being taught. • For those seeking a secondary-education license, learning experiences that allow them to acquire and develop deep knowledge of the area of expertise of the license while recognizing the level of detail and complexity to be shared with students in classroom settings. • Courses and practicums for students to learn and practice presentation of these content knowledge areas and the connections that can be established across content areas.
Pedagogical content and skills	• Learning how to write a lesson plan, pace different parts of the plan, and address subject matter (e.g., math or reading) in all teaching modes. • Opportunities to practice different pedagogical skills in all modes, both synchronous and asynchronous, with the support of mentors, networks of novice and experienced teachers, and other supports. • Learning experiences and practice opportunities that enable teachers in training to select the most appropriate pedagogy given the content and the type of teaching mode being used.
Educational technology in the classroom and outside it	• Learning experiences and practice with different educational technologies to complement face-to-face teaching and to use in remote and hybrid settings when face-to-face meetings are not practicable. • Access to technological resources and opportunities to master the skills necessary to use them. • Practical experiences with coaching and mentor support to learn the advantages and disadvantages of each technology so that the teacher can select and evaluate the most appropriate option given the topic, grade level, student readiness, available resources, and teaching mode. • Courses, workshops, and practice applying educational technology in pedagogically sound ways, understanding that the technology requires different types of curriculum planning, classroom management, and assessment.
Curriculum planning and development	• Courses and practicums to acquire knowledge and skills to design and adapt lesson plans, unit plans, and whole grade curricula, applying the knowledge gained to design and implement lessons and units at practicum sites. • Learning experiences on how to plan and implement curricula using various teaching modes because lesson plans for in-person teaching are organized differently from lesson plans for remote teaching. • Practice opportunities in all modes and featuring different organizational approaches, learning activities, and pacing, while being coached, mentored, and given the opportunity to learn from others in teachers' networks. • Learning experiences that help teachers identify and adapt lesson plans and learning activities to different modes and assist them in practicing implementation across modes to achieve the learning objectives.

Assessment	• Practice opportunities and courses that teach theories, techniques, and practices about how to plan and implement individual and group assessments and how to adjust lessons and units based on assessment results. • Practice opportunities and courses that teach teachers how to assess students in person and in hybrid, and remote modes, and how to recognize the best match between the type of assessment and the skills or content being assessed. • Learning experiences that teach how to use educational technologies, adaptive technologies, and new platforms to complete self-evaluations and student evaluations in all modes, complemented by opportunities to practice in simulated environments and later with students, supported by mentors and coaches during formal practicums. • Practicums that allow students to implement assessments of individual and group learning in all teaching modes and to use assessment results to support student learning and improve teaching across modes. These practicums may be shared in group discussions and within teachers' networks to elicit feedback.
Individual differences and integrated experiences	• Courses and practicums that allow teachers in training to acquire knowledge about learning differences among students, teaching techniques effective for a range of learners and modes of teaching, and how to plan lessons and units that respond to individual learning needs across modes. • Practicums that provide new teachers with opportunities to practice these different teaching techniques in all modes.
Teaching practicums	• Opportunities to practice teaching in all modes and virtually before sending new teachers into classrooms. These practicums must be provided over an extended time and accompanied by a mentor and coach, reflective seminars with other practicum students, and plenty of opportunities to reflect on the daily experiences and share those reflections with peers and mentors. • Opportunities to practice and assess all aspects of teaching (pedagogical skills with individual, small groups, and whole class), curriculum design, assessment and evaluation, and teaching modes. Practice must be completed in all modes so that teachers in training learn to implement the knowledge and skills emphasized in the programme. • Opportunities for practice in every academic unit of the programme (semester, quarter, year), guided by mentors and faculty supervisors. At least one of the practicums is offered remotely to provide the pre-service teacher with the opportunity to absorb new skills. During the final semester of the practicum, the pre-service teacher serves as co-teacher in the classroom for a number of weeks, taking responsibility for the entire school day of activities over an extended academic unit.
Classroom and group organization and management	• Learning experiences and practice opportunities for teachers to acquire knowledge and skills to manage groups in person and in hybrid mode, to engage students in learning situations that decrease misbehaviours and disengagement, and to organize the classroom in such a way that students see the consequences of their misbehaviour and learn responsibility. Practice implementing this knowledge and these skills in classroom settings, virtually, remotely, and in person, should be offered regularly. • Regular practice opportunities, courses, and reflective seminars to learn how to organize the classroom and how to respond to student behaviours in different modes.
Human development and developmentally appropriate teaching	• Courses and learning experiences to acquire knowledge of typical human development (especially that of children and adolescents) and multiple opportunities to apply that knowledge to design and implement developmentally appropriate teaching and classroom management, both in person and remotely. • Learning experiences that demonstrate the effectiveness of educational technology skills and models based on developmentally appropriate practice.
Socioemotional and culturally responsive teaching	• Learning experiences to teach principles of socioemotional learning and culturally responsive teaching when working with students in all modes and other opportunities to learn about the implications of socioemotional learning for teaching, assessment, and classroom management practices. • Practicum opportunities to apply those skills in group settings (remotely or in person) and to evaluate their effectiveness under the supervision and with the support of mentors.

Source: Authors

Table 4.6 Partnerships for effective support of all students

Building effective home-school partnerships	• Learning experiences to acquire knowledge and skills on how to develop effective home and school partnerships, how to accommodate teaching practices to the needs of students' families and caregivers, and how to maintain communication with those families and caregivers. Practicing these skills during practicums, with support from mentors and coaches, is essential. • Courses and seminars to learn about and implement data privacy practices that protect students and families, especially when teaching in hybrid or remote mode.
Building effective professional partnerships	• Acquisition of the knowledge and skills needed to develop effective partnerships with professionals who support the learning process of students (speech therapists, special educators, psychologists, etc.). Opportunities to practice those skills in all modes are essential. • Identify existing professional networks or develop new teachers' networks, both in person and remotely, so that student teachers can learn to use such networks to their students' advantage.

Source: Authors.

Table 4.7 Personal characteristics

Professional and personal ethics	• Learning experiences to acquire knowledge and skills on how to develop effective home and school partnerships, how to accommodate teaching practices to the needs of students' families and caregivers, and how to maintain communication with those families and caregivers. Practicing these skills during practicums, with support from mentors and coaches, is essential. • Courses and seminars to learn about and implement data privacy practices that protect students and families, especially when teaching in hybrid or remote mode.
Self-initiated professional development	• Practical opportunities to learn to recognize the importance of self-initiated professional development and to participate in several opportunities during pre-service training as a way of developing habits of mind with regard to self-initiated learning and practices. • Skills to self-identify areas needing improvement and to identify resources that can be helpful in strengthening knowledge and practice.

