DISTANCE EDUCATION FOR TEACHER TRAINING:

Modes, Models, and Methods

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Acknowledgments

Thank you to the following colleagues both near and far for providing information, resources, and fact-checking on this guide.

Sarwat Alam, Director of Learning Systems and Pedagogy, USAID Pre-STEP Project (2013), Pakistan

Dr. Catherine Margaret Beukes-Amiss, Director, Centre for Innovation in Learning and Teaching (CILT), University of Namibia, Windhoek, Namibia

Arjana Blazic, Teacher Trainer, and Course Designer, EduDigiCon, Zagreb, Croatia

Alisa Buchstab, Junior Policy Advisor in the Sector Program Education,Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH (GIZ), Germany

Dr. Eduardo C. Cascallar, University of Leuven, Belgium; Managing Director, Assessment Group International (Europe and USA)

Will Clurman, CEO, and co-founder, eKitabu, Nairobi, Kenya

Valeria Cruz Gomes, Head of Training and Support, ProFuturo, Madrid, Spain

Dr. Robyn A. Defelice, Learning Strategist and Consultant, Bloomsburg, Pennsylvania, USA

Dr. Nathalia Edisherashvili, Researcher, Institute of Education, University of Tartu, Estonia

Concepción Gallego Garcia, Expert on Global Partnerships and Institutional Relations, ProFuturo, Madrid, Spain

Dr. Sophia Gorgodze, Director National Assessment and Examinations Center, Ministry of Education and Science of Georgia

Dr. Sara Hennessy, Professor of Teacher Development and Pedagogical Innovation, Faculty of Education, University of Cambridge, and Research Director, EdTech Hub, Cambridge, England

Shane Ives, Serious gamer, solar electrician, Albuquerque, New Mexico, USA

Eilean von Lautz-Cauzanet, Policy Advisor in the Sector Program, Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH (GIZ), Germany

Stephen McDonald, app developer, Somerville, Massachusetts, USA

Dr. Mary Mendenhall, Teachers College, Columbia University, New York City, New York, USA

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Dr. Beverly Shirley, Academic Program Officer for University of the West Indies Open Campus British Overseas Territories, (Cayman Islands, Anguilla, British Virgin Islands, Monserrat, Turks & Caicos, Bermuda), George Town, Grand Cayman, West Indies

Dr. Carmen Strigel, Director, Education Technology, RTI International, North Carolina, USA

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Freda Wolfenden, Professor of Education and International Development, School of Education, Childhood, Youth and Sports Studies, The Faculty of Wellbeing, Education and Language Studies, United Kingdom Open University, Milton Keynes, England

Dr. Diana Woolis, CEO, Sustainable Learning Strategies, New York City, New York, USA

Nicole M. Zumpano, Director of Instructional Technology Coaching, The Learning Technology Center (LTC) of Illinois, USA

My thanks to Education Development Center (EDC) colleagues for sharing program information and for providing resources, review, and feedback on chapters or content.

Helen Boyle, Vice President, Director of Program Strategy

Susan Bruckner, Senior International Technical Advisor

Nancy Meaker Chervin, International Technical Advisor

Rachel Christina, Director, International Basic Education

Leslie Goodyear, Distinguished Scholar/ Principal Evaluation Director

Nevin Katz, Web and App Developer

Stephanie Knutson, International Accreditors for Continuing Education and Training Compliance Manager

Nora Nunn, International Technical Associate

Shelley Pasnik, Senior Vice President

Gerald Sanders, Facilities Administrative Manager

Tamara Vitolo, Research Associate, Center for Children and Technology

Katherine Yasin, Principal International Technical Advisor, Director of English for Latin America.

Special thanks to Bronwyn Taggart for her careful editing.

My deepest gratitude to Mary Hooker, International Technical Advisor, Education Development Center, for review, feedback, and wonderful insights on multiple chapters in Section II of this guide.

My final thanks to those who fund, develop, research, evaluate, design, teach and participate in distance learning programs for teachers across the globe. This guide draws on your work. Thank you as well to EDC's Digital Design Group.

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Preferred Citation

Burns, M. (2023). *Distance Education for Teacher Training: Modes, Models and Methods.* (2nd Edition). Washington, DC: Education Development Center.

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Section II. Chapter 16

SUPPORTING DISTANCE LEARNERS

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Best Practice: Successful distance education programs provide ongoing support for learners—in their distance courses and in their places of practice.

16.1 Overview

One attraction of distance learning for teacher education may be that it is viewed as demanding *less* rather than *more* human interaction and support for teachers. Yet many distance learning programs ask pre-service and in-service teachers to perform two difficult tasks, either sequentially or simultaneously. They demand that teachers *learn* differently, and they demand that teachers then *teach* differently as a result of what they have learned. Both of these requirements are fraught with risk of failure, and in many distance education programs, teachers undertake both of these tasks alone, with no support.

The first issue concerns *learning*. As learners in early generations of distance learning discovered, distance learning can be a "very lonely" experience (Brown & Early, as cited by Prescott & Robinson, 1993). This isolation exacerbates all of the many issues that can occur when learners are separated from their instructor and other learners by distance. Understanding content, technical difficulties, uncertainty about how to employ a strategy, and disappointment when a new pedagogical approach fails all may be magnified when teachers confront these issues alone. As discussed in the previous three chapters, issues of support in distance courses are linked to learner completion of, satisfaction with, and performance in a distance program. This is true not just in online and blended learning, but across all modes of distance education. Studies from the 1990s, focused mainly on print and radio instruction, showed that high rates of teacher dissatisfaction with distance-based courses occur when teachers lack "support, contact and confidence" (Prescott & Robinson, 1993, p. 306).

The second issue is focused on *transfer of learning* from the distance course to a teacher's classroom. This centers on the "problem of enactment." This is a phenomenon in which teachers can learn and espouse one idea, yet continue enacting a different one, out of habit, without even noticing the contradiction (Kennedy, 1999). The problem of enactment arises from numerous factors. Teachers participating in professional development have already developed their practice and have developed habits and workarounds to address problems or balance solutions and may be confident of these workarounds and much less comfortable with newer proposed solutions. They may resist the proposed change outright. The professional development content and delivery may be too theoretical and too rote, such that teachers don't know how to implement what they've learned (Loyalka et al., 2017). Or they may lack the confidence and skills to effect a proposed change (Hord et al., 2006; Kennedy, 1999; Rogers, 1995; Sailors & Price, 2015). Whatever the motivation, the result is a failure to transfer learning from a distance course to the classroom or to do so with limited fidelity of implementation.

As seen in Chapters 2, 5, and 6, and discussed at length in Chapters 13–15, distance education programs that enjoy high rates of completion typically have been characterized by ongoing support. And, as we know from other craft-based professions, such as medicine and sports, those

learning or attempting to improve their craft (like teachers), cannot simply be told to get better—they need ongoing support and help. This chapter discusses why this is so, the types of support teachers need during and after distance learning programs, and programmatic and school-based strategies to increase both course completion rates and transfer of learning from a distance course to the classroom. Above all, this chapter focuses on coaching and mentoring as mechanisms to support good teaching and to develop and retain good teachers.

16.2 Why Do Teachers Need Support? Understanding Change

Instruction and professional development are about *change*—changes in teachers' knowledge, skills, attitudes, beliefs, aptitudes, values, or behaviors—alone or in combination with one another. Such changes are often extraordinarily complex. Professional development asks teachers to change the way they teach. It may ask them to use modern technologies to support new modes of instruction, assessment, and classroom organization. It often asks them to teach with a new curriculum, to learn the latest content, and to do it via an unfamiliar tool (computers). While some learners can rapidly master new skills, most learners require time and support to develop new capacities. Thus, the often complex and ambitious goals of distance education programs require constant and various modes of support, both in the distance learning program itself and in schools where teachers will be implementing what they have learned.

16.2.1 Change Types: Diffusions of Innovation

Research on change (Rogers, 1995) states that those going through any sort of innovation approach the change process in diverse ways. This finding also holds true for teachers. As Figure 16.1 outlines, a small percentage of people are *innovators* who will eagerly embrace any innovation. *Early adopters* will also embrace an innovation, although not as quickly or as eagerly as innovators. A slightly larger group (*resistors*) will simply refuse to embrace whatever change is being promoted. Most people fall between these two positions—those who embrace an innovation and those who resist it—as either *early majority* or *late majority* types.

Such classifications are not fixed in stone. Individuals can occupy more than one distinct category, depending on the innovation. For example, a teacher may be an *early adopter* of using radio in the classroom but a *resistor* when it comes to using computers. The rate of change is also influenced by the complexity of the innovation, the pressure to implement the innovation, and the supports available to use it (Hord et al., 2006; Lotan & Burns, 2019).

As Figure 16.1 outlines, innovators, and even many early adopters, represent a tiny percentage of the overall population (2.5% and 13.5%, respectively). They are often "champion" teachers who may require limited support in their distance learning programs. Rather, support should be directed at the remaining 84% of teachers—spread among the early majority, late majority, and resistors. These may be teachers who are new to teaching, who teach out of their content area, who lack a certain set of skills, who are technically unqualified, who exhibit a more pronounced degree of resistance or reluctance toward change, who are frightened to try something new or unsure of how to do it, or who embody the problem of enactment.

Teachers in the early- and late-majority and resistor categories will require support, persuasion, practice, and opportunities for reflection to succeed in the distance course itself, as well as to implement in their classrooms what they have learned (Lotan & Burns, 2019; Sailors & Price, 2015). As will be discussed in Section 16.4, a support person, such as a coach or lead teacher, can work with varying degrees of intensity to help those who could not get through a distance course on their own or who could not—or would not—implement an innovation independently in their classrooms.

