



# DISTANCE EDUCATION FOR TEACHER TRAINING:

## Modes, Models, and Methods

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Section II. Chapter 20

# TECHNOLOGY



## Best Practice: Technology should not drive educational decisions regarding distance education—rather, technology should support educational decisions.

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This guide comes full circle with a concluding discussion of technology. Within this second section of *Distance Education for Teacher Training: Modes, Models and Methods*, technology has deliberately been placed as the *last* consideration because too often in the design of distance education programs it is—wrongly—the *only* consideration. Ministries of education or educators often start with the mode of distance education—and too often that mode is online learning, for which many education systems are ill-equipped.

Teaching and learning in a distance environment are mediated by and delivered through technology. Obviously then, the availability of technology and the condition of technology infrastructure are critical considerations in the design of any distance education program. The technology selected for distance learning must build on a country's:

- available communications, networked or broadcast infrastructure;
- available technology equipment;
- physical infrastructure;
- human capital—skilled content developers, instructional designers, and instructors who can work within that particular distance education platform; and,
- distance-technology–specific assessment systems.

Yet while technology can accelerate and expand the reach of distance learning, it cannot be the sole driver of a distance education program.

The research on distance education is clear. Distance programs should be designed with the needs and learning goals of educational institutions and teachers in mind. Where infrastructural choices *do* exist, distance education programs should privilege the purposes and desired outcomes of the distance learning experience over the type of technology.

Inappropriate decisions regarding whether to use technology and what type to use are costly and impede the quality of distance education offerings. In supporting teaching and learning in a distance education environment, the choice and use of technologies for distance education programs should be guided by multiple factors, as listed here.

### **1. The distance technology should support, not define, the goals of the distance program.**

Distance learning programs should *not* start with the question, “How can we teach teachers using online learning?” Rather, the first question should be, “What should teachers know and be able to do as a result of this instructional program?” The second question should be, “How best can we do this: in-person, via distance, or both?”

### **2. Technology should focus on promoting desired learning outcomes.**

The technology or technologies selected must be appropriate for curriculum delivery and must support teacher effectiveness. Initial development of distance learning programs should begin with two fundamental questions: What instructional

activities and experiences will best help teachers attain the desired learning outcomes? How will distance programs ascertain that teachers have attained these learning outcomes? Neither of these questions have anything to do with hardware, software, or connectivity—nor should they. But the technologies selected must facilitate the desired type of learning.

**3. Technology should support best practices in instruction.** The technology or technologies selected must support best practices in learning: learner-centered instruction, interactivity with content and people, communication, collaboration, reflection, accessing and constructing information in multiple formats, exposure to new opportunities and practices, and assessment (Mayer, 2009; Quality Matters, Virtual Learning Leadership Alliance, and Digital Learning Collaborative, 2022; Tausin & Stannard, 2018; Trucano et al., 2007).

**4. Distance education planners should choose the appropriate distance mode or modes that address the above points.** Once the above goals and learning outcomes have been defined and instructional and assessment activities mapped out, policymakers and planners should consider the mode of distance education that can best help teachers attain the necessary knowledge and skills and that best address the needs and goals of the teachers whom the distance education program is designed to serve. As seen throughout Section I of this guide, the platform chosen will largely drive the type of learning that occurs. This is why conversations about learning should precede conversations about technology.

**5. Distance education programs should be designed with an eye to the future.** Modern technologies offer options to expand educational opportunities and improve educational quality. In selecting, designing, and procuring technologies, no entity should begin planning a distance education program without thinking carefully about the convergence of technologies, trends in technology (hardware, software,

types of computing, use, and digital content) and technology-based learning; how these developments cumulatively affect teacher training programs; and the resources needed to maintain a technology system. This is not to suggest that programs should jump on the latest “bleeding edge” technologies; indeed, the hyperbole, the high costs endemic to modern technologies, and often disappointing results should inoculate against impulse buying of the newest, sexiest applications. Rather distance education administrators and designers should be wary of myopia and cognizant of recent technology developments and trends; be familiar with research and best practices about distance education; recognize technology’s successes and failures; comprehend distance education’s *total cost of ownership* (TCO); and balance the impulse to embrace or reject technologies simply because they are new or old.

**6. The technology used must include backup and support.** Technology breaks down. When computers lie unused because of unavailable tech support, when television broadcasting ceases because of storm damage to a broadcast tower or satellite dish, when interactive radio instruction (IRI) broadcasts stop because of broken radios, then education and professional development efforts are lost and money is wasted (Gaible & Burns, 2007). Any technology-based distance education system must plan for such contingencies and eventualities.

