DISTANCE EDUCATION FOR TEACHER TRAINING:

Modes, Models, and Methods

Mary Burns
Education Development Center, Inc.
Washington, DC

EDC Education Development Center

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About the Author

Mary Burns is a senior technology and teacher professional development specialist at EDC. A former 10-year teacher in the United States, México, and Jamaica, she has worked in the area of technology-enabled professional development since 1997, instructing, designing, and evaluating both distance-based and face-to-face professional development for teachers, teacher educators, and instructional coaches. She has authored peer-reviewed papers, books, articles, and blog posts about teacher professional development, distance learning, and teaching with technology. She works in Asia, Africa, the Middle East, Latin America, the Caribbean, Europe, and the United States.

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Section II. Chapter 10

INSTRUCTION

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Best Practice: Successful distance learning programs integrate and model a variety of instructional practices.

10.1 Overview

As discussed in the previous two chapters, good instruction matters, and it has robust impacts on both student and teacher learning (Bernard et al., 2019; Conn, 2014; Hill et al., 2022; Organisation for Economic Co-operation and Development, 2009; Stockard et al., 2018).

Yet many distance education programs have been characterized as "one step ahead for technology and two steps back for instruction." In particular, early generations of distance learning, such as print, broadcast radio, and television, have tended to be highly didactic. Even newer distance technologies, such as mobile learning and Massive Open Online Courses (MOOCs), have sometimes paid more attention to technology and materials than to the quality of instruction.

Not all instruction across distance education modes is equal—nor can it be. The instructional methods used as part of distance modalities depend on a number of factors: the platform used and whether the course is taught synchronously (in real time) or asynchronously (not in real time). Technology can facilitate and constrain certain types of instruction. For example, it is easier to use a jigsaw approach in applications such as *Zoom* versus in *Moodle*, because of the specific features of Web-conferencing technologies versus learning management systems—but it can be harder to have rich, spontaneous discussions in *Zoom* than in a face-to-face setting.

Figure 10.1
Signature Pedagogies (Shulman, 2005)

Surface Structure

- Concrete operational acts of teaching and learning
- What the learning looks like
- What actually goes on in the classroom

Deep Structure

- Assumptions about how best to impart knowledge and expertise
- Decisions about how the material will be taught or presented
- The advantage of choosing certain methods and practices over others

Implicit Structure

- The "hidden curriculum" that includes moral dimensions
- Beliefs about professional attitudes, values, and dispositions
- The limit and bounds of learning and application

Instruction in a distance education course is also influenced by the content area. As discussed in Chapter 8, each content has its own repertoire of content-specific pedagogies. But perhaps most fundamentally, instruction is influenced by the way in which teachers are educated to think about, perform, and act in their profession (Shulman, 2005, p. 52). Shulman referred to this acculturation as "signature pedagogies." They represent the beliefs, values, and expectations about what teachers are and do, what learning is

and how it occurs, and how teachers teach, the values they hold, and the approaches they use (Shulman, 2005) (See Figure 10.1).

This notion of *signature pedagogies* defines expected practices of teachers, how teachers must in turn instruct their students, and essentially what teaching *is* (Shulman, 2005, p. 53). It is a reminder that instruction is layered and complex, overt yet hidden, a craft and a belief system. Instruction is the product, not just of visible behaviors, but the assumptions, values, and beliefs that drive those behaviors.

This chapter focuses on the importance of instruction in distance education courses for *teachers*. Distance education programs must model for pre- and in-service teachers the same instructional methods that define good teaching and that teachers are expected to use with their students. Programs can do this by integrating a variety of instructional models appropriate to desired learning outcomes. These can include *direct instructional models* (transmission of concepts, skills, and procedures, as in tutoring, for example), *cognitive models* (inductive reasoning, teaching via analogy), and *social models* (learner-centered instruction[1]) discussed in Figure 8.1 (Gaible & Burns, 2007; Maor & Zoriski, 2003; Price et al., 2007; Stockard et al., 2018). As they do this, distance education programs can help teachers explore what "learning" means, their own attitudes toward instruction and learning, and how best to embrace instructional approaches that promise the strongest learning outcomes for their students.