Figure 16.1
Diffusions of Innovation and Change Types (Rogers, 1995)

Change Type	Description	Percentage of Total Group of Teachers
Innovators	These are the people who by nature always want to try new things. They like to be at the front of the process. They are always up for something new.	**Innovators** are a small percentage of any group—about 2.5%.
Early adopters	These are people who are typically opinion leaders. They have the respect of their colleagues and other teachers. These influential people are not as adventurous as innovators but will typically keep track of new things to see what might be worth trying. If they decide to try an innovation or novel approach, their opinions and actions will influence others around them.	Although not as small in number as innovators, **early adopters** are also a small percentage of any group—typically 13.5%.
Early majority	These people are a bit more conservative than the early adopters. They are "deliberate." They adopt innovative ideas just before the average member of any group does, but do not tend to keep track of things that might be new and exciting.	**The early majority** includes a sizable portion of any group—about 34%.
Late majority	These people go along with a change, not out of belief but out of necessity, or because they see the change as inevitable. They are concerned about doing a good job according to existing standards and methods, so they are slow to assume the risk of employing a novel, and perhaps untested, approach.	**The late majority** represents a sizable portion of any group—also about 34%.
Resistors	Resistors are highly reluctant to change and often never accept change, preferring the *status quo.* A program may not be able to affect such people at all or may affect only a small percentage of them, and then only in a marginal way.	**Resistors** are a small, but significant, percentage of any group—usually about 16%.

16.2.2 Concerns-Based Adoption Model

In addition to these change types or personalities, research on change reveals that as teachers go through the change process—for example, as they try to adopt a new reading program or use computers for instruction—they approach the innovation with a number of concerns (Hord et al., 2006). These concerns vary in stages from how something such using a computer for teaching affects them (*self-concern*) to how they can use it (*management*) to how it fits with their teaching (*adaptation*). Figure 16.2 outlines these stages of concern.

As Figure 16.1 illustrates, teacher responses to change are highly *personal*. Figure 16.2, on the next page, demonstrates that teacher responses to change are also highly *procedural*, based on

Figure 16.2
Concerns-Based Adoption Model (Hord et al., 2006, p. 31)

Stage of Concern	Definition: *The Teacher (Is) . . .*	Example of a Statement Expressing This Concern
0. Awareness	Aware that an innovation is being introduced but not really interested or concerned with it	"I'm not really concerned about it."
1. Informational	Interested in some information about the change	"I would like to know more about it."
2. Personal	Wants to know the personal impact of the change	"How will using it affect me?"
3. Management	Concerned about how the change will be managed in practice	"I seem to be spending all my time getting materials ready."
4. Consequences	Interested in the impact on students or the school	"How is my use affecting students?" "How can I refine it to have more impact?"
5. Collaboration	Interested in collaborating with colleagues to make the change effective	"How can I do this with other teachers?"
6. Refocusing	Begins refining the innovation to improve student learning results	"I have some ideas about this that would make it work better."

a number of professional concerns about how such changes will affect their performance. Thus, a teacher's *stage of concern* will vary according to each new innovation or each incremental change in application of the innovation. From an implementation perspective, understanding issues surrounding change types and teachers' stages of concern is important for several reasons.

The innovation drives expectations and support. First, the more dramatic the expected change, and the more intense the teacher concerns, the more assistance teachers will require. Their concerns about an innovation and their willingness to use it (or not use it) depend upon a number of *external* factors:

- **Complexity.** Teachers may feel more anxious about teaching with a computer, which is a complex tool, versus using interactive audio instruction (IAI)—a simpler tool—in their class.
- **Support.** Teachers' ability to implement an innovation depends upon the amount of available support.
- **Expectations.** The higher the expectations of principals or school district officials, the more support teachers will require.

The above factors suggest that innovations that are complex—for example, having teachers use a new curriculum, adopt a new instructional method, or implement new literacy strategies—increase the expectations of all involved—school leaders, teachers, ministry officials—that such complex programs will yield more favorable results. This combination of complexity and increased expectations places further stress on teachers. Therefore, the types and length of in-school assistance teachers receive must be commensurate with the complexity of and the expectations regarding an innovation.

Professional development and support should be measured in years, not months. Next, change can take between five and seven years to take hold, according to Hord et al. (2006). Early concerns about information, how the innovation affects the teacher personally, and management issues often take at least three years to be resolved (Hord *et al.,* 2006). Management concerns about a new curriculum, for example, can take at a least a year to resolve as teachers become familiar, try, and fail with a particular instructional method, and then reconcile how to use higher-order thinking strategies in an educational system that measures rote knowledge (Hord et al., 2006). Thus, models of professional development and support must be designed to endure over several years.

The content and sequence of professional development and support must be driven by teachers' stages of concern. Third, the concerns-based adoption model emphasizes the importance of meeting teachers where they are conceptually and logistically and addressing their questions *as* they are asking them. For instance, teachers cannot be pushed to *collaborate* (stage 5) when they are still focused on how to *manage* an innovation (stage 3). The types and content of professional development and support opportunities can be informed by ongoing monitoring of teachers' concerns.

A teacher's stage of concern is directly related to his or her level of use and requires differentiated support. Finally, a teacher's attitude toward or concern about a proposed innovation both determines and is influenced by how he or she will use the innovation—that is, by his or her level of use, as outlined in Figure 16.3 on the next page.

Knowing a teacher's stage of concern can help a support person, such as a coach, discern the motivation behind a teacher's level of use of an innovation and gauge how much and what kind of help to provide for this teacher. A teacher who uses a new science kit in a step-by-step, *mechanical* fashion (see Figure 16.3) most likely has "management" concerns (see Figure 16.2), such as figuring out how to employ an innovation without disruptions in learning, in the lesson, or by students. A teacher who is in the *refocusing* stage of concern (Figure 16.2) may need help generating more innovative uses of the science kit ("Renewal" in Figure 16.3). The link between a teacher's stages of concern and levels of use argues for highly differentiated and high-frequency support, grounded in an understanding of how concerns affect adoption.

Thus, as mentioned previously, distance education programs, especially those with a classroom focus, must address a teacher's stages of concern before the teacher can move on to the next stage. Teachers require ongoing monitoring and formative assessment, but above all they need ongoing support.

16.3 Strategies for Support

The fact that teachers require support, especially in terms of transferring learning, is a good thing. It means they are attempting to address the problem of enactment. Distance learning programs can essentially offer two levels of support for teachers. The first level relates to support within the distance learning program itself—policies, design elements, mechanisms, and actions that help teacher-learners to complete their distance learning course successfully. The second level concerns support in teachers' places of practice—schools—so they can successfully implement what they have learned in distance-based courses. The following two sections examine each type of support.

16.3.1 Programmatic Supports

The extent and types of support required by pre-service and in-service teachers are determined by a number of factors: the level of self-efficacy and self-directedness of learners; the degree and skill of the online instructor; the complexity of the learning material, design, and technology; the particular learning outcomes for teacher-learners; and the degree of structure offered by the

Figure 16.3
Levels of Use of the Innovation: Behaviors (Hord et al., 2006, p. 55)

Levels of Use	Behavioral Indicators of Level of Use *The teacher . . .*	Verbal Indicators of Level of Use *What the teacher might say . . .*
0. Non use	. . . has no interest, is taking no action	"I don't know anything about it." "I am doing nothing toward becoming involved."
1. Orientation	. . . is taking the initiative to learn more about the innovation	"I'd like to learn more." "How do I learn about this?"
2. Preparation	. . . has definite plans to begin using the innovation	"I'm getting ready to use this for the first time." "I'm thinking about how to use this."
3. Mechanical	. . . is making changes to better organize use of the innovation	"Right now, my focus is on how to use this software." "I'm learning how to use this new science kit." "I'm spending all my time learning how to do this."
4A. Routine	. . .is making few or no changes and has an established pattern of use	"I feel comfortable using the computer for brainstorming. However, I'm not really focused on setting up my students in groups." "I can use the new questioning techniques I learned in my online course."
4B. Refinement	. . . is making changes to increase outcomes	"I'm varying the way I do reading activities in my classroom." "I've made a few modifications in the interactive radio lesson."
5. Integration	. . . is making deliberate efforts to coordinate with others in using the innovation	"I'm combining the way my colleague uses *PowerPoint* slides with my own ideas for using them." "I've incorporated some new grouping techniques into the way I do active learning."
6. Renewal	. . . is seeking more effective alternatives to the established use of the innovation	"I'm looking at new ways to use formative assessment in my classroom." "I am planning on designing a curriculum unit that uses active learning in my geography class."

distance-based course. As discussed in Chapter 14, in online learning, which is typically not time- or place-based, many teacher-learners often require additional support because they are being asked for the first time to assume responsibility for their own learning (Commonwealth of Learning, 2008). Some provisions for offering support, such as preparing learners to succeed in a distance environment and explicitly designing for communities of practice, are discussed in Chapters 14 and 15. Other programmatic strategies are noted in Figure 16.4.