Source: Authors.

The standards set forth above suggest the development of a new set of skills needed for teaching in hybrid or remote modes. They also suggest the need for the development of a new mindset about responding to the sociocultural characteristics of the region where the teaching and learning are taking place. Even though our suggestions are general, this framework is most informed by practices in Latin America and the Caribbean.

A proposed four-step process to improve teachers' professional development

Guided by the standards just presented, we propose a four-step process to improve the professional development of teachers in all modes to teach in face-to-face, remote, and hybrid).

» Step 1. Conduct an assessment of current students, teachers, teacher trainers, and professional development programmes for teachers.

» Step 2. Develop an improvement plan to recruit new candidates into professional development programmes.

» Step 3. Monitor the plan to make adjustments in recruitment, processes, and programmes.

» Step 4. Assess and evaluate regularly to collect data to refine future needs assessments.

The steps are designed as a cycle—one that would be systematically revised, assessed, and evaluated in a process of continual improvement requiring repetition and time. At present, the urgency of the needed response requires compression and acceleration of the steps, with some loss of depth. But the education crisis, with its learning losses and abandonment of schooling, requires an immediate response. It goes without saying that attention to detail is still highly recommended.

Step 1: Conduct an assessment of current students, teachers, teacher trainers, and professional development programmes for teachers

Systems could use the data that have been already collected to measure the impact of the pandemic on student learning and teachers' skills to teach remotely and in hybrid mode (see, for example, data on the region reported in chapter 1).

Systems also should do a quick survey of teachers' self-identified needs to be able to plan professional development opportunities that respond to those needs. In an ideal situation, systems should plan a valid and reliable process to collect data. Given the urgency, however, quick surveys done electronically, using social media platforms, or other quick ways of reaching teachers should be used.

It is important that every system develop an action plan and strategies based on the current status of their teachers and learners, even if those data are collected in less-than-ideal formats.

A needs assessment to plan a long-term response is essential—as long as it is based on the current status of education and teacher professional development needs in a region or country. After the emergency response, this step can be undertaken more systematically. Data collection should be simple and quick, undertaken with existing tools or new ones, and the tools should be adapted to the location and circumstance of the target group. (See, for example, the case study of Portugal in chapter 3.)

The needs assessment should describe the strengths and areas of need of:

» K–12 students as a group, including their socioeconomic, cultural, and linguistic characteristics

» Pre-service teachers

» New teachers (one to three years after entering the profession)

» Experienced teachers, paying special attention to their pedagogical practices and decision-making processes while teaching in different modes

» Teachers of teachers.

Step 2: Develop an improvement plan to recruit new candidates into professional development programmes

The improvement plan should give priority to in-service teachers so they learn how to teach in hybrid and remote modes; courses and practicums for pre-service teachers on how to teach in these modes; and revisions of extant programmes so that hybrid and remote teaching techniques and pedagogies are included in all initial and in-service teacher professional development programmes.

The plan must be specific to the social, economic, and cultural context of the communities in which teachers will work or already work. Learning about other regions of the world is helpful, but the plan must be culturally appropriate, thus designed by local education professionals. The plan should be among the first elements and priorities of education reform, at national or local levels, before regulations are approved, curricula redesigned, and textbooks bought. The most effective plans are designed by educators at all levels, including many teachers, and are guided by standards and indicators of when those standards have been met. Those standards should guide actions, interventions, programme development, and implementation in an organized, systematic, and appropriately paced process.
Four focus areas are described below :

1 Recruitment into the profession

2 Pre-service teacher education and development

3 Induction into the profession

4 In-service teacher education and development.

Focus Area 1: Recruitment into the profession

> "The quality of teachers and the environment they create in the classroom, excluding extracurricular variables, are the most important factors that explain student learning outcomes, which means that policies aimed at improving the quality of education can only be viable if efforts are concentrated on transforming, with the teachers, the culture of the school institution. In turn, without the help of teachers, no educational reform will be successful"

(UNESCO/OREALC, 2007).

It is essential to cultivate a positive image of who teachers are, what they do, and the value they add to society. Join forces with the media to elevate the image of the teaching profession (for example, ensure that the image of teachers is presented positively in TV programmes, in social media, etc.)

Recruitment should begin at the high school level. High school students should be invited to become teachers' helpers with younger students. Plans should be made for high school students to receive credit for volunteer work in classrooms to generate interest and a realistic view of teaching.

Countries like Canada, Finland, Singapore, and Australia use recruitment strategies, seeking to change the image of teaching by portraying education as a "highly selective career field." The aim is to move away from the notion of teaching as something "anyone can do." Peru, Ecuador, and Chile made admission criteria to teachers' education programmes more stringent. In Argentina, scholarships were used to attract higher-quality candidates. However, these regional initiatives were not as effective as those implemented internationally (OREALC/UNESCO 2007).

These approaches highlight a changing teaching profession that stresses the importance of attracting teachers interested in mastering technology for educational purposes and of developing individuals interested in improving the world.

Focus Area 2: Pre-service teacher education and development

Pre-service teacher education is at the core of a novice's entry into the profession. In some countries, when professional teachers are in short supply, pre-service training happens on the job. That is not ideal, as effective teaching requires professional competencies developed only in rigorous teacher education programmes. In some other countries, pre-service teachers are prepared at the master's level. Regardless of the level, the four best practices enumerated below will strengthen the preparation on new teachers.

1 Engage current teacher educators and Pre-K through 12 teachers in revising existing programmes of teacher education, emphasizing the importance of practicing in both face-to-face and remote modes during the preparation.

2 Use apprenticeship models as the backbone of all teacher preparation programmes, engaging pre-service teachers from the start in in-person fieldwork and remote teaching guided by experienced teachers (especially those who are willing to become mentors), and by higher education faculty from the teacher education programme.

3 Integrate as much as possible the content courses, methods courses, supporting courses, and practicums throughout the preparation programme, changing the balance to increase time and emphasis at practicum sites as students progress in their programmes. Emphasize the use of

technology to facilitate learning in all modes.

4 Before completing programmes, have pre-service teachers spend time (at a minimum one entire semester, five days a week) in practicums, both in classroom and remote settings, increasing the level of responsibility they assume for day-to-day teaching and ending with an entire set of a minimum of two weeks when the pre-service teachers demonstrate they are ready to teach on their own across modes.