10.2 Learner-Centered Instruction

Most instructors are familiar with traditional, or teacher-centered, instruction—lecture, demonstration—a transmission model of learning from a more knowledgeable other to a group of learners. For instructors new to distance education or who have not been prepared to teach in a distance modality, it is often far easier to employ these traditional instructional approaches than to engage learners in "active" or "learner-centered" instructional approaches. Indeed, neither the conceptual foundations of learner-centered instruction nor its trajectory may be clear. For this reason, this chapter focuses on explaining "learner-centered instruction" in detail and contrasting it with "teacher-centered" or "traditional" instruction.

Teacher-centered instruction is grounded in a behaviorist conceptual framework of learning characterized by stimulus and response as well as the concept of knowledge transfer. Behaviorally, it is typified by the teacher's control of the pacing and adaptation of instruction. Its dominant manifestation is whole-group teaching and direct instruction. The teacher transmits knowledge about concepts, skills, and procedures via demonstrations, lectures, tutoring, screencasts, or online presentation to students as one large group (Burns, 2021). As Chapter 8 discussed, there is suffcient research that speaks to the effectiveness of quality traditional teacher-centered instruction (especially tutoring).

Variously called "active learning," "student-centered learning," or "child-centered learning," *learner-centered instruction* employs more cognitive and social models of teaching and learning, allowing learners to control the pace of their own learning. It is grounded in a constructivist philosophy of learning in which learners construct knowledge as they are actively involved in meaning-making. It attempts to make learning more exploratory, social, adaptive, and personalized (Burns, 2021). Learner-centered instruction also has a strong body of research highlighting its effectiveness, as noted in Chapter 8. Figure 10.2 (next page) summarizes the main tenets of learner-centered instruction.

[1] Learner-centered instruction is grounded in constructivist learning theory, which has been touched upon throughout this guide and is defined in the Glossary of this guide.

Figure 10.2
Learner-Centered Instruction

- Learning is a highly personal event—it builds on prior knowledge, is predicated upon a particular individual's interests and experiences and "leverages choice" to build engagement (Parker & Thomsen, 2019, p. 8).
- Learners construct knowledge in a variety of ways, using multiple tools, resources, and experiences (Dimock et al., 2001).
- Learning is developmental and exploratory, providing a variety of teaching and learning opportunities (National Research Council, 2000).
- Learners acquire knowledge by interacting with subject matter that is meaningful and relevant to their own experiences (Boethel & Dimock, 1999).
- Learning is a dynamic, developmental, and cumulative process in which learners assimilate, accommodate, or reject new information according to existing frameworks (Boethel & Dimock, 1999; Dimock et al. 2001).
- Learning is an adaptive experience (Brooks & Brooks, 1993; Conn, 2014).
- Learning has a social dimension: We learn with and from one another (Vygotsky, 1978).
- Learning has affective, behavioral, and cognitive dimensions (Parker & Thomsen, 2019).
- Learners need commensurate amounts of scaffolding, support, practice, and internal and external motivation (Vygotsky, 1978).
- Cognitive and behavioral change that result from learning is a long-term, nonlinear, complex, and cumulative process (Hord et al., 2006).

Learner-centered instruction is not one single pedagogical approach, but rather a family of instructional approaches in which learning goals and content drive how information is organized, understood, presented, and assessed. Figure 10.3 (next page) outlines some of the main instructional approaches that form part of learner-centered instruction

As will be seen in Figure 10.3, while each of the learner-centered methodologies outlined are distinct, they share several intersecting traits, namely:

- The openness of the learning experience, in which learning is driven by the interest of learners themselves.
- Learners generate knowledge through a variety of distinct and differentiated activities
- High degrees of exploration, knowledge generation, teamwork,[2] collaboration and learner agency
- A focus on higher-level thinking and real-world learning experiences
- Connecting the classroom experience to authentic contexts, tools, and resources
- The integration of assessment into the learning activity itself, which, as Chapter 17 will discuss, includes alternative and authentic assessments

Undergirding the above is the centrality of reflection on the instructional methodologies employed in a distance course. By reflecting on the above instructional approaches, teacher-learners can evaluate the utility and value of one instructional approach versus another so they can select and use appropriate learning methodologies to attain defined learning outcomes.