Figure 16.4
Programmatic Strategies to Support Distance Learners

Programmatic Strategy	Discussion
Integrate distance-based course into the overall teacher training program (university-based or national upgrading programs)	• Focus on quality, delivery, resources, and supports between the two modes of teacher education (distance and in-person), ensuring that the quality of outcomes of the educational experience is consistent between modes. • Assign courses to be taught by the same instructors so learners receive identical qualifications whether they are located on campus or off campus. • Reserve special resources and support for distance learners to ensure their engagement with the institution and ensure that everyone has access to academic counseling. • Provide distance learners with access to the physical facilities (libraries, study space) and equipment necessary for their successful learning. • Design opportunities for peer interaction at both the course and institutional levels to promote a sense of belonging and encourage the development of learning and social communities within and across modes of instruction (face-to-face, hybrid, online). • Ensure that all learners have necessary information on financial aid, academic requirements, program structures and requirements, cost and financial support, admission criteria, assessment requirements and processes, rules and regulations, and appeals procedures (Hope, 2006, pp. 17, 18).
Provide mentors and partners to first-time online learners	• South Korea's National Open University (KNOU) employs final-year students as mentors to its incoming online learners. Mentors are responsible for helping mentees navigate the KNOU system, develop good study habits, and learn the ropes of Web-based learning. They communicate with their mentees via Web-based communications, mobile phones, and, where possible, face-to-face (Boyle et al., 2010). • In Indonesia, as part of EDC's online coaching program (2008–2010), coaches who had matriculated from the same program a year earlier served as instructors and mentors for new coaching candidates (Burns, 2013).

Programmatic Strategy	Discussion
Establish district and regional learning centers where teachers can access ongoing in-person support	• The Africa Virtual University (AVU) has established 29 learning centers through partnerships with higher education institutions in 21 countries.[1] These centers offer face-to-face courses complementing AVU's distance-based upgrading program and allow teachers to use ICTs for their distance-based courses (Sawahel, 2014). • China, Ireland, Canada, the United Kingdom, Georgia, Namibia, the United States, a number of Caribbean islands (e.g., Jamaica, U.S. Virgin Islands, and Puerto Rico), Zambia, Egypt, and Indonesia have all provided the equivalent of local brick-and-mortar education service centers for teachers.
Establish district and regional learning centers where teachers can access ongoing in-person support *(continued)*	• These centers can also be established by non-governmental entities. For example, Contact North (Contact Nord), mentioned in Chapter 13, runs distance learning centers in remote and rural areas of Ontario to support online learners (Contact North | Contact Nord, n.d.). • The education centers in the countries mentioned above provide a variety of services: supporting teacher coaching, providing places where teachers can take their online courses together, allowing access to technology and human supports, and offering on-demand professional development. • As an example, the Zambia school program for in-service training for the team (SPRINT) is a school-based program supported by a network of district and regional centers. Teachers come here to participate in school-based professional development (typically TESSA's Open Education Resources) and for regular teacher group meetings (Open Learn Create, 2017).[2]

[1] Support is given to teachers in French (Benin, Burkina Faso, Burundi, Cameroon, Democratic Republic of Congo, Mali, Mauritania, Niger Senegal), Portuguese (Cabo Verde, Guinea-Bissau, and Mozambique), and English (Ethiopia, Gambia, Ghana, Kenya, Nigeria, Rwanda, South Sudan, and Tanzania).

[2] SPRINT is administered by Zambia's Ministry of General Education, with the input of 600 teachers and district officials from Central Province, supported by the Open University (UK) and World Vision Zambia and funded by the Scottish Government (Open Learn Create, 2017).

Programmatic Strategy	Discussion
Use technology to provide teachers with informational, academic, and social supports (See Chapters 6, 14, and 15)	• Chatbots, artificial intelligence tools, FAQs, interactive voice response software, toll-free numbers, help desks (e.g., *Zendesk*), email, automated response systems, and websites all can help learners get immediate supports and answers to questions, thereby facilitating effective resolution at the first point of contact. • Communications tools such as *VoiceThread*, *Zoom,* and *Teams* allow teachers to have real-time discussions about a learning artifact or engage in face-based virtual interaction. The use of social media as part of a structured learning experience can help teachers interact more frequently, build more diverse personal learning networks, and diminish the isolation and alienation online learners often feel—while enhancing the quantity, quality, support, and reciprocity of personal learning networks (Burns & Bodrogini, 2011). • Online tutoring supports include individual or small-group instructor tutoring, peer tutoring, or tutoring programs, such as computer-aided instruction and intelligent tutoring systems. Teachers can retrieve and review information from screencasts and recorded webinars (webcasts). • Phones (voice and text), e-mail, *WhatsApp*, videoconferencing, and Web-based communication tools all facilitate synchronous communication between instructors and learners. Such communication can provide some of the verbal immediacy and just-in-time assistance so critical to participants' satisfaction with distance-based learning, and it can mitigate the anonymity and impersonal context of an online environment (Dikkers, 2018; Liu et al., 2022).
Partner with agencies to provide face-to-face support and interaction with teachers	• Contract with people and institutions who can help manage and support teachers. For example, in Estonia, local government councils provide technology support to schools (Burns, in press). • Explore commercial coaching providers. Numerous school districts in the United States and schools in Estonia partner with commercial coaching providers, such as *IRIS Connect*, to provide teachers with ongoing support (N. Edisherashvili, personal communication, March 20, 2022). Other commercial products include *Edthena* and *MyTeachingPartner.* • Deploy local district education office staff to provide support. Guinea's Fundamental Quality in Education Level IRI program (1998–2006) developed monthly *cercles de renseignement* (teaching circles), with teachers who were part of an IAI initiative. Local circuit inspectors were given print-based manuals and audiotapes in order to provide face-to-face support to help teachers implement IAI-based instruction (Burns, 2010). • Kenya's TUSOME national tablet program provides district curriculum support officers with digital tablets to improve classroom observation, support, and accountability (Piper et al., 2018).

Programmatic Strategy	Discussion
Partner with agencies to provide face-to-face support and interaction with teachers *(continued)*	• Where available, build or leverage relationships with more well-resourced schools. Reach out to university lab schools, international schools, or professional development schools to provide support, model practices, and invite distance learners to observe classrooms.
Design distance education interventions that are highly structured and offer just-in-time supports	• Consider highly structured in-class types of training or professional development, such as IAI, instructional television, scripted lesson guides, two-way audio, or virtual classes. • Offer differentiated professional development so teachers engage in professional learning activities that are highly supportive (e.g., study groups or lesson study) and balanced with print-based courses or asynchronous online courses. • Design synchronous elements into distance courses such as Web meetings, live classes, phone conferencing, or chat sessions that approximate a sense of immediate connection or presence (Burns, 2010). • Create micro-courses to reduce the risk of attrition in longer courses.
Build supportive structures into the course or program design	• Cap the number of learners in a course to a manageable size (e.g., 20). • Mandate brief weekly chat sessions between the instructor and learners. • Require that instructors respond to learner e-mails within 24 hours. • Offer as-needed instructor tutoring sessions. • Schedule one or more face-to-face meetings between the instructor and learners in a term. • Hold weekly online "office hours" during which individual learners can pose questions and share concerns with the instructor. • Schedule regular phone calls and/or site visits by the instructor to teachers' schools. • Pair learners with a "buddy" or learning team so no one is alone. This pairing can be done by grade level, content area, perceived personality compatibility, or geographic location (Boyle et al., 2010; Burns, 2013).
Build extensive peer support into distance courses (See Chapters 14 and 15)	• Establish teacher learning circles • Organize learners into communities of practice • Engage learners in collaborative projects and peer assessment • Give learners roles and responsibilities in the course so they are incentivized to reach out to colleagues • Design icebreakers, fun days, games or create a "Committee for Fun" to build relationships

While necessary, the supports above can tax the distance education system and can greatly increase staff workload. However, these supports may pay for themselves in terms of reducing attrition and promoting greater learning transfer. Institutions must either employ additional staff and increase costs or find other ways of limiting the demands on distance instructors' time so that they can conduct these important support functions.

16.3.2 School-Based Supports

Support for teacher-learners should not end upon the conclusion of a distance learning program or course. In fact, it is often upon the conclusion of a course or workshop that teachers' real questions, and real need for support, begin in earnest. Figure 16.5 outlines some school-based support strategies that distance-based education programs can deploy to ensure an instructional return on investment.

Figure 16.5
School-Based Strategies to Support Distance Learners

Strategy for School-Based Support	Example
Secure principal involvement	Principals play a key role in educational quality, in particular where they function as instructional leaders (Bartanen et al., 2022; Grissom et al., 2021; Huber & West, 2002). As part of distance educational programming, principals can do the following: • Advocate for professional development programs so that the program's objectives and priorities become those of the principal. (This may require equipping the principal with additional skills to conduct, support, monitor, and evaluate such changes so he or she can support teachers in the change process.) • Secure adequate resources and materials to enable teachers to do their jobs better, particularly if principals feel a sense of ownership and accountability with regard to the initiative. • Set the tone and establish an instructional culture in which learning is at the core. • Direct more support toward teachers, such as pairing novice teachers with trained, experienced mentors or coaches; providing teachers with the time and impetus to promote positive collegial interaction and support; and giving teachers the time to meet, discuss, and plan.
Focus on professional development as school improvement	• Connect professional development to overall school improvement and continuous improvement. • With principal leadership and a critical mass of teachers (see below), professional development can harness a "collective moral purpose," where everyone is working toward the same goal of improvement and where an innovative instructional climate can take hold and the collective efficacy of the school can be increased (Fullan, 2005, p. 68; see also, Donohoo, 2017).