Focus Area 3: Induction into the profession: Novice teachers' professional development

Give teachers opportunities to continue honing their skills and competencies. Darling-Hammond (2017) reports that all well-developed systems of teacher education include carefully planned and implemented programmes of induction and mentoring of new teachers. For example, in Ontario, Canada, novice teachers follow a four-year induction programme: In the first and second years in the profession (aside from those newly hired into the district), they have many job-embedded learning opportunities. In the third and fourth year, there is job-embedded mentoring. In addition, new teachers go through summer orientations for new teachers, professional development for experienced teachers to prepare them as mentors, and participation of all in demonstration classrooms. Many countries in Latin America and the Caribbean use "professionally situated learning" as a form of professional development.

These documented successes lead us to offer the following recommendations:

» Create an induction programme that supports new teachers during the first three years of their in-service years. This programme should be offered both in person and remotely to prepare teachers for both modes. A timeline for the professional development of teachers in training is presented in table 4.8.

» During the first year of teaching, the programme will give a new teacher two levels of support. The first level is a coach working in the same school or community as an acknowledged and experienced teacher (and for whom this title, coach, signifies a professional promotion). The second level of support is a mentor who is a faculty member in the teacher education programmes. Regular meetings with these two advisors can take place in ways that work best for those involved (remotely, on the phone, or using an online platform that allows mentor and coach alike to observe the novice teacher in face-to-face interactions). These meetings are designed to offer support, guidance, and "training on the job"; they have no evaluative purpose.

» As the novice teacher advances to second and third years of teaching, support meetings can become less frequent, but novice teachers continue to be assisted with planning, implementation, and assessment in all modes.

» New teachers are helped to either create or join an existing network of teachers where they can get ideas, receive feedback, collaborate on projects, etc. These networks do not have to be face-to-face or even local as long as teachers have access to connecting in remote mode with other novice educators.

Table 4.8 Timeline for professional development of pre-service teachers

Year 1	• Programmes for pre-service teachers focus on foundational courses and experiences in the first year (human development, socioemotional learning, professional ethics) as well as on general content knowledge. During this year, students can also start spending some time (one morning a week, for example) in a classroom setting, observing the teachers and the students as they apply principles of human development, socioemotional learning, culturally responsive teaching, etc.. Students also begin to observe and practice teaching in remote mode.
Year 2	• Students are introduced to pedagogical content, classroom practices, and individual differences as they continue to attend a practicum site in person and join remotely to start interacting and supporting the work of teachers by working one-on-one with students or with small groups of students in person and remotely. Content-specific knowledge and pedagogical courses (curriculum development, how to teach math or science, etc.) that focus on similarities and differences when teaching face-to-face and in remote or hybrid mode should continue.
Year 3	• The programme begins focusing more on courses in which students learn about teaching techniques (curriculum design, implementation, group organization and practices, assessment, organizing materials when teaching in hybrid or remote mode, etc.) which should be accompanied by opportunities to practice in classroom settings (in person and at a distance) with students in a mini-practicum (two days a week one semester, three days a week the next, for example).
Year 4	• This is the year of culminating experiences to make sure the participant completes the programme and is able to teach in face-to-face, remote, and hybrid settings. The participant is in a semester-long practicum (even better, a year-long) while taking courses to hone specific teaching and assessment skills. By the end of the experience, the pre-service teachers must show evidence that they can run a classroom—face-to-face and in hybrid and remote modes—and collect evidence of their students' learning in all modes of teaching in order to plan curriculum and improve practice.

Source: Authors.

Focus Area 4: In-service teacher education and development

Continuous professional development—in which expertise is acknowledged; experience is celebrated; and new materials, techniques, and research are introduced—is essential throughout teachers' careers in order to develop a culture of innovation and improvement.

In a culture of continuous professional development teachers participate in opportunities offered by higher education institutions, ministries of education, education organizations, libraries, and publishers—but also create their own systems of support.

In the current emergency, professional development efforts should target experienced teachers who are not prepared to teach in remote or hybrid modes. Basic training must take priority. Given their expertise on teaching and pedagogical skills, the addition of new modes of teaching to their repertoire is more about acquiring techniques to plan learning experiences, organize and present them to students who are not in the classroom, and assess their learning. Newer teachers who have well-developed technological understanding should be engaged as mentors for experienced teachers.

Institutions of higher education should be encouraged to develop formal relationships with experienced teachers by assigning them formal roles at the institution (such as adjunct faculty or field supervisors) and requiring their participation in supportive and informative network events to continuously learn from one another, both in person and remotely.

Faculty and experienced teachers should explore joint research opportunities.

Step 3. Implement and monitor the plan, making adjustments in recruitment, processes, and programmes

A tight focus on techniques, skills development, digital literacy, and practice in professional development opportunities will enable in-service teachers to begin to implement revised and new pedagogical skills in the classroom as soon as possible.

The systemwide plan to improve professional development addresses each of the four focus areas just described. It must be implemented so as to give priority to hybrid and remote instruction, while paying attention to all aspects of the professional development programme and the standards.

During implementation, the systemic gathering of data should continue to underpin learning assessments and ensure continual improvement. To make the plan relevant for all, it is important to respond to the specific sociocultural needs of the area where the plan is being implemented.

Needs assessments may suggest the types of action illustrated in figure 4.1.

Step 4. Assess and evaluate regularly to collect data to refine future needs assessments

Complete a periodic and systemic process of assessment, evaluation, and accreditation to continue to improve the process of teacher professional development.

Aside from the regular assessments, review the entire system of education every five years or so. Based on that review, decide on areas needing improvement. In that way, the next iteration of improvement programmes is based on recent assessment data informing planners and designers, implementers, evaluators, and policy makers.

This system of assessment will be based on standards used to assess (1) teachers' performance and (2) the performance of professional development programmes (with emphasis on the preparation of pre-service teachers).

Figure 4.1 Possible support actions suggested by needs assessments

Begin intensive training in different teaching modes while supporting the academic and socioemotional needs of students.	Engage teachers in developing their own systems of teaching and sharing with others. Form professional support teams using online modes.	Create networks in which teachers learn from and support each other, mixing novices with experienced teachers who can serve as mentors.
Demonstrate remote teaching by teaching it remotely in order to model good practices.	Help teachers focus on student learning, adapting lessons, and developing active learning practices remotely.	Help teachers learn the use of various technology tools to plan based on teaching contexts.
Request assistance from teacher education programmes on the development and implementation of short training sessions on remote instruction.	Help teachers learn how to organize the curriculum into problem- and project-based learning experiences that can be completed remotely.	Utilize pre-service teachers as teachers' assistants, both in person and remotely, so that each adult can teach a smaller group of students (to increase engagement).
Help teachers decide how to organize "the school day" differently from in-person class time.	When possible, help teachers and educators to do home visits to connect with students at a more personal level (if not in person, then in hybrid mode).	Engage parents and community members in supporting remote learning for students who need extra assistance.

