

# **Learning to Teach**

## **Practice-Based Preparation in Teacher Education in Virtual Learning Environments**

Special Issues Brief





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## Acknowledgments

The authors would like to thank the following individuals for their thoughtful reviews: Mary Little, Professor, University of Central Florida; Jacqueline A. Rodriguez, PhD, Vice President, Research, Policy, & Advocacy; Lynn Holdheide, Managing Technical Assistance Consultant, American Institutes for Research

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## In Brief

The Challenge	The Opportunity	The Lessons
<p>The COVID-19 pandemic presented formidable challenges to educator preparation programs (EPPs). Coursework and field-based placements that once occurred face to face were forced to move to virtual spaces immediately and with little or no support. Moving to virtual learning environments created barriers to offering special education and general education teacher candidates multiple opportunities to practice—which is foundational in improving candidate capacity. In addition, simply taking existing structures once provided in person and implementing them in virtual learning environments was not effective. Teacher educators needed new ways to provide effective practice-based experiences, but how can EPPs operationalize them in virtual learning environments?</p>	<p>EPPs can leverage lessons learned from teacher preparation in virtual learning environments during COVID and continue to provide increased practice-based opportunities even as things go back to “normal.” Likewise, EPPs can partner with districts experiencing chronic teacher shortages to apply the innovative strategies used within virtual learning environments to extend the programs’ reach and recruit potential candidates previously outside the range of the institution. However, for this to happen, it is necessary to examine closely the ways to enact careful practice, coupled with feedback, within online spaces.</p>	<p>Practice-based experiences provided via virtual context can be carried forward into virtual learning environments and potentially expand the reach of EPPs. In this policy brief, we showcase models of learning to teach and encompass the features of deliberate practice: virtual experiences that are intentionally sequenced and coupled with coaching, feedback, and reflection.</p>

This special issues brief is the second in the series released by the Collaboration for Effective Educator Development, Accountability and Reform (CEEDAR Center). Both briefs describe the essential features for providing high-quality, structured, and sequenced opportunities for teacher candidates to practice within teacher preparation programs. This brief complements the first by offering innovative strategies for reconceptualizing what deliberate practice-based opportunities look like when implemented in virtual learning environments. This brief is intended for educator preparation programs (EPPs) and teacher educators striving to prepare effective teachers by

- illuminating features of effective practice and special considerations within online learning environments;
- showcasing models of practice-based approaches informed by the science of learning that are effective for supporting candidates in learning to teach; and
- introducing the way the innovative strategies used within virtual learning environments can extend EPPs’ reach to recruit potential candidates not tapped previously.

## Introduction

As a result of COVID-19, teacher preparation institutions scrambled to change face-to-face delivery of coursework to various online approaches (e.g., synchronous, asynchronous). As we emerge from the chaos of the pandemic, some EPPs are transitioning back to face to face, while other programs choose to remain virtual. However, EPPs would do well to leverage innovations and lessons learned from online approaches to both strengthen existing educator preparation programs and increase the pipeline of new teachers by offering programs to students that previously were beyond the reach of the institution. Therefore, it is necessary to support teacher educators in providing rich learning and practice-based experiences within virtual learning environments.

Learning to teach is complex. Effective educators must draw on and integrate knowledge and practices that are both intentional and dynamically responsive to students. This type of knowledge and skill does not come from book learning or observation alone; carefully crafted and sequenced practice-based opportunities are necessary. Leveraging virtual learning environment widens the range of practice experiences possible for preparing future teachers of students with disabilities to be learner ready.

## What Are Practice-Based Opportunities and Why Are They Important?

**Practice-based opportunities** are intentionally designed experiences, like student teacher small-group tutoring, that allow candidates to apply or enact knowledge they acquire in coursework. This form of deliberate practice in learning to teach is critical because it requires candidates to meet frequently with a teacher educator to receive feedback and refine their practices (Moxley et al., 2017).

As EEPs plan for the intentional integration of practice-based opportunities within virtual learning environments, including coursework and field experiences, teacher educators need to consider several guiding questions around three central components of program design:

- **Focus.** What are the critical knowledge and skills that all candidates must be able to master to be prepared to enter the educator workforce (e.g., Ball & Fozani, 2009)? How can practice-based opportunities be provided to ensure candidates are adequately prepared to implement these skills?
- **Duration.** What is the length of time that the candidates will have within the program to demonstrate proficiency of the critical knowledge and skills they

need to be “learner ready” upon graduation (Brownell et al., 2019; De la Paz et al., 2011; Hindman et al., 2016)?