Strategy for School-Based Support	Example
Focus on professional development as school improvement *(continued)*	• For example, school-based lesson study has been used in England to focus on school improvement, helping teachers address hard-to-teach and hard-to-learn topics. This provides teachers with a mechanism to focus on continual self-improvement and school betterment, and results in consistency and depth in the teaching of content topics (Dudley, 2019).
Involve a critical mass of teachers in the distance-based, blended, or online professional development	• Target a critical mass of teachers at each school—enough so that the intervention becomes self-sustaining, carried forward by its own momentum and teachers' sense of ownership, belief, and success in implementing, versus being driven by external mandates or by a few teacher champions. • Involving a critical mass of teachers can cultivate a school-based community of learners and practitioners where teachers work together to customize, personalize, and adapt new skills and concepts to their particular setting (See Chapter 15). • Studies from Japan, England, China, Zambia, and Kenya suggest that involving all teachers in intensive professional development such as lesson study, can promote dedicated support networks and communities of inquiry at the school level (Doig & Groves, 2011; Dudley, 2019; Jung et al., 2016).
Provide teachers with covered time during the school day to meet and support one another	Covered time is paid time during the school day and can involve: • Common planning time • Horizontal and vertical teaming • Department meetings • Grade-level meetings • After-school professional development
Offer school-based in-person support as part of the distance learning program	• No matter the focus of the distance learning program, teachers will require instructional support to transfer learning from coursework to their classrooms. • Coaching has been shown to have larger effect sizes than coursework in improving the structural characteristics in classrooms (Neuman & Wright, 2010, pp. 63, 83; Fixsen et al., 2005). • Well-trained support staff can offer ongoing, in-class, practical, differentiated, and personalized instruction and support (Neuman & Wright, 2010, p. 83). • Teachers, especially new ones, who receive coaching and mentoring (discussed below) are less likely to leave teaching and more likely to improve practice (Bastian & Marks, 2017; Darling-Hammond & Bransford, 2005; Ingersoll & Strong, 2011; Organisation for Economic Co-operation and Development, 2009).

16.4 Coaching and Mentoring

The most important supports for teachers come in the form of personal assistance: a technical support person who can help a teacher log in to her online course; a principal who provides teachers with time to plan a project for their distance courses or who actively encourages the teacher to try a learner-centered activity (and ignores the chaos and noise that may ensue the first time the teacher undertakes such a task); a community of colleagues who offer moral support, since they are all undergoing the same intervention together; or an instructional support person who can help the teacher translate, practice, and refine in her classroom a new teaching strategy that she learned via audio broadcast. Typically, this is a coach or a mentor.

Teacher coaching has emerged as a promising alternative to traditional models of professional development, and its frequency has increased across the globe—both in wealthy countries and in bilateral and multilateral donor-funded education projects in lower-income ones (Kraft et al., 2018). As an example of the former, in the 2015-2016 academic year, 66% of U.S. public schools reported having "staff with specialist or coaching assignments" (National Center for Educational Statistics, 2017). A 2020 U.S. national survey suggests that the percentage may actually be much higher—83% of respondents reported some kind of coaching in their school or district (Van Nostrand et al., 2022).

Coaching is a method of directing, instructing, and supporting a person or group of people to achieve a particular goal or to develop a set of specific skills. At its core, coaching is a *technical* relationship—highly personalized, differentiated, individualized professional development. It involves a number of tasks, but a coach's main job is to empower the teacher in terms of a particular set of skills and knowledge. This empowerment involves sharing expertise and evidence-based practices and is focused directly on teachers' individual needs (Kraft et al., 2018; van Nieuwerburgh, 2017).

A *coach* is a trained and knowledgeable professional who is skilled at taking teachers (or principals) from where they are to where they want to be. In education, as in sports, a coach's job is to make people work better in their profession and to be better professionals. A coach does this by helping teachers (1) meet a goal or do something well (this is the narrowest definition), (2) develop the skills and dispositions to attain their goals independently, and (3) develop the skills and dispositions to work together effectively with other teachers to attain goals (Garmston & Wellman, 2013).

Within education, coaches have a number of roles—including classroom supporters, resource providers, facilitators, catalysts for change, or instructional coaches. Unlike a mentor (discussed below), a coach may be a peer or have equal or less experience than the person he or she is coaching. A coach is not a supervisor, an evaluator, an inspector, the teacher's boss, a teacher's helper, or an assistant (Killion & Harrison, 2008).

Coaching is extremely diverse, and there are many types of coaches. *Data* coaches help teachers use data to inform instruction. *Instructional* coaches assist teachers with content-focused pedagogical approaches. *Content* coaches focus on improving the teaching of subject matter. *Technology* coaches support teachers in integrating Information and Communication Technologies (ICTs) into teaching and learning. *Literacy* coaches help teachers implement evidence-based reading and writing strategies. *Turnaround* coaches work in schools often targeted as failing or in need of corrective action and provide teachers and the principal with an array of supports.

There are also numerous coaching *approaches*: Technical coaching, directive coaching, facilitative coaching, informational coaching, catalytic coaching, and cognitive coaching represent just a few of these. And there are numerous coaching *frameworks*: a gradual release of responsibility approach (explained in Figure 16.6); leveled coaching; the GROW model (Goals, Reality,

Options, Wrap Up); solutions-focused coaching; transformational coaching; and instructional rounds (Burns & Lawrie, 2015; City et al., 2009).

The research on coaching points to its numerous benefits, including:

- Improved teacher retention in professional development or distance courses (Burns, 2013; Ho & Burns, 2010).
- Greater coherence with school reform and professional development efforts (Bastian & Marks, 2017; Desimone & Stuckey, 2014; Killion & Harrison, 2008).
- Successful transfer of learning, thus addressing the problem of enactment (Bakhshaei et al., 2019; Burns, 2013; Darling-Hammond et al., 2017a; Fixsen et al., 2005; Ho & Burns, 2010; Timperley et al., 2007).
- Large effects on teacher practice (upwards of 0.5 standard deviations [SD]) and increased instructional quality (Bakhshaei et al., 2019; Hill et al., 2022; Kotze et al., 2019; Kraft et al., 2018; Neuman & Wright, 2010; Sailors & Price, 2015). Hill (2020) reported that teachers who received individual coaching saw classroom practice improve by 20 percentile points, as measured by classroom observation instruments. A meta-analysis by Kraft et al. (2018) found that as a result of coaching, the quality of teachers' instruction improved by 0. 49 SDs—"more than the difference in effectiveness between a novice and a teacher with five to 10 years of experience, a more positive estimated effect than traditional PD and most other school-based interventions" (Kraft et al., 2018, p. 27).
- Gains in learning outcomes on test scores for students whose teachers receive coaching (Kotze et al., 2019; Kraft & Blazar, 2018; Kraft et al., 2018; Sailors & Price, 2015). These difference have been documented across several studies in the United States and South Africa—from 0.18 SDs (Kraft et al., 2018), a 0.41 SD increase in student test scores (Kotze et al., 2019) and an increase of 6-7 percentile points compared with students in classrooms where teachers were not coached (Hill, 2020). In examining all education interventions, only one-on-one, high-dosage tutoring with students had

Figure 16.6
Gradual Release of Responsibility Coaching in Indonesia

As part of USAID's Decentralizing Basic Education 2 (DBE2) program in Indonesia, the Education Development Center developed in 2008–2010 a coaching model to help teachers in rural schools implement learner-centered instructional practices as part of a one-computer classroom project.

Three hundred teachers received weekly coaching from a pair of coaches (60 in all) who came to the school two to three times per week. The coaches themselves were former teachers, master teacher trainers, or subject-area specialists who participated in a five-month online program where each week they learned a particular coaching technique online and then implemented it in-person with their coaching partner as they worked with a group of teachers in schools.

The coaching program employed a gradual release of responsibility approach in which coaches (1) modeled a learner-centered activity for teachers; (2) guided teachers in adapting or designing this model for their classrooms; (3) formally co-taught the lesson with teachers using one of Cook & Friend's (1995) six co-teaching models; (4) prepared each teacher to teach the lesson alone; and (5) provided observation and feedback on the teacher's "solo teaching" episode. Each of these cycles repeated three to four times throughout the semester.

In contrast to the implementation rates of DBE2's regular cascade approach, which hovered somewhere around 5%, 98% of coached teachers implemented at least one computer learner-centered activity in their classroom (Burns, 2013; Burns & Lawrie, 2015, pp. 90–91).

larger effects on academic outcomes than coaching teachers (Fryer, 2017, as cited in Blazar et al., 2022).

- Positive associations with teacher value-added models[3] in subjects such as mathematics and in improved teacher retention (Bastian & Marks, 2017).

As a whole, teachers who receive on-the-job support, guidance, and feedback from an external support person or their peers practice new skills and strategies more frequently, apply them more appropriately, and adopt a more diverse range of instructional practices than do teachers who do not receive such supports (Burns & Lawrie, 2015; Joyce & Showers, 2002). However, the above results are not possible without well-designed coaching programs that instantiate the "critical features" of high-quality professional development—job-embedded practice, intense and sustained duration, a focus on discrete skill sets, and active learning (Desimone & Stuckey, 2014).

16.4.1 Supporting New Teachers

The supports mentioned throughout this guide are important for all teachers, but they are most crucial for novice teachers entering the classroom for the first time. Although many nations do not keep track of such data and current exact data are hard to come by, there is sufficient evidence to suggest that teacher turnover—or attrition—is a serious global problem that has exacerbated what is already a severe global teacher shortage (Teacher Task Force, 2021).

Teacher attrition: From teaching

The previous three chapters discussed teacher attrition from distance education programs. Far more concerning is teacher attrition from teaching itself.

Teacher attrition has long preoccupied policymakers because of its threats to overall educational quality, especially for learners who are in the greatest need of quality teaching—those in refugee contexts; rural schools; urban schools in wealthy countries that often serve children of color who are poor or migrants; and learners in the poorest parts of the globe, that is, Sub-Saharan Africa and Southwest Asia (Akiba et al., 2007; National Commission on Teaching and America's Future, 2003; Quartz et al., 2008; Ring & West, 2015; Sinyolo, 2007; Teacher Task Force, 2021; United Nations Educational, Scientific and Cultural Organization, 2022).