**7. Distance education programs must be designed with equity in mind.** As the world learned during COVID-19 school lockdowns, distance education—online learning in particular—proved to be more exclusive than inclusive (Burns, 2020). Yet there are ways to make distance education more equitable. Online programs should be designed in local languages, according to Web Accessibility Guidelines, with the needs of low-bandwidth learners in mind, with activities and content that are respectful to gender and that are inclusive, and with situations and content that are local,

authentic, and relevant. Distance providers must ensure that traditionally marginalized groups—women; racial, ethnic, and religious minorities; poorer teachers; rural teachers; and learners with disabilities—are able to participate and succeed in any distance learning offering.

**8. Distance education programs must be designed with ease of use in mind.** Different distance technologies require different technical skills and dispositions on the part of potential users. The existing skills and readiness of distance instructors and learners are critical considerations in selecting a particular mode of distance education delivery. The technology identified must be easy enough for instructors and learners to use so that technology—and difficulties operating it—do not obscure the focus on teaching and learning. The use of any technology will obviously and necessarily involve some form of technology training. But fluent technology skills do not guarantee fluency in teaching and learning with technology (Burns, in press). Any distance learning program must devote less time and effort and fewer resources to teaching *about* technology and more time, effort, and resources to helping its instructors and learners teach and learn *with and through* technology.

**9. Distance education programs that think big should start small.** Distance education programs can scale learning—an intended aim of many distance education programs. These ambitions aside, distance programs should start small—focusing on getting the basics of their programs right. This includes, for example, making sure instructors and teachers know how to use the technology, that all content loads over different bandwidth speeds, that the course works on various types of devices and that there is necessary technical documentation to support those who will take over the running of courses. This is where a series of small well-developed and well-evaluated pilots—“user tests” or “dry runs”—of the course before it is fully launched will help. As discussed in *Chapter 11: Instructional Design*, pilots simulate

the presence of the material in the same platform in which it will be hosted so that any problems can be identified, fixed, and debugged before the course is fully launched (Burns, 2019). By starting small, distance course designers can identify what can and cannot work with a larger number of learners and revise accordingly so courses can be scaled or franchised.

**10. Distance education programs must remember that distance education is not just about technology.** It is about people—designers, subject matter experts, assessors, instructors, and learners. It is about education—improving the knowledge, skills, attitudes, aptitudes, and values of *teachers*, with the ultimate aim of improving the learning and achievement of the *students* of today and tomorrow. The mortar that binds these elements together is a focus on quality—ensuring that every input, outcome, and action (instruction, content, assessment) is designed, disseminated, created, communicated, measured, and focused on the highest levels of quality.

## 20.1 Conclusion

To help teachers develop the characteristics of good teaching outlined in Chapter 8, distance education programs will have to provide teachers with ongoing opportunities to improve their content knowledge, instruction and assessment skills, knowledge about how students learn, and understanding of learning from a student point of view. To succeed in this endeavor, careful design of distance learning programs will require grounding in what we know to be best practices in teaching and learning: content that is linked to teachers’ everyday classroom practice, and distance instruction that focuses on promoting high-quality teaching. Quality distance education must provide ongoing professional development that is based on proven best practices; offers continual support; and helps teachers become not just a community of learners but a community of practitioners. Distance learning programs must prepare their instructors, coaches and

mentors, and learners to succeed in a distance environment through orientation, preparation, support, and leadership.

All components of distance learning programs must be designed according to quality standards so that courses and learning experiences are developed, teachers assessed, programs evaluated, and quality assured by measurement against these standards. Distance learning programs must formatively and summatively assess instructors and teacher-learners so that both can receive help as needed. Distance learning designers must integrate rigorous evaluation into program design so that programmatic and contextual factors can be addressed and remedied if needed. These components should not be used in isolation, nor are they *à la carte* options. All must be incorporated into a coherent distance education system.

The inputs and activities outlined in this guide are ambitious, because improving teacher quality is ambitious. Many distance education programs have approached the task of improving teacher quality with too much complacency and too little ambition and have little to show for it as a result. Other programs have focused too much on careful attention to technology inputs and infrastructure and not enough on human inputs and human infrastructure. Many distance programs focus

on brevity, entertainment, and engagement as their North Star, instead of rigorous and high-quality learning. Consequently—although not surprisingly—there is often little measurable improvement in the knowledge and skills of their teacher graduates.

No education system is measured by the quantity and quality of its technology but rather by the quality of its *learning* and of its *teachers and students*. This guide has outlined the inputs and activities necessary to create a high-quality distance education system that increases the probability of producing high-quality teachers. It is our hope that the global education system will not again be caught as unaware and unprepared as it was in March 2020, when schools across the planet abruptly closed *en masse* and where wealthy countries with well-developed distance-based systems were able to ensure high-quality continued education while in the poorest countries children had no opportunities for learning (United Nations Educational, Scientific and Cultural Organization, 2022). Rather, our aspiration is that this guide will be understood as a call to action to change what is required to improve distance education so it truly can provide quality and equitable learning for teachers and their students, wherever they may live.

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