- **Coherence.** To what extent are virtual coursework and field experiences coordinated over time? Cohesive practice-based opportunities will support candidates in developing fluency and skill in implementation (Phillips et al., 2011).

## Features of Deliberate Practice-Based Opportunities

Deliberately designed practice-based opportunities in virtual spaces must be constructed intentionally. Together, these approaches allow candidates to engage in focused practice, coupled with feedback and structured opportunities, to improve over time. Below, we draw from our previous research to showcase the features of strategically designed virtual practice-based experiences (Benedict et al., 2016; Brownell et al., 2018; Brownell et al., 2019).



**Modeling** provides developing educators with an example of what effective instruction looks like in practice.

- Models can be videos or in-person demonstrations and provide candidates an example of what the practice looks like when implemented with fidelity (Brock & Carter, 2017).
- Effective modeling includes explanation of the underlying thinking accompanying the behaviors or practices. Doing so will help make explicit the decision-making process and the way an expert teacher is connecting content, pedagogy, and knowledge of students (Feiman-Nemser, 2001).



**Spaced learning** opportunities ensure that candidates receive exposure to content and practice experiences over time, providing sufficient time for learning and to strengthen practice.

- Spaced learning is repeated practice opportunities that are spaced and sequenced within coursework and field experiences to facilitate candidates’ skill development toward mastery of sophisticated instructional routines.



**Varied learning** opportunities allow candidates practice implementing a skill, strategy, or routine that they learned in coursework across varying contexts and with diverse students.

- Varied learning opportunities provide exposure and experiences for candidates to teach in urban, rural, and suburban contexts, and across multiple instructional settings (e.g., general education inclusive classroom, cotaught classroom, resource room), children at differing grade levels (K–12) and abilities (e.g., typical developing learners, students with disabilities, students who need social skills instruction, or multilingual learners).
- Teacher educators can also bundle together, or interweave, new or more complex strategies or practices with more familiar strategies or practices as part of varied learning.



**Coaching and feedback** helps candidates understand what they are doing well and corrects mistakes (Brock & Carter, 2017).

- Coaching and performance feedback must be frequent, timely, explicit in nature, and embedded within practice-based opportunities (Ericsson, 2009; Kellogg & Whiteford, 2009).

The provision of coaching and performance feedback should be considered as practice-based opportunities are integrated into virtual learning.



**Analysis and reflection** are critical to supporting candidates in developing the metacognitive skills necessary to both critique and improve practice (Nagro et al., 2017).

- Opportunities for candidates to analyze and reflect, woven intentionally throughout the acquisition of new content knowledge and practice-based opportunities help candidates identify their strengths and need for improvement.
- In order to foster the skills necessary for candidates to engage independently in analysis and reflection, they must be taught what effective instruction looks like in context. For this reason, modeling and intentional use of coaching and performance feedback are critical to developing candidates' skill for implementation.



**Scaffolding** affords candidates the experience to apply the knowledge and skills they acquire through coursework, within practice-based opportunities that gradually increase in complexity over time, while also fading supports.

- Scaffolded experiences support candidates in learning proficiency, deepening content knowledge, and improved implementation of practice (Pea, 2004).
- Fading supports helps candidates move toward independence (Kamman et al., 2014).

## Special Considerations for Online Teacher Education

There are many considerations when traditional face-to-face teacher education programs move to online delivery systems. For example, one of the greatest misconceptions was the long-standing idea that the same approaches as those for effective face-to-face practices will be effective online (Green et al., 2013).

In the section that follows, we address varying instructional configurations for coursework, as well as strategies teacher educators can take to develop instructor presence when teaching in virtual environments.

“The common lesson learned by higher education institutions around the world is that using the online environment for teaching requires not just a digitization of the face-to-face delivery mode but a whole new learning approach”  
(Schroeder et al., 2010, p. 549).