In Sub-Saharan Africa, 16.5 million additional teachers are needed to achieve the United Nations' Sustainable Development Goal 4—5.4 million at the primary level and 11.1 million at the secondary level (United Nations Educational, Scientific and Cultural Organization, 2022, p. 4). Although nowhere near as dramatic, teacher shortages are prevalent in wealthy countries, too. The Netherlands, France, and Japan all reported shortages of primary school teachers—9,100, 4,000, and 2,558, respectively—in 2022. Sweden predicts that it will need 153,000 new teachers by 2035 (United Nations Educational, Scientific and Cultural Organization, 2022, p. 4, 6).

Attrition from teaching and teacher migration between schools carry serious financial, organizational, academic, and economic implications for wealthy education systems—the United States, New Zealand, Canada, and the United Kingdom—as well as for poor and middle-income ones such as the Gambia, Lesotho, and Tanzania (Sinyolo, 2007; Spooner-Lane, 2017). Recruiting, hiring, and training teachers is a time-consuming and expensive process that requires schools and districts to shift financial and human resources away from other programs in order to find new teachers (National Commission on Teaching and America's Future, 2003; New Teacher Center 2019; Quartz et al., 2008). While

[3] Teacher Value Added Models (VAM) attempt to measure a teacher's effect on his/her students' achievement through a variety of measures that examine a student's actual and predicted test scores. VAM is used in a number of U.S. school districts but is not without critics and controversy. For more information, see: https://www.nassp.org/top-issues-in-education/position-statements/value-added-measures-in-teacher-evaluation/

costs vary dramatically across and within countries because of salaries, budgets, funding streams, and certification and professional development requirements, the most recent literature on teacher turnover costs in the United States found that hiring one new replacement teacher costs $17,872 (New Teacher Center 2019). A 2007 study of teacher turnover in Texas noted that the state's annual turnover rate, including a 40% turnover rate for teachers in their first three years of teaching, cost a "conservative estimate" of $470 million per year (updated to reflect 2022 costs) (Wynn et al., 2007, p. 210).

Attrition may be formally noted or not, and it assumes numerous forms. Much attrition is due to retirement (primarily), resignations, death (especially from AIDS and COVID-19), and dismissals (Sinyolo, 2007). And much is due to other factors: Teachers may simply fail to show up for work or do so irregularly (Sinyolo, 2007). They may exit government schools for the improved pay and, often, higher perceived quality and status of private schools or schools with "high achieving, high income" students (Hanushek et al., 2004, p. 338; Johnson & Birkeland, 2003; Quartz et al., 2008; Ring & West, 2015; Teacher Task Force, 2021). Poor salaries; low social recognition of their work; lack of opportunities for professional development; insufficient promotion prospects; difficult working conditions; and, in the United States, attacks by parents over wearing masks during the 2020 pandemic, the perceived politicization of education, and fears of school shootings have all led teachers to resign from teaching (Barlow, 2021; Modan, 2022; Quartz et al., 2008; Ring & West, 2015; Teacher Task Force, 2021; UNESCO, 2022).

Teacher attrition does not affect all countries, subjects areas, or populations equally. Ireland, Finland, and the Seychelles have a teacher surplus, while primary-level teacher attrition in Guinea, Sierra Leone, Mauritania, and Benin is 22%, 17%, 16%, and 13% respectively over five years (Teacher Task Force, 2021). Globally, STEM teachers are in shorter supply than language arts teachers; so too are substitute or supply teachers in the U.S., Canada and Wales (Cray, 2022; Belger, 2023). Sub-Saharan Africa has an acute shortage of secondary versus primary teachers (UNESCO, 2022[4]). In the United States, where teacher attrition is often hard to enumerate, attrition of new teachers by year five has been estimated to range between 30% and 50% (Gray & Taie, 2015; Ingersoll & Strong, 2011; Smith & Ingersoll, 2004). At the start of the 2022 school year, 44% of U.S. public schools reported at least one teaching vacancy, with more than half due to resignations (National Center for Education Statistics, 2022).

Factors such as gender and youth can exacerbate attrition. In many contexts, women are more likely than men to leave the profession, and in the United States and Pacific Rim countries, younger teachers have been reported as more likely to leave teaching (Moskowitz & Stephens, 1997; Quartz et al., 2008; Ring & West, 2015). In many cases, teachers will leave low-performing or poor schools for those that make good teaching possible (Johnson & Birkeland, 2003).

Within the United States, an authoritative report by the National Commission on Teaching and America's Future (NCTAF), although two decades old, estimated that 50% of new teachers leave teaching within their first five years, and one of the major drivers cited for this attrition is "isolation" (NCTAF, 2003; Fulton et al., 2005; Smith & Ingersoll, 2004). Unlike their more experienced colleagues, new teachers do not have an established professional network. They cannot draw on a reservoir of experience and accumulated knowledge to guide them when times get tough. They often lack the confidence of their more experienced colleagues. In cultures that value

[4] UNESCO (2022) reports that the secondary teacher workforce needs to grow more than 15 per cent annually in the Central African Republic, Chad, Ethiopia, Malawi, Niger, and the United Republic of Tanzania.

age, hierarchy, and problem avoidance, they may not have the respect of their older administrators, nor feel comfortable asking for help. Although the report is dated, those feelings have been corroborated by more current research on novice teachers—and all speak to the importance of mentoring and induction (Bastian & Marks, 2017; Podolsky et al., 2019).

Mentoring new teachers

The first few years of a teacher's career are formative ones as teachers make the leap from preparation to practice. Depending on the amount and quality of support they encounter in their first teaching job, new teachers can grow into highly competent ones—or they may develop counterproductive approaches or leave the profession entirely (Podolsky et al., 2019, p. 16). Moir (1990) classifies a first-year teacher's trajectory as anticipation, survival, disillusionment, rejuvenation, reflection, and anticipation again. Without effective mentoring support, many beginning teachers may struggle early in their careers, get stuck at one of the phases described above (e.g., disillusionment) and fail to learn the nuances of effective teaching (Moir, 1990; Spooner-Lane, 2017). In contrast, new teachers who receive immediate support and guidance are much more likely to become, and remain, effective teachers over time (Podolsky et al., 2019, p. 16).

Mentoring has been shown to have a positive effect on teacher commitment and retention, teacher classroom instructional practices, and student achievement (Ingersoll & Strong, 2011). Mentoring refers to one-on-one assistance and support to a novice from an experienced professional. Typically, mentors are established and seasoned teachers charged with the task of helping to train, advise, and share practical experience with a novice teacher. They share their body of experience, impart knowledge, offer wisdom, and generally help novices (referred to as *protégés* or *mentees*) learn the ropes.

Mentoring can be formal or informal; stand-alone, as a purely school-based and directed initiative; or it can be a component of a broader formal induction program (as discussed below) (Boeskens et al., 2020; Reid & Kleinhenz, 2015).

Coaching and mentoring share numerous characteristics but are often erroneously conflated. Figure 16.7 clarifies some of the similarities and differences between the two.

As with coaching, mentoring has grown in popularity across global education systems. It is a feature in over 90% of schools in Organisation for Economic Co-operation and Development (OECD) countries such as Australia, Belgium, the Slovak Republic, Japan, Israel, New Zealand, Ireland, the United Kingdom, the United States, and Singapore, as well as Shanghai and Taiwan (Buchanan, 2019; European Commission/EACEA/Eurydice, 2019; Hsieh et al., 2013).

Over the years, numerous studies have emphasized the critical role of mentoring in preparing highly qualified teachers (Bastian & Marks, 2017; Buchanan, 2019; Darling-Hammond et al., 2017a; Ellis et al., 2020; Howe, 2006; Hsieh et al., 2013; Reid & Kleinhenz, 2015; Spooner-Lane, 2017; Ingersoll & Strong, 2011). These benefits include the following:

- Successful transition of novice teachers from university graduation to classroom teaching. This is particularly important in contexts where practicing teachers have little or no formal teacher training (Darling-Hammond et al., 2017a; Howe, 2006; European Commission/EACEA/Eurydice, 2019).
- Greater job satisfaction. Teachers in OECD[5] countries who have participated in mentoring programs report higher job satisfaction (Organisation for Economic Co-operation and Development, 2020).

[5] The OECD is an intergovernmental organization with 38 member countries

Figure 16.7
Similarities and Differences Between Coaches and Mentors (Based on Killion & Harrison, 2008)

Characteristics	Coach	Mentor
Relationship with teachers	Technical	Developmental
Teacher population with which they work	Teachers at all stages of their career	New teachers
Focus	Implementation, transfer of learning, improvement of practice	Becoming acculturated to teaching and to the school; successfully transitioning from learning about teaching to learning to teach
Techniques used with teachers	Modeling, inquiry, and reflection	Modeling, inquiry, and reflection
Experience level vis-à-vis teacher being coached or mentored	May be less experienced than teacher they coach or may be a teacher peer	Always more experienced than the teacher they mentor

- **Reduced teacher attrition.** Research points to significantly reduced attrition rates among novice teachers who have received school-based mentorship because of this increase in support and reduction of isolation (European Commission/EACEA/Eurydice, 2019; Bastian & Marks, 2017; Darling-Hammond et al., 2009; Hallam et al., 2012; Ingersoll & Strong, 2011; New Teacher Center, 2019; Smith & Ingersoll, 2004). A study of the U.S. state of North Carolina's New Teacher Support Program (NTSP) found that NTSP teachers (i.e., who were mentored) were significantly more likely to return to their lowest-performing schools than were teachers who did not participate in the program. These retention results are particularly important since attrition is a more acute issue in low- versus high-performing schools (Bastian & Marks, 2017).
- **Improved learning transfer.** Teachers who participate in online learning combined with in-class mentoring show greater improvements in teaching than do teachers who participate only in online learning (Landry et al., 2009).
- **Improved student achievement.** Across OECD countries, students in schools where teacher mentoring is provided perform better on average in reading than do students enrolled in schools where no mentoring is provided (Caven et al., 2021; OECD, 2020; Spooner-Lane, 2017).[6]
- **Additional benefits.** Mentoring at an early career stage has a positive impact on mentees' teaching practice, career development, and commitment to teaching, as well as on the skills of mentor teachers who have been shown to gain a number of new skills and reinforce certain competencies as a result of the mentoring process (Darling-Hammond et al., 2017a; Podolsky et al., 2019).