Source: Authors.

Chapter 5

Recommendations and take-aways: Reimagining teacher education and professional development
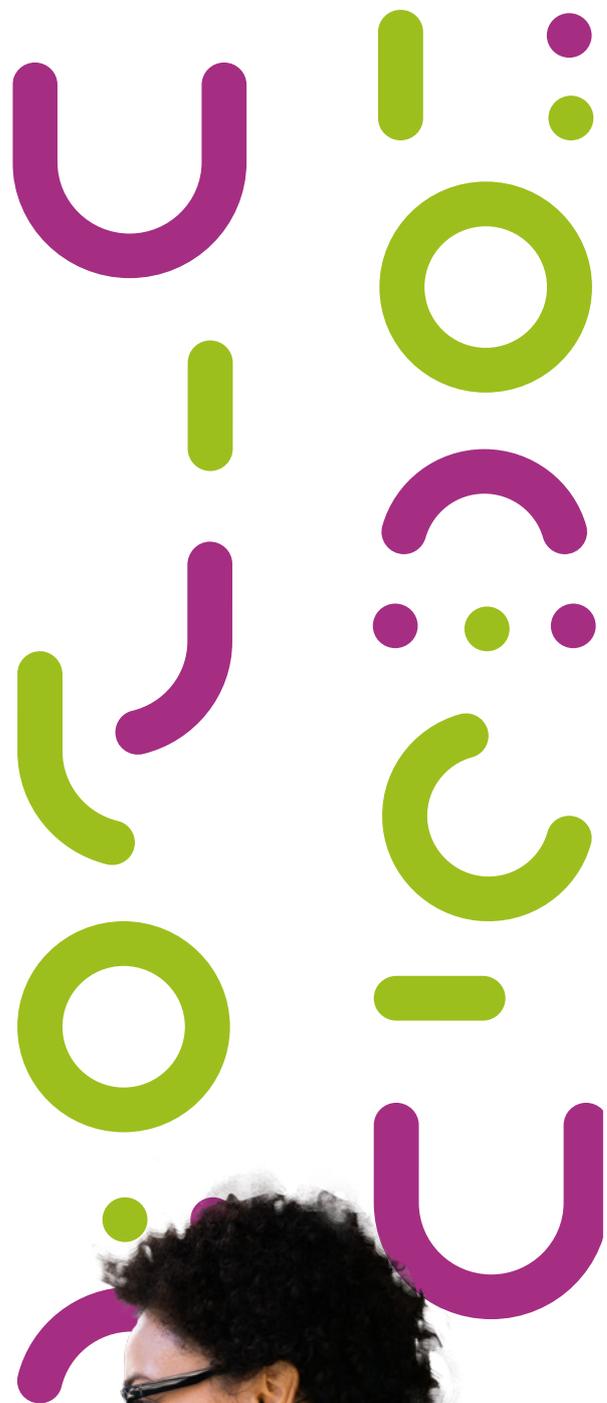
Following the presentation of the professional development framework in the previous chapter, we offer a few recommendations for implementing that framework. We also identify the imminent challenges facing education systems and educators as students and teachers adapt to the new circumstances created by the COVID-19 pandemic.

Although most families and educators would probably prefer a return to face-to-face teaching and learning in K–12 schools, hybrid education seems to be here to stay, and teachers prepared to teach in hybrid modes will be able to support the effective education and development of students.

Professional development is a long-term and continual process, not something that occurs over a few hours at the beginning of the school year. It must take place directly with each teacher, research having shown that the cascade model is not effective. Professional development is active and engaging; talking and lecturing alone are ineffective. Teachers learn better from active demonstrations of new techniques and when they are given the opportunity to practice. New technologies (computers, phones, tablets, etc.) should be used to engage teachers in a consistent and constantly supportive professional development setting.

The new brand of teachers in re-imagined K–12 classrooms know how to design, implement, and assess students' active and interactive learning experiences in hybrid mode. They consistently engage students in active teaching and learning practices in hybrid mode. They give and receive regular professional development to and from colleagues in the school and within networks of teachers connected in hybrid mode. They develop new teaching practices that are active and engaging; they share those practices with one another and receive feedback about their effectiveness.

Recommendations for immediate implementation

» Design and implement short professional development opportunities for teachers to learn how to design, plan, implement, and assess lessons in hybrid (and, if needed) in remote modes. These short opportunities should focus on the pedagogical and curricular tools needed for teaching in hybrid mode, emphasizing collaborative, active, and interactive work among students.

» Create networks of teachers in the same school and across schools, mixing levels of expertise, using technology, and planning learning opportunities that can be implemented effectively in hybrid mode to form a professional development network through which teachers can support and teach one another while learning and practicing together.

» Identify teams of experienced educators—active teachers, retired teachers, teacher educators—who can serve as a

support system to accompany, guide, and coach teachers as they learn to teach in hybrid mode.

» Educate families, caregivers, and communities about hybrid teaching and about how to support their students' learning, acknowledging the significant diversity and range of availability of family and community members to support students.

» Support teachers as they identify key content and educational experiences to offer students as a way of helping them compensate for the significant learning losses students have suffered.

» Facilitate the design and development of community centers to which students who need extra guidance (and whose families or caregivers lack the expertise, time, or tools to help them) can turn, allowing teachers and volunteer educators in community centers to support and guide students' learning.

Long-term recommendations: Reimagining education and teacher professional development

» Use the pandemic-imposed challenges as opportunities to improve the education system, starting with the professional development of teachers, both in-service and novices, as teachers are the key to the success of education reforms.

» Increase the number of professionally prepared teachers who know how to engage students where they are, and who have the expertise to help them learn effectively.

» Accelerate learning in the physical and virtual classroom to compensate for the significant learning losses that occurred during the pandemic.

» Accelerate the revision of curriculum and teaching methods so that active, engaged, and culturally appropriate teaching and learning, both in person and remotely, are the norm.

New commitments from governments and other agencies that affect teachers

Implementing these recommendations will require significant and in some cases unprecedented commitments from governments. They will require:

» Significant funding, not only to purchase new technologies but also to support teachers' professional development and to compensate experienced teachers and other educators who contribute to professional development programmes.