### Instructional Configurations

Universities and colleges must consider ways to continue to deliver rigorous, appropriate instruction for their teacher preparation programs. Within online environments, the following are the three major formats of instruction:

- **Synchronous:** instruction is provided in real time to enable interaction, understanding, and more practice with material.
- **Asynchronous:** candidates work at their own pace within a given time frame to understand and practice materials.
- **Hybrid:** instruction is provided in a combination of synchronous and asynchronous modalities.

Teacher educators must make decisions about the nature and configuration of synchronous or asynchronous instruction they want to integrate into virtual coursework. Research on online learning in higher education suggests that student satisfaction regarding their experiences in synchronous and/or asynchronous courses was mixed, with data showing both positive and negative perceptions of achievement (Young & Duncan, 2014). Surveys also indicate that when students participate in asynchronous learning alone, they often feel disconnected and isolated (Palloff & Pratt, 2007). Text-based content and video lectures without synchronous interactions may lead to increased isolation within online spaces (Bolliger et al., 2014). Keep in mind, even in asynchronous courses, faculty can build in synchronous experiences for students by creating opportunities for collaborative group work or holding weekly office hours. In summary, it seems that a combination of synchronous experiences with asynchronous courses is necessary to ensure that students feel connected to their peers and instructor.

## Instructor Presence

Instructor presence is a powerful factor contributing to candidate satisfaction and their overall learning experience (Richardson et al., 2016). The instructor is the most important determinant of student achievement in the online environment (Dalton, 2018; Wilson et al., 2018). Instructor presence has two parts: (1) virtual lecturing and (2) learning support (e.g., feedback, responding to questions, timely responses, individual support; Ke, 2010). Instructor presence is established through building relationships between instructors and students. In a virtual environment, building these types of relationships can be challenging. Two actions faculty can take to increase their social presence are use of consistent and timely communication and offering choice in the way that students receive, participate, and demonstrate information (Lee et al., 2015; Mandernach et al., 2018).

## Taken Together

For teacher educators, this means that transitioning face-to-face educator preparation programs to online environments must be done in intentional ways, especially when considering the practice-based experiences that are necessary to support novice educators in translating new knowledge and skills into their instructional repertoires. In addition, the relationships that teacher educators develop with candidates within online environments are essential to ensuring candidate connection, receptivity to feedback, and ultimate candidate success.

## Reenvisioning Practice-Based Opportunities Within Online Environments: Examples From the Field

Practice-based opportunities embedded within virtual learning environments are especially necessary to build candidates' confidence and skill in effective instruction in preparation for authentic experiences within P–12 classrooms. Following are examples of approaches teacher educators can take to design effective practice-based opportunities that support learning to teach within virtual learning environments. These practices are sequenced in a continuum from least to most authentic (Brownell et al., 2019) to provide teacher educators a range of examples of practice-based opportunities that can be integrated within and across online coursework in a manner that is flexible and based on the resources and opportunities available to the EPP.

**Case learning** can be an effective tool to support candidates in developing their problem-solving skills and can be analyzed independently or in collaboration with peers (Brownell et al., 2019). In this approach, candidates are provided a dossier of materials to analyze and interpret a student's level of performance in order to make instructional decisions and ensure that lessons are effective and aligned with student need (e.g., Kennedy et al., 2012). Within online coursework, this approach could be structured synchronously through collaborative group work, or asynchronously.

#### Considerations for Teacher Educators:

- Make certain the materials provided for analysis are specific and provide candidates with rich details of student characteristics, performance, and context (Shulman, 1992).
- Develop a rubric. Rubrics are a useful tool to provide candidates feedback on the depth and quality of their analysis (e.g., Gunn et al., 2015).
- Hold candidates accountable. In order for this feedback to be useful in improving candidate future performance, include reflective responses that press candidates to consider the ways they will integrate what they learned from the case- learning analysis to future practice.

EXAMPLE IN ACTION   Case Learning	
 Varied Learning	 Analyzing and Reflecting
<b>Where</b>	Clemson University, Clemson, South Carolina
<b>Who</b>	Dr. Abby Allen, assistant professor
<b>What</b>	Dr. Allen developed a case study including a profile of a student with autism receiving early childhood services. This case study, including academic and socioemotional data, is used by teacher candidates during their junior year to plan the student's success within different instructional environments. In the final assignment, candidates design a learning activity specifically to meet the student's needs.
<b>Special considerations for online implementation</b>	Dr. Allen suggests using videos so that students can contextualize the case study. For example, when analyzing student data, she shares videos of an educator implementing an oral reading fluency probe so that candidates can see the way the data were collected. She also sees opportunities for the case study to be integrated with other practice-based approaches. For instance, educator preparation programs with access to Murison could have candidates apply their learning activity to an avatar that fits the profile of the learner in the case study.
For more information on this example, see Appendix C.	