[6] This finding should be interpreted carefully given the generally high socioeconomic status of OECD countries (N. Edisherashvili, personal communication, March 20, 2022).

Teacher induction

New or novice teachers—those graduating from teacher training programs and beginning their first year of teaching—often require a suite of supports that differ from those required by more experienced colleagues.

Teacher "induction" is a systemwide, coherent comprehensive training and support process that acculturates new teachers into the teaching profession. It often includes formal orientation sessions, common planning time and collaboration, ongoing professional development, access to experts, reduced teaching load, and/or participation in an external network of teachers. Mentoring is often an essential part of a new teacher induction program (Wong, 2004; Breaux & Wong, 2003). (See Figure 16.8 for examples).

Induction may endure for the first two-to-three years of a new teacher's career and forms part of a career-long professional development program.

Induction programs may be formal or informal and either low-intensity or high-intensity. *Low-intensity programs* include orientation activities, opportunities for collaboration, matching new teachers with veterans, and adjusting working conditions. While low-intensity induction programs are helpful for teacher retention, they do little to develop teacher effectiveness. *High-intensity programs* include mini-courses for new teachers, networking opportunities, mentoring, release time, reduced teaching load, university credit for professional development, observation and assessment by an expert peer, and opportunities to observe an expert peer (Ingersoll & Strong, 2011).

Reviews of induction programs in Australia, Britain, Canada, France, Germany, Japan, New Zealand, Singapore, Shanghai, and the United States suggest that the most effective induction approaches are based on the following elements:

- Opportunities for mentors and mentees to learn together in a supportive environment promoting time for collaboration, reflection, and acculturation into the profession of teaching;
- Individualized induction plans for novice teachers;
- Mentor training;
- Development of partner schools for more extended periods of induction—mixed between universities and schools in the teacher's first year, followed by more intensive, school-based elements in the second year;
- Reduction in responsibilities, in addition to reduction in teaching workload and increased time for reflection and self-assessment;
- Development of an organizational culture in which there is collaborative exchange involving a range of professionals aimed at supporting newly qualified teachers; and,
- Separation of the support and assessment functions of induction (Darling-Hammond et al., 2017a; Howe, 2006; Ingersoll & Strong, 2011).

Induction programs vary along numerous dimensions. They can be *mandatory or voluntary*. For example, induction is mandatory for new teachers in England as well as in 25 European Union (EU) countries, including Ireland, France, Germany, Spain, Portugal, and Poland. In Iceland, Norway, Estonia, Finland, Slovenia and some cantons of Switzerland, induction is recommended but not compulsory (European Commission/EACEA/Eurydice, 2019).

Induction programs also vary in their *duration*. They range from 4 months in Greece to 12 months in the United Kingdom, France, and Italy, to 2 years in Malta and 3 years in Liechtenstein. In Spain, the content and duration of the induction phase vary depending on the Autonomous Community concerned, e.g., Basque or Catalan (European Commission/EACEA/Eurydice, 2019).

They also vary by *type*. For example, Ireland offers two models of induction: In the National Induction Program Workshops, newly qualified teachers must complete 20 hours of workshops. Or they

Figure 16.8
Induction Programs in Shanghai and Ontario

Shanghai, China: All first-year basic education teachers in Shanghai are required to obtain classroom experience through a one-year in-service induction program to facilitate transition to the teaching job and before hiring is finalized. New teachers must spend 50% of their time teaching in the classroom and the other 50% receiving professional development at district teacher training centers. This induction period is also a probationary period, during which each new teacher is assigned a mentor who is selected based on experience and reputation as a highly skilled teacher. This mentor works closely with the new teacher, guiding him or her through processes such as lesson planning, selecting teaching materials, making decisions about student assignments, and giving feedback to students. Mentors and mentees work together for a minimum of two hours per week. Mentors also observe new teachers, and new teachers are expected to observe their mentors in order to see models of highly skilled instruction ("open classrooms"). Mentors keep records of their activities and document the development of mentees for review by the school principal (Darling-Hammond et al., 2017b).

During this probationary period and after becoming part of the regular teaching force, these new teachers become part of the school teaching-research group, which gathers teachers together by subject area. These groups frequently engage in various professional and instructional activities such as mentoring, peer coaching, demonstration lessons, preparing lesson plans jointly, and studying new curriculum standards and pedagogy. The structure and activities become integral to a teacher's teaching and work life in school (The World Bank Group, 2016).

Ontario, Canada. All first-year permanent teachers and those who hold long-term occasional contracts participate in the New Teacher Induction Program (NTIP). Funded by the Ontario Ministry of Education, NTIP includes an orientation to the school and school board, ongoing mentoring by more experienced teachers throughout the first year, and professional development and training appropriate to the needs of new teachers. Boards of education may decide to extend NTIP supports to the second year for either permanent hires or LTO teachers.

Mentors are selected for their teaching and mentoring skills and are trained as mentors within their district. The NTIP provides shared release time for mentors and new teachers to collaborate. This time can be used for co-planning, classroom observation, collaborative assessment of student work, and deciding on specific supports. Schools may choose from different mentoring models such as one-to-one mentoring and large- or small-group mentoring. A major emphasis is on helping novices manage professional relationships and learn how to seek out the resources they need for ongoing growth and development (Darling-Hammond et al. 2017b, p. 11).

Results have been noteworthy. Ontario's new teacher retention rate/license renewal rate is over 95%. Of the nearly 4,000 new teachers hired between 2005 and 2010, the Toronto school district retained 98–99% of these first-year hires annually (Ontario College of Teachers, 2014).

can participate in the school-based system *Droichead* (Bridge), which combines induction and probation/post-qualification work experience. Primary teachers require at least 100 teaching hours to complete *Droichead*, and post-primary teachers must have 300 teaching hours. Newly qualified teachers have 36 months to complete either model (European Commission/EACEA/ Eurydice, 2019).

In Scotland, compulsory induction can also be undertaken in one of two ways. The Teacher Induction Scheme provides a guaranteed one-year training post in a local authority school to every eligible learner graduating with a teaching qualification from one of Scotland's universities. "Flexible Route" induction is for new teachers who cannot commit to a full-time post, who want to complete their probationary period somewhere other than a Scottish state school, or who are registered in more than one subject and are looking to gain full registration in their second subject (Educational Institute of Scotland, 2021).

Finally, induction programs vary by the *activities* mandated, emphasized, or offered. Most EU countries that have induction programs mandate mentoring. Mentor classroom observations are required in Germany, Greece, France, and Italy, while they are optional in Hungary, Malta, and Poland. In Poland and Scotland, mentor-mentee team teaching is mandated as part of induction, while it is optional in Germany, France, and Italy, and is not required at all in most other EU countries (European Commission/EACEA/ Eurydice, 2019, p. 54). In Singapore's two-year formal induction program, the *Beginning Teachers' Induction Program* (BTIP), induction activities focus on topics such as classroom management, parent engagement, teacher-student relationships, reflective practice, and assessment literacy (Darling-Hammond et al., 2017a).

Like mentoring as a stand-alone support, mentoring as part of new teacher induction programs has demonstrated considerable success in past decades. Some of the more noteworthy benefits include:

- Facilitating the transition from pre-service to in-service teaching (Darling-Hammond et al., 2017a; Organisation for Economic Co-operation and Development, 2020)
- Improving the quality of new teachers and addressing attrition issues (Bastian & Marks, 2017; New Teacher Center, 2019)
- Attracting better teacher-candidates, reducing attrition, increasing job satisfaction, enhancing professional development, and improving teaching and learning (Bastian & Marks, 2017; New Teacher Center, 2019)

16.4.2 Virtual Coaching and Mentoring[7]

Technology can—and does—serve as a critical tool for providing teachers with support, particularly in contexts that lack in-house, qualified coaches; where coaches cannot travel because of issues of distance, geography, conflict, and pandemic outbreaks; and in many environments where in-person coaching is neither affordable nor feasible (Burns, 2021a; Burns, 2021b; Hennessy et al., 2022; Kraft & Blazar, 2018; Mendenhall et al., 2017).

Because coaching and mentoring are so individualized and differentiated, so too are the various technologies that can be used to support and extend their reach. (Examples of mobile-based technology-based coaching have been discussed in Chapter 6 and will not be reexamined here). For example, Google *Docs* allows coaches to comment on teacher lesson plans; IAI can provide highly scaffolded, classroom-based teaching support to teachers. *Discord*'s free voice, video, and text chat apps support interactive large and small group activities. Tools such as *ClickUp* can help

[7] This section on technology-based coaching draws heavily from M. Burns (2021a), Can virtual coaching be an effective substitute for in-person coaching? Used with written permission from Global Partnership for Education.

with to-do lists and task management. *Screencast-O-Matic* and *ScribeHow* help coaches create easy how-to guides and demonstration videos for teachers.[8] Figure 16.9 outlines certain technology tools and how they can be used to support teachers as part of coaching or mentoring programs.