» New structures of support: Teacher education programmes (in universities, for example) can offer professional

development for in-service teachers as their student-teachers are practicing in their classrooms.

» New commitments from ministries of education, universities, foundations, and other institutions that can support teacher professional development, and new commitments from international agencies to support the revamping of teacher professional development so that teachers learn how to teach effectively in hybrid mode.

The most important recommendations are specific to communities and countries

It is important to highlight that communities and countries can learn from experiences elsewhere, but in the end, their cultural, social, socioeconomic, and political contexts must be taken into consideration. As a result, each unit of change (school district, community, country) must design its own process for improving the professional development of teachers. Hybrid education will look different in a variety of countries and settings.

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Glossary

Because different institutions and authors often use the same terms with slightly different connotations, we define several key terms here to clarify how we are using them in the publication.

English	Español
Asynchronous learning A learning method by which teachers and students do not interact at the same time. Students can thus choose the time, space, and pace of learning that is most convenient for them. Different delivery methods can be used for asynchronous instruction, for example, television or radio programmes, online videos or modules, or printed modules/packets that provide instructional content to students.	**Trabajo asincrónico** En un método de trabajo asincrónico, el docente y los estudiantes no interactúan al mismo tiempo. En este sentido, los estudiantes pueden elegir el tiempo, espacio y ritmo que más les convenga. Se pueden utilizar diferentes métodos de instrucción para el trabajo asincrónico. Por ejemplo, programmeas educativos a través de televisión o radio, o módulos/paquetes impresos que puedan proporcionar contenido educativo a los estudiantes.
Backward design Also called reverse/inverted planning, this is a process in which educators plan their teaching by first defining what students are expected to learn and be able to do at the end of a unit or course. They then proceed "backwards" to create the learning experiences, activities, and lessons that are expected to lead to those goals. Teachers thus envision the type of student performance that will evidence their achievement.	**Diseño inverso / invertido** También llamado planificación inversa/invertida: es un proceso en el que los educadores planifican su enseñanza comenzando por definir lo que se espera que los estudiantes aprendan y sean capaces de hacer al final de una unidad o curso, Luego se procede "hacia atrás" para crear las experiencias, y las lecciones que se espera conduzcan a esos logros expresados en metas. El maestro/a comienza por diseñar el tipo de desempeño del alumno que será evidencia de ese logro.
Cascade training Also known as pyramidal training, this process involves training a group of agents who are expected to be multipliers of their training. In general, it has been implemented, with little success, for in-service teacher education when the intention was to reach a large number of teachers. Research has shown that this training is often ineffective as replication devalues the content and quality of the training (e.g., Susuki, 2008).	**Formación en cascada** La estrategia de la formación en cascada, también conocida como formación piramidal supone capacitar a un grupo de agentes que se espera sean multiplicadores de esa formación. En general se ha implementado, con poco éxito, para formación de docentes en servicio cuando se pretende llegar a un gran número de docentes. La investigación ha mostrado que suele ser poco efectiva ya que la réplica suele devaluar el contenido y la calidad de la formación (Ver por ejemplo, Susuki, 2008).
Effective teachers Teachers who provide quality learning experiences for students. Teaching effectively requires teachers' intellectual energy and agency; emotional self-regulation; capacity to connect self, subject, and students; and a set of knowledge, skills, and disposition that are developed through rigorous preparation.	**Docentes efectivos/efectivas** Los docentes efectivos son buenos docentes . La buena enseñanza (enseñanza eficaz) requiere la energía intelectual y la agencia de los maestros, la autorregulación emocional, la capacidad de conectarse entre sí, el sujeto y los estudiantes, y de un conjunto de conocimientos, habilidades y disposiciones que se desarrollan a través de una preparación rigurosa.
Emergency remote teaching A temporary shift of instructional delivery to an alternate mode due to crisis circumstances. Involves the use of fully remote teaching solutions where instruction would otherwise be delivered face to face or through blended or hybrid courses and will return to that format once the crisis or emergency has abated. The primary objective in these circumstances is not to re-create a robust educational ecosystem but rather to provide temporary access to instruction and instructional support in a manner that is quick to set up and is reliably available during an emergency or crisis.	**Educación remota de emergencia** La enseñanza remota de emergencia (ERT, por sus siglas en inglés) es un cambio temporal en la modalidad de instrucción a un modo alternativo debido a las circunstancias de crisis y necesidades de la emergencia. Implica el uso de soluciones de enseñanza remota para la instrucción que de otro modo se impartirían presencialmente o de manera híbrida y que volverán a ese formato una vez que la crisis o la emergencia hayan remitido. El objetivo principal en estas circunstancias no es recrear un ecosistema educativo sólido, sino más bien proporcionar acceso temporal a la instrucción y el apoyo educativo de una manera que sea rápida de configurar y esté disponible de manera confiable durante una emergencia o crisis.

English	Español
Face-to-face (in person) learning Occurs when students and teachers share the same physical space for the instructional period; their interactions are thus completely synchronous.	**Enseñanza y aprendizaje presencial** Los estudiantes y el docente comparten el mismo espacio físico durante el período de instrucción. La interacción entre estudiantes y docentes es completamente sincrónica.
Hybrid education/learning Also called "blended learning," this form of education is characterized by a combination of face-to-face instruction and remote learning (both synchronous and asynchronous). As defined by Dziuban, Hartman, and Moskal (2004), "Blended learning should be viewed as a pedagogical approach that combines the effectiveness and socialization opportunities of the classroom with the technologically enhanced active learning possibilities of the online environment, rather than a ratio of delivery modalities." Blended learning entails a redesign of the current instructional model into a new pedagogical model that: • Shifts from lecture- to student-centered instruction in which students become active and interactive learners; • Increases interaction between student-teacher, student-student, student-content, and student-outside resources; • Integrates formative and summative assessment mechanisms for students and teachers.	**Formación híbrida** Se caracteriza por combinar la enseñanza presencial con la remota (ya sea sincrónica o asincrónica. Tal como la definen Dziuban, Hartman y Moskal (2004), en NACOL, "La enseñanza híbrida debe entenderse como una propuesta pedagógica que combina la efectividad y las oportunidades de intercambios y socialización en el aula con las posibilidades de aprendizaje activo tecnológicamente mejoradas del entorno en línea, en lugar de una proporción de modalidades transmisión de contenido. Implica un rediseño del modelo educativo actual en un nuevo modelo pedagógico que: • Se pasa de una enseñanza centrada en la transmisión de información por parte de los docentes a una enseñanza en la que los alumnos se convierten en aprendices activos e interactivos, • Aumenta la interacción entre los estudiantes y el docente, entre los mismos estudiantes, entre el estudiante y el contenido curricular, y entre el estudiante y los recursos fuera de la escuela, • Integra mecanismos de evaluación formativa y sumativa tanto para los estudiantes como para los docentes.
In-service teacher education Teachers' continuous learning process (through various mechanisms and modalities) as carried out even after a teaching certificate is obtained.	**Formación docente inicial** Refiere al proceso de formación (generalmente en instituciones de educación superior - universidades e institutos de formación docente) en el que las personas reciben educación formal que los habilita para el ejercicio de la docencia
Preservice teacher education The process of receiving formal education (generally in higher education institutions, universities, and teacher education institutes) that enables people to teach and certifies them as teachers.	**Formación docente inicial** Refiere al proceso de formación (generalmente en instituciones de educación superior - universidades e institutos de formación docente) en el que las personas reciben educación formal que los habilita para el ejercicio de la docencia.