10.3 Learner-Centered Instruction in Distance Courses

What does learner-centered instruction look like in a distance-based course for pre-service instruction and in-service teacher professional development (TPD)?

First, learner-centered distance education TPD *courses* are based on learners' needs. They draw on learners' practical, classroom-based experiences in both the design and delivery of the course. In this way, learning is authentic and

[2] Teamwork raises the issue of grouping, which will be addressed in *Chapter 14: Preparing Distance Learners*.

Figure 10.3
Types and Characteristics of Learner-Centered Instruction

Learner-centered approach	Characteristics
Case-based learning	Case-based learning (CBL) is a methodology that focuses on a real-life situation that practitioners have faced. Though it began as a business-school model at the Harvard Business School, it has expanded into education. It consists of the following: • **The case.** Individuals learn desired educational objectives through interaction with an actual case—a real-world story presented in either narrative, audio, or video format. The case is the unit of study. All essential concepts, facts, and decision-making skills are learned within the context of the case. • **Authenticity.** Cases are context-based, relevant, and realistic. • **Exploration.** Learners are motivated to explore, investigate, and study and work through case problems with their peers. • **A focus on 21st-century skills.** CBL or the "case study method" promotes autonomy, creativity, and problem-solving abilities while simultaneously building hands-on skills needed for success (Harvard Business School, n.d.).
Collaborative learning	Collaborative learning, sometimes called "cooperative learning," is a joint intellectual effort by learners, typically working in groups of two to five, who search for understanding and solutions or create a joint product. It is grounded in the belief that carefully structured teamwork, providing each student with meaningful roles and responsibilities, can maximize positive peer interactions while minimizing "free riding" (Parker & Thomsen, 2019, p. 8; Burns, 2016b). Characteristics of collaborative learning include the following: • **Positive interdependence.** Team members need one another to complete their task. • **Individual accountability.** Each team member is responsible for a certain part of the task or fulfills a certain role. • **Social negotiation.** Team members must learn to manage conflict and argue constructively. • **Face-to-face interaction.** Team members work together in a common space to complete their task. • **Group processing.** Team members help one another understand how learning occurred (Johnson et al., 1990).
Inquiry-based learning	In inquiry-based learning (IBL), learners propose and test hypotheses through experimentation and/or the collection of observational data. Characteristics of IBL include the following: • **Orientation/observation.** The instructor introduces a new topic or concept. Learners explore the topic through research, direct instruction, and hands-on activities. • **Questioning/conceptualizing.** Learners develop questions related to the topic. • **Investigation.** This is the lengthiest part of inquiry learning. Learners take the initiative, with appropriate instructor support, to discover answers, to find evidence to support or disprove hypotheses, and to conduct research. • **Active participation.** Learners take ownership of their learning. In so doing, they develop the critical thinking and communication skills necessary for participation in all fields of study • **Conclusion.** Having collected information and data, learners develop conclusions and answers to their questions. They determine if their ideas or hypotheses prove correct or have flaws. This may lead to more questions. • **Discussion and sharing.** All learners can learn from each other at this point by presenting results. The instructors should guide discussions, encouraging debate, more questions, and reflection (Pedaste et al., 2015; Shroat-Lewis & Hage, 2021).