Figure 16.9
Technology Tools for Teacher Coaching and Mentoring (Burns, 2021a)

Type of Technology	Tasks Supporting Coaching and Mentoring – Examples
SMS/text messages	• Basic skills (literacy and numeracy) instruction • Check-ins, staying in touch • Data collection • Emotional support ("check ins") • FAQs and Q&As • Information and learning resources • Nudges and reminders • Sharing resources • Support groups
Two-way video (video conferencing)	• Classroom observations • Communities of practice • Co-teaching • Demonstrations • Feedback • Group-based coaching • Lesson study • Live coaching • Open lessons • Pre- and post-conference observations
Multimedia (games, simulations, VR and AR)	• Helping teachers "think like professionals" (scientist, mathematician, or other) • Multichannel insights into complex problems • Refining content knowledge • Reinforcement • Role-playing • Semi-immersive experiences • Scenarios and problem-solving exercises • Simulations
Recorded video	• Learning skills and procedural knowledge • Modeling best practices • Peer feedback self-reflection on teaching, particularly when using protocols • Training content: Prerecorded video for review, reference, demonstration • Virtual learning walks

[8] More technology tools for coaching and mentoring can be found at https://www.mglead.org/csw-main/csw-digital-tools

Type of Technology	Tasks Supporting Coaching and Mentoring – Examples
Apps and extensions	Examples of apps for various tasks, including productivity tasks: • *Evernote* • *InsertLearning* • *Kaizena* • *Kami* • *Mote* • *Notion* • *Remind*
Office software	• Brainstorming, idea generation • Collaboration • Examining student artifacts (Looking at Student Work[9] protocols) • Examine teacher artifacts: Lesson plans, assessments, curriculum planning • Planning • Spreadsheets: Student test results – Identifying areas of teaching or learning difficulty
Social media	• Co-developing content • Communication • Communities of practice • Peer coaching • Sharing content, ideas, practices, and resources • (See Chapter 5 for a more in-depth discussion of social media)

Technology can also be used to improve the quality and equity of coaching and mentoring. New York City Public Schools use a data dashboard to capture and analyze coaches' daily activities. The dashboard allows coaches to analyze the focus of their daily activities to ensure that these activities are productive and are helping teachers refine their practice. It helps coaches reflect on how they can improve their coaching work at a school level and serves as a "nudge," encouraging coaches to consider whether there are additional times during the day they can use for classroom coaching (Goldenberg et al., 2019, p. 60).

The dashboard also provides the New York City Department of Education with programmatic and policy supports. For example, by aggregating data, coaches' supervisors and program leaders can consider how to better support coaches and scale improvement. Visually displaying *who* receives coaching—full-time teachers—has prompted discussions around coaching equity: for example, whether long-term substitutes and paraprofessionals should also receive coaching (Goldenberg et al., 2019, p. 61).

While all digital tools may be equally useful for coaching, depending on the coaching task, two tools appear to be more equal than others. The first is videoconferencing software such as *Zoom*, *Skype*, or *Meet*, where coaches can hold meetings with teachers and conduct classroom observations. The second is *WhatsApp*, which, as noted in Chapter 6, was often teachers' go-to tool for collaboration and resource sharing during emergency remote learning in 2020, particularly

[9] Sometimes referred to as "Learning from Student Work:" https://www.nsrfharmony.org/wp-content/uploads/2017/10/atlas_lfsw_0.pdf

for teachers in refugee contexts, such as in Syria, Lebanon, and Jordan, and for teachers in low-resource contexts, such as government schools in India (Anand & Lall, 2021; Burns, in press).

The research on the overall effectiveness of *virtual coaching* or *mentoring* and improved teacher performance, although still nascent, is expanding. There are a few high-quality studies that suggest that virtual coaching is more cost-effective than in-person coaching, and that in-person and virtual coaching interventions can be equally effective in improving student performance (Bruns et al., 2017; Kotze et al., 2019; Kraft et al., 2018). Other studies point to online teachers' general satisfaction with the online mentoring they receive (Dawley et al., 2010). One of the most rigorous studies of video-based coaching was the 2012 Measures of Effective Teaching (MET) study, sponsored by the Bill & Melinda Gates Foundation. Teachers reported that they changed their instructional practices after viewing videos of their teaching that was shared with them by a coach. An evaluation of coaching software showed an effect size of 1.09 standard deviations (SD) for teacher knowledge and 0.66 SD for implementation fidelity of a grade 1 reading intervention (Mathes, 2015).

There is also evidence to the contrary. Cilliers et al. (2018, 2021) examined a virtual coaching program versus on-site coaching in South Africa. Research findings credited the *on-site* coaching intervention as more effective than the virtual one at improving English reading proficiency. Indeed, researchers observed that the virtual program had no "statistically detectable impact on reading proficiency skills" (Cilliers et al, 2018, p. 3). Although on-site coaching was 23% more expensive than virtual coaching, cost-effectiveness analysis shows that it was actually more cost-effective, given its better results.

That coaching online was less effective is confirmed by EDC research and internal data from a two-year coaching program in Indonesia in which 300 teachers received online, face-to-face, or blended coaching (See Figure 16.6). In all measures, teachers who participated in face-to-face or blended coaching demonstrated more interactive uses of technology, more frequent learner-centered practices, better classroom management and organizational techniques, greater self-efficacy in teaching with technology, and stronger efficacy beliefs[10] about students' technology use as opposed to teachers who were coached entirely online (Burns, 2013; Ho & Burns, 2010). Similarly, coaches who were trained and coached exclusively online also reported lower measures of efficacy and knowledge of coaching craft. These findings were particularly noteworthy, since the teachers who received face-to-face coaching came from provinces that were poorer and where teacher quality was typically regarded as weak, while those receiving online coaching were based in provinces that were wealthier and where teacher quality was considered high.[11]

Part of the dissatisfaction expressed by the Indonesian teachers coached online was grounded in what they believed was an incomplete coaching relationship due to distance.[12] This speaks to the criticality of the teacher-coach relationship and its link to teacher satisfaction with coaching (Sailors & Price, 2015). Research results are mixed as to whether that relationship can thrive in a virtual-only environment. Cilliers et al. (2021) reports that "face-to-face engagement" between coaches and teachers may be necessary to build the trusting relationship that is the foundation of coaching, but Kraft's 2018 research suggests otherwise. Apart from this, there appears to be a dearth of educational research on the quality of coach-teacher relationships in virtual versus in-person

[10] Efficacy beliefs involve teachers' beliefs about their own and their students' capabilities (Refer back to *Chapter 8: Developing "Good" Teachers*). These data were observational.

[11] This did not appear to be the result of a ceiling effect as content was quite new; in some cases, the performance of online coaches and coaches declined.

[12] This statement is based on the author's interviews and focus groups with teachers in five Indonesian provinces in 2011.

coaching. Other professions (e.g., health) may have more to share in this arena. One study of executive leadership and business coaching found that coach-coachee online relationships can have the same depth and connectedness as in-person interactions (Grover & Furnham, 2016).

16.4.3 Building a Successful Coaching and Mentoring Program

Coaching and mentoring are unique interventions because the coach or mentor *is* the intervention—thus, for coaching and mentoring to be successful, "quality matters more than quantity" (Kraft & Blazar, 2018, p. 72; Kraft et al., 2018, p.27). A systemic review of professional development literature in low- and middle-income countries showed that coaching by "highly qualified, experienced and expert coaches" is effective in changing teaching behaviors of untrained and underprepared teachers (Orr et al., 2013, p. 4).

While there is research highlighting the importance of preparing, training, and supporting coaches and mentors, there appears to be no research showing the superiority of one mentoring or coaching approach over another. However, research does point to a number of discrete factors that influence the effectiveness of coaching and mentoring. Where possible, we separate results based on whether the data refer to coaching or mentoring.

Quality

Coaches are *the* key ingredient for the success of instructional coaching programs. The magnitude of coach-level heterogeneity in effectiveness is particularly large when compared to the average effect of coaching programs (Blazar at al., 2022, p.21). A 1.0 SD increase in a coach's effectiveness translates into a 0.2 to 0.35 SD increase in multiple dimensions of a teacher's instructional quality. A 2.0 SD increase in coach effectiveness—or the difference between having a coach at the 84th versus the 16th percentile in the performance distribution—is associated with a 0.4 to 0.7 SD increase in teachers' observed quality of instruction (Blazar et al., 2022, p. 4). Using value-added measures, Blazar et al. (2022) found that teachers of the *most effective* coach score roughly 1.2 SD higher than teachers of the *least effective* coach on instructional quality measures derived from classroom observations, as well as 0.7 SD higher on student-reported measures of classroom experiences (Blazar et al., 2022, p. 7).