English	Español
Professional development A long-term process that, in the case of teachers, begins with formal education in preservice teacher education institutions, continues during professional socialization, and is developed throughout professional practice. The term encompasses various modes of continuous education, both as part of the ongoing learning process in the profession as well as for entry into new positions. Professional development aims to respond to the needs of teachers and their contexts of action, by being conceived as an ongoing activity, articulated within concrete practice. The professional development of teachers occurs when they build knowledge related to practice—their own or that of others—in the context of teaching communities, and connect it with broader social, cultural, and political aspects. Ideally, teachers assume responsibility for the construction of an educational project based on equality, respect for diversity, the integral formation of people, and trust in the learning capacity of students. The term thus conceives teachers as intellectual workers actively and thoughtfully committed to their task, and capable of generating and deciding on an improvement plan. Building knowledge starts from the institutional conditions of a specific school organization, the problems detected in practice, and the ways to transcend them. The process is supported by the experiences of colleagues, and by educational theory and research. Professional development is thus the development of the profession and not of the subjects involved.	**Desarrollo profesional docente** La expresión "desarrollo profesional" pretende superar la escisión entre formación inicial y continua. Propone responder a las necesidades del profesorado y a sus contextos de actuación, al concebirse como una actividad permanente y articulada con la práctica concreta de los docentes. El desarrollo profesional de los docentes se produce cuando éstos construyen conocimiento relativo a la práctica –propia o de los demás–, trabajan en el contexto de comunidades docentes, teorizan sobre su trabajo y lo conectan con aspectos sociales, culturales y políticos más amplios, al tiempo que asumen su responsabilidad en la construcción de un proyecto educativo basado en la igualdad, el respeto a la diversidad, la formación integral de las personas y la confianza en la capacidad de aprendizaje de los alumnos. Concibe al docente como un trabajador intelectual comprometido en forma activa y reflexiva con su tarea, capaz de generar y decidir sobre su agenda de actualización. Se trata de recuperar el conocimiento construido en la práctica, las experiencias y necesidades formativas de los docentes implicados; construir un saber que parta de las condiciones institucionales de la organización escolar específica y de los problemas detectados en la práctica, trascendiéndolos. En este proceso, los saberes de los docentes se articulan con el saber experto acumulado, con las experiencias desarrolladas por otros colegas y se nutre de la teoría y la investigación educativa. Este concepto es discutido por quienes desde la sociología de las profesiones prefieren referirse a desarrollo profesional como el desarrollo de la profesión y no de los sujetos involucrados.
Professional situated learning A form of in-service teacher education that centers on the practical knowledge, experiences, and formative needs of the teachers involved. Problems of practice and institutional conditions are articulated with the help of educational theory and research. The model centers on teacher groups, facilitating the formation of teams that can continue with innovations in their daily practice, generating capacity in ongoing professional learning in schools. This model of teacher education aims at deep and lasting improvement and is sustainable in the mid and long term. As supported by teams of peers, teachers can test new didactic strategies, contextualize them, and analyze the difficulties that arise in real settings as they occur (Navarro and Verdisco, 2000; Ingvarson et al., 2005).	**Formación situada** La formación situada es una línea de formación en servicio que recupera el conocimiento práctico, las experiencias y las necesidades formativas de los docentes implicados. Busca construir un saber que parta de los problemas de la práctica y de las condiciones institucionales y, que, a su vez, pueda articularse con la teoría y la investigación educativa. Estos modelos parten de un triple reconocimiento: de la formación permanente y en ejercicio como constitutivo del trabajo docente; de los docentes como sujetos constructores de saber pedagógico y de la escuela como el ámbito privilegiado para su desarrollo. Están basados en la escuela, centrados en sus problemas y necesidades. Se despliega en las instituciones escolares y junto a ellas, consideran la dimensión colectiva del trabajo de enseñanza. Se dirigen a los colectivos docentes, facilitando la formación de equipos que luego continúan con las innovaciones en su práctica diaria y generan y dejan capacidad instalada en las instituciones. Tienen continuidad. Se sostienen en el mediano o largo plazo. Alternan momentos de trabajo teórico, conceptual, discusión de nuevas referencias con instancias prácticas de puesta a prueba, ensayo y experimentación de las innovaciones. Permiten la sistematización y reconstrucción crítica de la experiencia docente y del saber pedagógico colectivo y público. Existe trabajo en equipo y apoyo y acompañamiento in situ: los docentes pueden probar nuevas estrategias didácticas, contextualizarlas y analizar las dificultades que se presentan en los escenarios reales, a medida que ocurren (Navarro & Verdisco, 2000; Ingvarson et al., 2005).