Learner-centered approach	Characteristics
Problem-based learning	Problem-based learning (PBL) began as a medical school model and has since expanded into education. It is generally more rigorous than project-based learning, though there is a great deal of overlap and intersection between the two approaches. Characteristics of PBL are noted here: • **Grounded in a real-world problem situation.** Problems are relevant and contextual. They drive the curriculum. The problems do not test skills; they assist in the development of the skills themselves. • **Ill-structured.**[3] There is not one solution, but multiple solutions. This allows for free inquiry. As new information is gathered in a reiterative process, the perception of the problem, and thus the solution, changes. • **Interdisciplinary.** Because it's authentic, the PBL activity cuts across disciplines. • **Use of real-world tools and resources.** Learners use technology, primary source data, and experts to solve the problem. • **Self-directed learning.** Learners must be independent and make their own decisions based on availability of evidence. • **Collaboration.** Collaboration is essential. Learners work together in a team to solve a problem. • **A wide range of assessment strategies.** Strategies may include formative, summative, individual, peer-based, and assessment by experts (Savery, 2006; University of Delaware, n.d.).
Project-oriented learning[4]	Project-oriented (POL) or project-based learning is an instructional method in which learners gain knowledge and skills by working for an extended period of time to investigate and respond to an authentic, engaging, and complex question or challenge. It involves the following: • **Essential question.** The project is framed by an essential question—an open-ended, overarching question to answer, at the appropriate level of challenge. Unlike PBL where the problem is ***always*** real, in POL, the project or issue may be simulated and thus not always real. • **Sustained inquiry.** Learners engage in a rigorous, extended process of posing questions, finding resources, and applying information. • **Authenticity.** The project should involve a real-world context, tasks, tools, quality standards or speak to personal concerns, interests, and issues in the learners' lives. • **Learner voice and choice.** Learners make some decisions about the project, including how they work and what they create, and express their own ideas in their own voice. • **Reflection.** Learners and instructors reflect on the learning, the effectiveness of their inquiry and project activities, the quality of student work, and obstacles that arose and strategies for overcoming them. • **Critique and revision.** Learners give, receive, and apply feedback to improve their process and products (Buck Institute for Education, n.d.).

[3] "Well-structured" content is learned in an orderly, sequential fashion so that learners demonstrate mastery of a concept. "Ill-structured" content requires learners to understand complex interactions among several concepts and demands that learners find additional information and draw their own conclusions, demonstrating evidence to support such conclusions.

[4] Project- and problem-based learning are often erroneously conflated (see, for example, Latchem & Jung, 2010, p. 102), in no small measure because they share the same acronym—PBL. However, they are two different instructional methods. Some educational institutions, such as México's Instituto Tecnológico y de Estudios Superiores de Monterrey (ITESM), have retitled project-based learning as "project-oriented learning" (POL) to differentiate it from problem-based learning. That acronym is used in this guide.

relevant so that teacher-learners can improve their classroom competence. Learner-centered distance education courses incorporate school-based activities that build on and add to teacher-learners' repertoire of knowledge and skills. Technology and organized activities and assignments provide multiple routes for communicating, understanding, presenting, and assessing knowledge.

Next, *instructors* in learner-centered TPD education courses embody a number of tacit and explicit behaviors. They communicate high expectations; elicit learners' prior knowledge; encourage contact between learner and instructor; facilitate and support both individual and collaborative learning; encourage active learning and sharing of beliefs and opinions; foster reciprocity and cooperation among learners; respect and model diverse talents and ways of learning; provide feedback; and assess performance, progress, and the learning product (Chickering & Gamson, 1987; Commonwealth of Learning, 2008; Dawson & Dana, 2018; Reupert et al., 2009).

Third, *courses* are deliberately designed so that they capitalize on the features of the particular distance mode to support more learner-centered instruction. For example, IAI can incorporate classroom-based games, group work, and songs. The breakout room feature of Web-conferencing tools allows instructors to organize learners into small groups, where they can come to consensus on a decision, collaborate on a shared document, or do a Fishbowl activity. As they would in an in-person classroom, online instructors can virtually drop in and out of breakout rooms to monitor progress and check for understanding; create virtual Carousel Walks, where learners view each other's creations (via Google *Slides*, for example); and use the polling features of the webinar platform to check for student understanding (Burns, 2020b).