Preparation

Effective coaches and mentors must possess sound subject knowledge, deep awareness of instructional practice, strong interpersonal skills, and the ability to support mentees' examination of practice (Smith & Ingersoll, 2004). They must understand what coaching and mentoring involve. They need process skills related to their job of working with teachers, including the ability to provide feedback in ways that are resonant; an understanding of which coaching approaches to deploy; skills in managing conflict; change management skills; and communication skills, such as summarizing, shifting, mirroring, and paraphrasing, that move teachers from one performance level to another (Garmston & Wellman, 2013; Spooner-Lane, 2017; Van Nieuwerburgh, 2017). Mentors who do not receive adequate formal training find it more difficult to provide direct feedback and to instigate changes in the mentee's beliefs and teaching practices (Spooner-Lane, 2017). Similarly, a poorly prepared coach "will not only be ineffective but can damage teachers' understanding of coaching and have long-term consequences for their work with other coaches" (Toll, 2019, p. 13). Professional teaching standards that spell out what teachers should know and be able to do at specific career stages can help to guide the preparation and training of coaches and mentors (Reid & Kleinhenz, 2015).

Thus, quality preparation for potential coaches and mentors is essential to effective coaching and mentoring (Abrioux, 2006; Burns, 2013; Ingersoll & Strong, 2011; Orr et al., 2013; Toll, 2019; van Nieuwerburgh, 2017; Van Ostrand et al., 2020). They do need teaching expertise, but teaching experience alone is not enough—coaches and mentors also have to develop the skills that will equip them to be dedicated support

professionals and change agents. As such, many nations (particularly those with formal mentoring programs) have ensured that their mentors are able to provide high-quality support. For example, mentor teachers in France, Switzerland, Norway, England, and Israel are required to undergo initial training (Darling-Hammond et al., 2009). In Rwanda, the University of Rwanda College of Education has developed a certification program for teachers and head teachers planning to become coaches or mentors (University of Rwanda College of Education, 2020).

Mentors and coaches also need support. Research points to the importance of this ongoing support in ensuring the quality of a coach or mentor (Burns, 2013; Burns, in press; Stanulis et al. 2012, as cited in Spooner-Lane, 2017). Support can include professional learning communities for coaches and mentors; coaching and mentoring for these coaches and mentors; analysis of data; and study groups.

Access and availability

Research suggests that access and availability matter—beginning teachers regarded *on-site* mentors who were available as needed to provide immediate support as more valuable than mentors who were *off-site* and visited infrequently. Access and availability of the mentor made it more likely that beginning teachers would stay in the profession (Hallam et al., 2012).

Dosage

Access matters in coaching and mentoring effectiveness; so too does *dosage*. One study of mentoring in a large urban U.S. district showed that new teachers who receive "higher dosage" mentoring were more likely than new teachers in the low-dosage group to be retained in the district (Caven et al., 2021). Weekly, one-on-one mentoring has been shown to have more positive effects on student achievement than less frequent interactions (Hallam et al., 2012; Fletcher & Strong 2009, as cited in Spooner-Lane, 2017).

Additionally, students whose teachers participate in "full release" models of mentoring—where mentors work full time on mentoring with a full caseload of 12–15 teachers—show greater learning gains than students whose teachers participate in a "partial-release" model, where a teacher teaches full time and mentors one or two teachers (Spooner-Lane, 2017). The research on effective coaching points to its highly individualized supports and sustained and frequent contact as determinants of success (Kraft et al., 2018, p. 9).

Focus

The focus of coaching and mentoring matter. Studies note that spending more time on lesson and unit planning may be related to greater new teacher retention—one study discovered that 94% of new teachers who reported spending substantial time with their mentor on these were retained, versus 86% of new teachers who did not (Bastian & Marks, 2017; Caven et al., 2021). Research on coaching suggests it works best when it is focused on the teacher's content area; has instructional improvement as its core aim; and is support-focused versus compliance-focused (Kraft et al., 2018, p. 9; see also Audisio et al., 2022; Popova et al., 2016).

Relationships

Because coaching and mentoring are essentially relationships between two individuals, a trusting, caring connection must be established (Darling-Hammond et al., 2009; Hallam et al. 2012). Indeed, there is research suggesting that the quality of that relationship is related to new teacher retention (Hallam et al., 2012). This speaks to the importance of careful matches between mentors/coaches and teachers in content area or grade level; dedicated time and resources for a coach/mentor and teacher to work together; clearly defined professional responsibilities; the quality and nature of the coach-/mentor-teacher relationship; and the frequency and quality of coach/mentor and teacher interaction as factors that influence coaching and mentoring (Smith & Ingersoll, 2004; Hallam et al., 2012; Sailors & Price,

2015; Toll, 2019; Ingersoll & Strong, 2011; Spooner-Lane, 2017; Caven et al., 2021).[13] Coach-teacher race/ethnicity-matching also predicts changes in teacher practice, emphasizing again that the "relational component of coaching is key to success" (Blazar et al., 2022, p. 1).

Foundational to the coaching or mentoring relationship is trust. Teachers need to know they can trust their coach or mentor and that that person is an ally, so that together they can begin the work of sustained collaboration. This speaks to the importance of separating the coach and mentor's support and accountability roles—a practice that is frequently violated and one that undermines the very foundation of the coach/mentor-teacher relationship (Burns, 2022; Audisio et al., 2022; Popova et al., 2016).

Mentoring as part of university induction programs

A few studies suggest that, given the natural connections between universities and beginning teachers, university-based induction programs that include mentoring may have specific advantages over school- or district-based programs alone (Reid & Kleinhenz, 2015, p. 55; see also Bastian & Marks, 2017). For example, university-based teacher education programs are familiar with and have partnerships with the districts and schools in their surrounding area as research sites and teaching practicum placements. University faculty know the issues facing beginning teachers, and there is already a reciprocal relationship as, ideally, best practices flow back and forth from the school to the university (Bastian & Marks, 2017). However, universities in general have also been widely criticized for poor preparation of pre-service teachers, thus begging the question of why institutions that may offer poor pre-service instruction should also be charged with teacher support (Akyeampong, 2017; Niemi, 2015; Burns, in press).

That critique notwithstanding, some authors suggest that universities have the resources to direct more targeted supports and research-based strategies and resources to beginning teachers and mentors than do school districts (Bastian & Marks, 2017). For example, school-based mentors might be able to access professional learning at the university, ensuring that mentoring is anchored in a "broader theoretical framework" (Reid & Kleinhenz, 2015, p. 55; see also Howe, 2006). Universities could ensure a successful transition from the university to the classroom for teacher graduates by designing and running the induction program, including undertaking mentoring in schools or school districts that lack resources and personnel (Bastian & Marks, 2017; Howe, 2006).

Although almost every school system across the globe has some sort of nominal teacher-support personnel—from content supervisors to block-group supervisors to circuit inspectors—many of these support staff function in bureaucratic or administrative roles rather than instructional ones. They often evaluate teachers and monitor compliance rather than collaborating with and supporting teachers directly. Such staff may be unable to serve in a support and instruction capacity because they themselves were trained and acculturated in a system that promotes traditional instruction and hierarchical, accountability-based relationships with teachers. Similarly, they may have little opportunity to visit classrooms and little practical experience of actually working with teachers because of other work-related duties.

To support teachers to implement in their classroom what they have learned in distance-based courses, educational entities must build a functioning system of teacher-support personnel, starting with standards for coaches, mentors, and teacher-leaders (Reid & Kleinhenz,

[13] The Center for Great Teachers and Leaders at the American Institutes for Research offers a free mentoring and induction toolkit for high-need contexts. Access it here: https://gtlcenter.org/technical-assistance/toolkits/mi-toolkit

2015). One example of such standards, the *Teacher Leader Model Standards*, contains a series of broadly stated expectations or domains that define critical dimensions of teacher leadership, helping to identify the full range of competencies that teacher-leaders need in order to collaborate with formal school leaders to guide, mentor, and assist teachers in implementing exemplary professional practices that lead to improvements in student learning. Such a support system has to operate concurrently with any type of teacher professional development program, regardless of its mode of instruction and focus. These standards can then frame the type of instruction and preparation system for mentors to allow them to work effectively with, support, and nurture new teachers (Teacher Leadership Consortium, 2011).

16.5 Conclusion

Human beings and institutions tend to resist change or embrace it slowly. This tension between the rapid change demanded by professional development and the resistance to change on the part of individuals and organizations means that change is often fraught with upheaval and uncertainty. But *positive* change is necessary for growth and for improvement. It can be highly beneficial if teachers are provided with an array of ongoing supports, but it can be counterproductive, stressful, and futile if they are not. Without ongoing classroom-based support to help teachers internalize what they have learned in their distance courses, the "problem of enactment" will endure. Teachers will continue with the *status quo*, and they will fail to implement or will soon abandon new instructional methods, particularly in the face of difficulties such as a lack of resources, an examination system misaligned with instructional practices, or lack of support from the principal, colleagues, or parents.

The changes wrought by distance-based professional development programs demand the presence of a school-based support person or change agent to strike a balance between competing goals and to move change forward in a thoughtful, pragmatic, holistic way. For pre-service teacher-candidates attempting to successfully fulfill course requirements for a distance-based teacher training course and for in-service teachers hoping to upgrade their qualifications or instructional skills, distance education programs that offer a range of human supports can help mitigate the conceptual, behavioral, attitudinal, and logistical challenges that accompany new learning or change.

Distance learning programs must consider the length, duration, and complexity of the change process in teacher education. Meaningful change is neither fast, cheap, nor easy. Policymakers and designers must be made more cognizant of these issues in relation to teacher change so they can make informed decisions about how best to support teachers in ways that take advantage of existing structures and resources to improve a distance program's effectiveness, build the capacity of support providers, help teachers become successful distance learners, and above all, enable them to implement new ideas and skills with fidelity in ways that ultimately benefit their students.

Citation: Burns, M. (2023). Supporting Distance Learners. In *Distance Education for Teacher Training: Modes, Models and Methods.* (2nd Edition). Washington, DC: Education Development Center.

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