English	Español
Remote education In this form of education, the learner and instructor (or source of information) are separated by time and distance, and therefore cannot meet in a traditional classroom setting. Teaching and learning can be done synchronously or asynchronously, and transmission of educational content can be done through different delivery modes—radio, television, or the predominant Internet-based or online methods. The Internet is the main delivery mode for online learning. One advantage of online learning over other remote delivery channels is its combination of student-teacher-peer communications and interactions, either synchronous or asynchronous, and the fact that it allows personalized teaching within instructor-led courses.	**Educación remota** La educación remota ocurre cuando el alumno y el instructor, o la fuente de información, están separados por tiempo y distancia y, por lo tanto, no pueden reunirse en un salón de clases tradicional. La enseñanza y el aprendizaje se pueden llevar a cabo de forma sincrónica o asincrónica, y la transmisión del contenido educativo se puede realizar a través de diferentes modos de instrucción (por ejemplo, desde radio y/o televisión hasta los métodos en línea basados en Internet). El aprendizaje remoto generalmente se denomina aprendizaje en línea cuando el principal modo de instrucción está basado en la conectividad a Internet. Una ventaja de la enseñanza en línea sobre otros canales de instrucción remota es la combinación de la comunicación e interacción entre estudiante-docente y compañeros, ya sea sincrónica o asincrónica, y una enseñanza personalizada en los cursos dirigidos por un docente.
Synchronous learning This occurs when teachers and students communicate simultaneously in the same physical or virtual setting, through technological tools and platforms. Interacting in the virtual setting is similar to in-person learning, except that students and teachers are in different physical spaces. In that sense, teachers can explain, show, ask, and answer questions, and students can actively engage in learning activities with their teachers and classmates concurrently.	**Trabajo sincrónico** El trabajo sincrónico ocurre cuando el docente y los estudiantes se comunican simultáneamente en el mismo entorno presencial o virtual, haciendo uso de herramientas y plataformas tecnológicas. La interacción en el entorno virtual es similar al en persona, excepto que los estudiantes y el docente se encuentran en diferentes espacios físicos. En ese sentido, el docente puede explicar, mostrar, hacer y responder preguntas, y los estudiantes pueden participar activamente en actividades de aprendizaje con el docente y con los compañeros de clase al mismo tiempo.
Teacher training: Training given to teachers in specific activities and skills such as the use of programmes, methodologies, and tools (digital or otherwise). Examples include training in the use of simulation programmes or specific software, and in designing audiovisual materials or laboratory experiences.	**Formación docente** La formación docente es un proceso que se inicia con el proceso formal formativo en instituciones de formación docente inicial, continua en el proceso de socialización profesional y se desarrolla a lo largo de todo el ejercicio profesional con diferentes experiencias de formación continua, como parte de la formación permanente en la profesión así como para el ejercicio de nuevos cargos.
Universal Design for Learning (UDL) A research-based framework for guiding educational practice (see http://www.cast.org and http://www.udlcenter.org). UDL principles involve the use of effective teaching practices and intentional differentiation to design curricula that provide all students with equal opportunities to learn and have their needs meet.	**Diseño universal para el aprendizaje** El diseño universal para el aprendizaje es un marco de trabajo que guía las prácticas educativas (ver http://www.cast.org and http://www.udlcenter.org) Se compone de un conjunto de principios para desarrollar una enseñanza efectiva con la firme intención de atender a las diferencias. Diseña propuestas curriculares que permitan a todos y todas los/as estudiantes acceder a iguales oportunidades de aprendizaje respetando sus necesidades.

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Appendix

## Five frameworks for teacher competency that predate the pandemic

ICT Competency Framework for Teachers

The ICT Competency Framework for Teachers, developed by the **United Nations Educational, Scientific and Cultural Organization** (UNESCO) in 2018, clearly establishes the kinds of knowledge and skills that teachers acquire in their initial teacher education programme (first column), and how that knowledge becomes deeper, more critical and is applied more naturally as teachers continue their professional development (second column), and the kinds of competencies that are expected after appropriate teacher professional development opportunities have been undertaken and applied (third column) by experienced teachers.

This framework can guide the development of new teacher professional development programmes and the revision of existing programmes, using the six areas of focus (UNESCO 2018).

Figure A.1 ICT competence framework for teachers

	Knowledge acquisition	Knowledge deepening	Knowledge creation
Understanding ICT in education	Policy understanding	Policy application	Policy innovation
Curriculum and assessment	Basic knowledge	Knowledge application	Knowledge society skills
Pedagogy	ICT-enhanced teaching	Complex problem-solving	Self-management
Applications of digital skills	Application	Infusion	Transformation
Organization and administration	Standard classroom	Collaborative groups	Learning organizations
Professional learning for teachers	Digital literacy	Networking	Teacher as innovator

Source: UNESCO, 2018, p.2

European Framework for the Digital Competence of Educators

The European Framework for Digital Competencies of Educators (DigiComEdu) outlines a progression teachers go through as they develop digital competencies:

» Newcomer: Makes little use of digital technology.

» Explorer: Makes basic use of digital technology.

» Integrator: Integrates available digital technology into teaching.

» Expert: Uses digital technology to enhance pedagogical practices.

» Leader: Orchestrates, monitors, and adapts the use of digital technology to enhance pedagogies.

» Pioneer: Uses digital technologies to innovate teaching strategies.

The framework organizes 22 competencies into 6 areas: professional engagement, digital resources, assessment, teaching and learning skills, empowering learners (by engaging them in the design and implementation of learning experiences) and facilitating learners' digital competencies (Redecker, 2017). These six areas are grouped into three categories:

» Area 1 relates to the initial teachers' professional competencies.

» Areas 2 to 5 relate to the educators' pedagogical competencies.

» Area 6 relates to the learners' competencies which are, of course, the end goal of the teaching and learning process, and also an element to take into account when educators plan their digital teaching.

In addition, the model presents a progression of six stages: (i) awareness; (ii) exploration; (iii) integration; (iv) expertise; (v) leadership; and (vi) innovation.

Figure A.2 European framework for the digital competence of educators
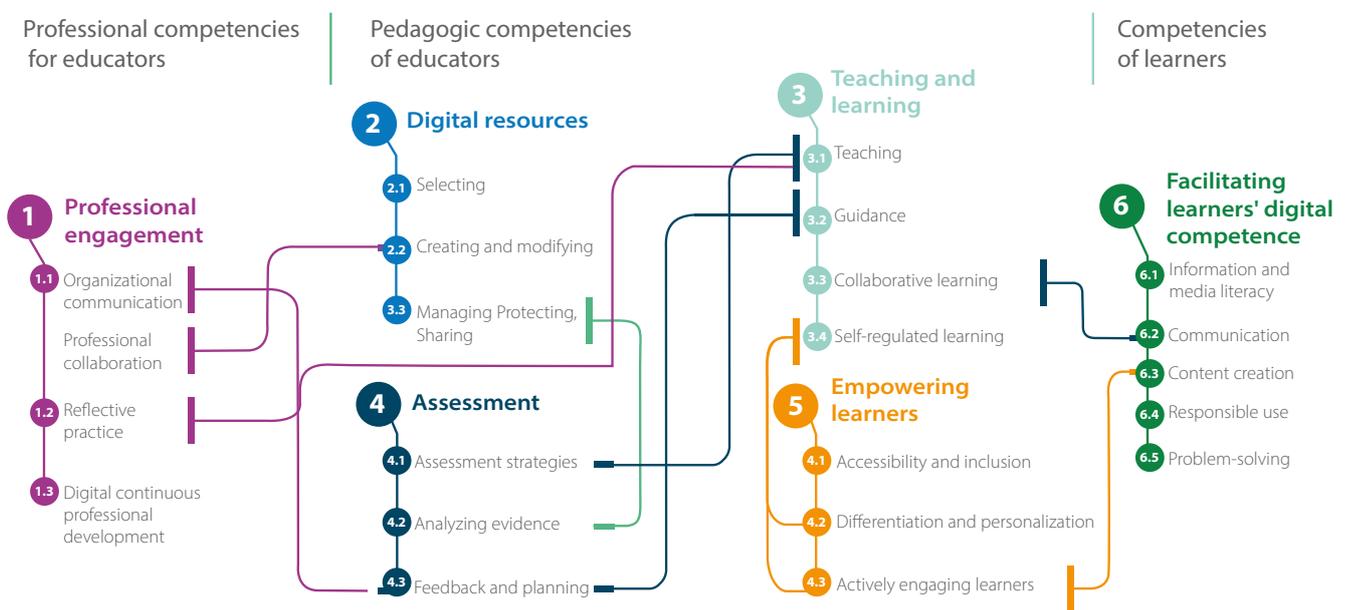
Source: Redecker, 2017, p. 8