More importantly, all of the learner-centered methodologies discussed in Figure 10.3, as well as the research-based instructional practices of

Figure 10.4
Research-Proven Instructional Strategies All Teachers Should Know

Rosenshine (2012) advocates for the following 10 instructional practices based on research on cognitive science, mastery teachers, and cognitive supports:

1. **Elicit prior knowledge:** Begin a lesson with a short review of prior knowledge.
2. **Chunk information:** Present new material in small steps/chunks of information, with practice after each step ("retrieval practice").
3. **Use questions:** Ask many diverse types of questions and check learner responses.
4. **Use models:** Provide learners with models and examples to help them solve problems more quickly.
5. **Provide guidance:** Guide learner practice of new material.
6. **Formatively assess:** Check for learner understanding at each point in the lesson.
7. **Focus on mastery learning:** Focus on mastery learning and higher test success rates (See Chapter 17 for more information on mastery learning).
8. **Provide scaffolds:** Provide learners with supports, hints, guiding questions and tips for difficult tasks. Consider "backward chaining"—a scaffold where an instructor may give learners the answer but have them work backwards to figure it out or do the "easy stuff" for learners so they can concentrate on harder aspects of the problem (Meehan, 2022).
9. **Time for application:** Ensure and monitor independent practice.
10. **Review:** Engage learners in weekly and monthly review (Rosenshine, 2012, pp. 12–19).

Figure 10.4, can be employed in distance-based courses.

Particularly since the emergency remote teaching of the COVID-19 pandemic school lockdowns, instructors are using more interactive instructional methodologies with positive results, whether

they term them "learner-centered" or not. For example, flipped learning, which was discussed in Chapter 5—prerecording lectures and making them available via video, audio, or text so that they can instead use class time to apply, analyze, and synthesize what has been learned—has become a staple in secondary and university-level blended courses.

Finally, *learners* in "active" or "learner-centered" distance education courses are invested in the process of learning and have a sense of ownership of their own learning. They question, collaborate, investigate, apply, and evaluate what they have learned. They recognize that they are members of a technology-based (and possibly face-based) community, and interact with tools, peers, materials, instructors, and experiences to fuel the online sharing and collaboration that in turn fuels learning. They use higher-order thinking skills to determine the quality, authenticity, and applicability of the tools, materials, and resources with which they are interacting (Burns, 2020a; Commonwealth of Learning, 2008). The role of distance learners and how to support them as individuals and as learners and how to assess their learning, is examined in depth in Chapters 14–17.

10.4 Conclusion

Employing a variety of instructional strategies has been demonstrated to have a strong differential impact on learning for children, adolescents, and adult learners (Conn, 2014; DiPietro et al., 2010; Katsarou & Chatzipanagiotou, 2021). Thus, distance instructors should apply research-proven instructional methods appropriate for the learning task at hand and integrate and model *high-quality* instructional skills, whether learner-centered or teacher-centered. If the role of any teacher professional educational experience is to help them develop "signature pedagogies—responsible practices in the service of others," then distance instructors must examine their own assumptions about what learning is and how it occurs; which instructional methods lead to certain learning outcomes; and what selection, sequencing, and organization of inputs make learning happen, as well as help their teacher-learners do the same (Shulman, 2005, p. 52). This speaks to careful attention to the learning methodologies employed in a distance course and the importance of constant reflection on these methodologies.

Fortunately, the behaviors identified as "high quality" in distance teacher professional development instruction are similar—although not always identical—to those in face-to-face instruction (Blitz, 2013; Burns, 2016a; DiPietro et al., 2010, p. 10). As Chapters 11 and 13 discuss, distance education programs can design courses that model a variety of instructional approaches, and distance instructors can be prepared in the same instructional methods they are expected to utilize in their own teaching.

The topics discussed in these past three chapters—understanding the qualities that define good teaching, high-quality professional development, and instruction within a distance learning program—are among the most critical components of a quality distance-learning experience. Together, these elements can help to develop the high-quality teachers so essential for students' academic success. For distance programs to help teachers create their own repertoire of effective instructional methods, there must be strong alignment and articulation between understanding the qualities that influence good teaching, high-quality teacher professional development, and high-quality instructional activities. All of this is shaped by and embedded in quality instructional design, the focus of the next chapter.

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