**Rehearsal** is a practice-based approach in which candidates practice by teaching their peers who are playing the roles of P–12 students. In addition, the teacher educator plays the role of the coach, providing the candidates feedback on their implementation (Lampert et al., 2013). Within online coursework, this approach can be structured synchronously, with candidates’ teaching peers within a platform like Zoom and the peers either observe and provide feedback or engage as P–12 learners. Another approach is having candidates teach a lesson in advance and record their lesson. In breakout rooms, the candidates can observe one another’s instruction and provide feedback.

#### Considerations for Teacher Educators:

- In order to optimize the rehearsal’s potential for effectiveness, it is important for the teacher educator to first model a rehearsal, showing candidates the underlying thinking involved in planning and assessment, which informed the design of the lesson that the teacher educator enacts (Tyminski et al., 2014).
- After the rehearsal, debrief the class. Ask candidates to share their observations, reflections, and future actions.

EXAMPLE IN ACTION   Rehearsal	
 Varied Learning      Coaching and Feedback      Analyzing and Reflecting      Scaffolding	
<b>Where</b>	Georgia State University, Atlanta, Georgia
<b>Who</b>	Dr. DaShaunda Patterson, associate dean for Faculty Development and Equity
<b>What</b>	Dr. Patterson uses rehearsals by first teaching the candidates the way to create quality lesson plans, including defining a lesson’s purpose, process, and product. Candidates are then to create a 10-minute minilesson in which they teach small groups of three or four peers about a topic of their choice. Teacher candidates teach small groups of peer observers while these observers utilize a checklist to provide focused feedback. When giving feedback, peer observers focus on process and interaction, not content knowledge.
<b>Special considerations for online implementation</b>	In preparation for synchronous class hosted on Zoom, candidates record their minilessons in advance. During class, candidates play their videos and peer observers can provide feedback and give a collective debriefing in small groups via breakout sessions. A benefit of having recordings is that the candidates delivering the lesson can watch themselves and partake in the same analysis.

For more information on this example, see Appendix C.

**Video analysis** is a practice-based approach that allows for teacher educators to use video examples to model exemplar instruction, view critical instances, or observe and analyze the candidate's own instruction (Brownell et al., 2019). Video analysis has demonstrated its effectiveness in improving candidates' analytical skill (Santagata & Guarino, 2011; van Es et al., 2014). Within a virtual learning environment, this approach can be implemented synchronously, asynchronously, or in a combination of both.

### Considerations for Teacher Educators:

- When used as examples, video analyses can spark collaborative discussion with peers and mentors (Santagata et al., 2007; Star & Strickland, 2008).
- Video is useful in providing candidates with a model and can pair with other practice-based approaches, such as case studies or creating lesson plans.
- To support teacher educators in selecting videos to use as models and analyze, we have compiled a list of free video data bases that teacher educators can draw on (see Appendix C.3).

EXAMPLE IN ACTION   Video Analysis	
 Modeling	 Spaced Learning
 Varied Learning	 Coaching and Feedback
 Analyzing and Reflecting	 Scaffolding
<b>Where</b>	
<b>Who</b>	
<b>What</b>	
<b>Special considerations for online implementation</b>	

For more information on this example, see Appendix C.

**Virtual simulation** is a way to represent the complexities of classroom dynamics (e.g., instructional and behavioral) within a mixed reality, in which candidates provide instruction within a virtual classroom and avatars provide immediate reactions (Dieker et al., 2014). Within online coursework, this approach could be structured synchronously or, through collaborative group work, asynchronously.

#### Considerations for Teacher Educators:

- Repeated practice of skills in simulation within a virtual classroom has been shown to generalize performance to real classroom settings (Dawson & Lignugaris/Kraft, 2017).
- Instructors can control complexity and preprogram scenarios to align with coursework or candidates' needs (Dieker et al., 2014).
- Mixed reality is potent. As few as four 10-minute sessions in the simulator have been found to improve teachers' implementation of skills (Dieker et al., 2014).