National Standards for Quality Online Teaching, United States

The National Standards for Quality Online Teaching (NSQ) were developed to offer guidance to schools, districts, state agencies, and other educational institutions about areas they need to define given their particular contexts.

The NSQ thus provides flexibility for users to adapt the standards to their particular contexts. They are divided into the following eight standard categories (Virtual Learning Leadership Alliance and Quality Matters, 2019). Each category includes a set of indicators and examples to guide each institution in developing its own plan.

Standard A: Professional responsibilities

The online teacher demonstrates professional responsibilities in keeping with the best practices of online instruction. Online teachers need to have the academic credentials in the corresponding field but also needs to be reflective about his/her practice, pursues continuous improvement, and serves as a role model both for stakeholders and learners.

Standard B: Digital pedagogy

The online teacher supports learning and facilitates presence (teacher, social, and learner) with digital pedagogy. This standard relates to teachers' pedagogical use of technology to support and monitor learning while meeting the individualized needs of students. Online teachers demonstrate basic technical knowledge to support others in the use of technology and promote safe digital learning spaces for all learners.

Standard C: Community building

The online teacher facilitates interactions and collaboration to build a supportive online community that fosters active learning. He/she employs learner-centered instructional strategies that leverage technology for learner collaboration and provide opportunities for interaction among diverse learners.

Standard D: Learner engagement

The online teacher promotes learner success through interactions with learners and other stakeholders and by facilitating meaningful learner engagement in learning activities. Online teachers use digital tools to promote student engagement and enable learners' agency and individualized pace. Teachers use different digital formats to instruct, communicate, and provide feedback to students.
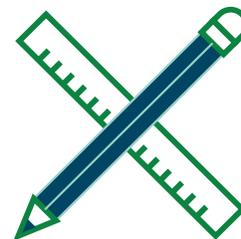
Standard E: Digital citizenship

The online teacher models, guides, and encourages legal, ethical, and safe behaviour related to technology use. Online teachers establish guidelines for learners behaviour that ensure academic integrity and appropriate use of the Internet and technological resources.

Standard F: Diverse instruction
The online teacher personalizes instruction based on the learner's diverse academic, social, and emotional needs. Online teachers identify specific needs and create alternative formats to meet and accommodate those needs.
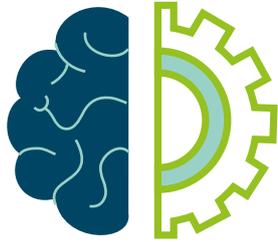
Standard G: Assessment and measurement
The online teacher creates and/or implements assessments in online learning environments in ways that ensure the validity and reliability of the instruments and procedures. The teacher measures learner progress through assessments, projects, and assignments that meet standards-based learning goals, and evaluates learner understanding of how these assessments measure achievement of the learning objectives.
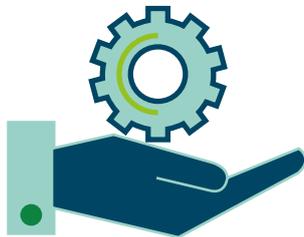
Standard H: Instructional design
The online teacher curates and creates instructional materials, tools, strategies, and resources to engage all learners and ensure achievement of academic goals. Online teachers use a formative approach to lesson design and incorporate diverse media and subject-specific and developmentally appropriate digital resources into online learning modules. These standards are considered optional, as instructional design does not always fall under online teaching responsibilities.
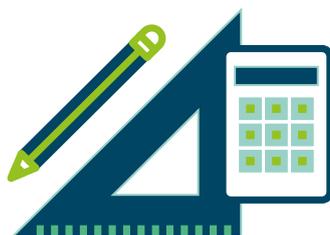
iNACOL Blended Learning Teacher Competency Framework

This framework lists 12 teacher competencies organized under 4 domains; each competency has a number of standards that each institution needs to identify

Mindsets
- New visions for teaching and learning

- Orientation toward change and improvement

Qualities
- Grit

- Transparency

- Collaboration

Adaptive skills
- Reflection

- Continuous improvement and innovation

- Communication

Technical skills
- Data practices

- Instructional strategies

- Management of blended learning experiences

- Instructional tools

Figure A.3 Framework for Blended Teaching Competencies

Source: Powell, A. et al, 2014, p. 8. Available under CC BY

Preparing teachers to deliver hybrid education

A framework for Latin America and the Caribbean

The shift to remote and hybrid education during the COVID-19 pandemic demonstrated the need to revise and improve the education and professional development of teachers. It revealed that teachers often lacked the digital and pedagogical skills to organize and deliver education remotely.

Better educational systems and processes begin with better-quality teaching, not only in schools and classrooms, but now remotely and in hybrid form. In Latin American and the Caribbean, a recent survey reveals that half of teachers consider that their single most important training need is pedagogical skills.

To seize the opportunity to strengthen the teaching skills of K–12 teachers in the region, the Inter-American Development Bank (IDB) and UNESCO are partnering to promote pedagogically driven remote and hybrid education. For that, professional development is key. Based on existing international teacher competency frameworks and drawing on promising global practices, this framework publication presents recommendations for:

• Initial education programmes to enable new teachers to operate in all modes: face-to-face, remote, and hybrid.

• Short professional development opportunities for in-service teachers to design, plan, implement, and assess lessons in hybrid and remote formats.

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