EXAMPLE IN ACTION   Virtual Simulation	
 Varied Learning      Coaching and Feedback      Analyzing and Reflecting      Scaffolding	
<b>Where</b>	Kennesaw State University, Kennesaw, Georgia
<b>Who</b>	Dr. Melissa Driver, associate professor of Special Education, and Dr. Kate Zimmer, director of the AVATAR Lab and associate professor of Special Education
<b>What</b>	<p>The AVATAR Lab is a mixed-reality simulation that creates an immersive environment for participants to practice teaching with avatars of children, each with their own unique personality, before working with students in actual classrooms. This allows teacher candidates to receive the immediate feedback they require, while providing a safe space for them to make mistakes.</p> <p>Drs. Driver and Zimmer have developed more than 30 scenarios with low, medium, and high settings of problem-solving difficulty, to support the candidates in developing their skills in areas such as classroom management, content area lesson delivery, parent/teacher conferences, and student socioemotional regulation.</p>
<b>Special considerations for online implementation</b>	Prior to COVID, the candidates taught within a mixed reality, meaning that the classroom and its features existed within a physical space and the avatars were within a simulation. After COVID, teacher educators learned to operationalize the entire lab within a virtual space.

For more information on this example, see Appendix C.

**Web-based tutoring** is an approach that takes structured tutoring and operationalizes it within a virtual synchronous environment. Using a platform like Zoom or Google Hangouts, candidates practice teaching newly acquired knowledge and skills one on one to a student. Web-based tutoring may be integrated as a practice-based approach into asynchronous or synchronous virtual learning environments.

#### Considerations for Teacher Educators:

- Tutoring is a powerful practice-based approach because it has been demonstrated to improve not only candidate performance but P-12 student achievement (e.g., Al Otaiba et al., 2012; Spear-Swerling, 2009). Implementing tutoring along with content focused coursework will support candidates in taking newly acquired knowledge and operationalizing it in practice within a controlled setting.
- Web-based tutoring has been found to improve student achievement in similar ways as face-to-face tutoring (Houge et al., 2007), especially when teacher educators support candidates with structure and frequent feedback.
- This approach allows candidates to teach students from varied settings (rural, urban) and different grade levels without the burden of travel.

EXAMPLE IN ACTION   Web-based Tutoring	
 Spaced Learning	 Coaching and Feedback
 Analyzing and Reflecting	
<b>Where</b>	Northern State University, Aberdeen, South Dakota
<b>Who</b>	Dr. Timothy T. Houge, professor and Reading Clinic director
<b>What</b>	Dr. Houge integrates web-based tutoring into his methods reading course. Candidates are paired with a struggling reader and design and deliver focused reading/spelling instruction via a video-based platform. To support with instruction, Dr. Houge reviews candidates' lesson plans, while a teacher educator with expertise in literacy observes candidates and provides them with feedback.
<b>Special considerations for online implementation</b>	Collaboration with the parent of the child and teacher educators is key to helping ensure that teacher candidates and P-12 learners have a positive tutoring experience. Documenting expectations for parents helps ensure children are prepared to engage in the tutoring session (e.g., working headphones) and are free from environmental distractions (e.g., television, radio) allowing the teacher candidates to focus on reading instruction.
For more information on this example, see Appendix C.	

**Online lesson** study is a collaborative practice-based approach in which teams of candidates work in coordination to (a) collaboratively analyze student data and plan instruction, (b) teach a collaboratively planned lesson, and (c) observe the lesson and be debriefed on its effectiveness at meeting the students' learning needs (Roberts et al., 2018). When embedding online lesson study within the online coursework, the teacher educator divides candidates into three- or four-person teams, using breakout sessions to allow groups opportunities to plan, observe, and debrief one another over the lesson's implementation. Here, we showcase an example of the way online lesson study can be implemented within a synchronous virtual learning environment.

#### Considerations for Teacher Educators:

- Providing a structured lesson study protocol is useful in helping candidates engage in each phase of the lesson study cycle and carefully analyze practice (Andrews-Larson et al., 2017).
- Lesson study deepens candidates' skill for thinking and talking about instruction and student learning in more articulate ways (Roberts et al., 2018). Teacher educators should model for candidates the way to talk about instruction by practicing with them or showing them videos of teachers engaged in each phase of the lesson study process.
- Access to a lesson study facilitator will elevate the quality of novice educators' learning experience. The facilitator (who may be a student from the group, a graduate student, collaborative teacher, or teacher educator) helps teams focus their time but draws candidates' attention to specific behaviors, increasing the rigor of the candidates' experience.

#### EXAMPLE IN ACTION | Online Lesson Study



<b>Where</b>	Whitworth University, Spokane, Washington
<b>Who</b>	Dr. Kristen Arnold
<b>What</b>	Dr. Arnold uses the online lesson study process to teach the high-leverage practices (HLPs) to candidates. Each candidate is provided an online lesson study journal that walks them through a series of lesson study cycles. Through a combination of whole-group instruction and modeling, Dr. Arnold sets teams of candidates up to engage in lesson study experience in small groups with candidates in similar placements (e.g., content area, grade level).

### Special considerations for online implementation

Dr. Arnold suggests aligning the lesson study cycles with the use of a performance-based observation tool. For Dr. Arnold, this is the edTPA. Candidates must plan a series of three lessons, video-record while they teach, and reflect on P-12 student learning, and Dr. Arnold aligns this series with the lesson study cycles of her course. In addition, Dr. Arnold has created a matrix that supports candidate's analysis of video-recorded practice by pressing them to generate responses specifically related to their implementation of HLPs.

For more information on this example, see Appendix C.

**Virtual field placement** is an online practicum experience in which teacher candidates work with P-12 students within online instruction. Although online instructional experiences for P-12 learners are growing exponentially, prior to COVID, only approximately 4.1% of teacher education programs provided instructional experiences for teacher candidates in virtual settings (Archambault et al., 2016). Virtual field placements can be integrated seamlessly into either asynchronous or synchronous learning environments.

#### Considerations for Teacher Educators:

- Virtual field placements, similar to face-to-face school-based practicum experiences, generally range in length from 4 to 16 weeks.
- Common virtual field placement activities include observations of in-service virtual teacher instruction, teaching synchronous lessons, observations with feedback from mentor teachers or university supervisors, and participating in discussion forums (Archambault et al., 2016).

#### EXAMPLE IN ACTION

#### Virtual Field Placement



#### Where

Mary Lou Fulton Teachers College (MLFTC), Arizona State University (ASU), Tempe, Arizona

#### Who

Ashley Katikos, assistant division director Professional Experiences; Betsy Fowler, executive director Strategic Initiatives ASU Prep Digital; and Jill Rogier, head of Schools ASU Prep Digital

<b>What</b>	MLFTC has partnered with ASU Prep Digital, an online K-12 accredited diploma-granting institution affiliated with ASU, to place elementary, secondary, and special education candidates within virtual placements for field experience, as well as student teaching. Although most candidates are just beginning their teacher preparation experience and this is their first experience working with students, others are candidates whose vision for their future self includes teaching at a virtual academy. As candidates participate in their virtual field placement, they also take traditional teacher preparation coursework.
<b>Special considerations for online implementation</b>	Coordination is key! MLFTC coordinators work in ongoing communication and collaboration with ASU Prep Digital site administration, mentor teachers, and MLFTC faculty teaching coursework to ensure virtual teaching experiences are supported by knowledge and topics that candidates are learning in coursework.

For more information on this example, see Appendix C.

## Tools for Teacher Educators

Over the past year, we have ascertained that one of the most essential areas of need for educators in teacher preparation programs, as well as for classroom teachers, is resources to engage with students in synchronous and asynchronous learning platforms. Our experiences have demonstrated that the traditional face-to-face curriculum platforms are not equivalent to remote teaching. This has led educators to spending an abundance of hours searching for innovative techniques to connect with students, engage students with curriculum, and assess acquisition of skills after content has been delivered remotely.

The seven practices highlighted in this brief represent a range of implementation difficulty and technology requirements. Case learning, rehearsal, and online lesson study are low-tech; they could be accomplished just as easily virtually as live and require no more technology than is commonly available, such as virtual meeting platforms. Video analysis adds the component of needing access to videos; there are many options for these, some free and some that require subscription fees. Web-based tutoring and virtual field placement are a bit more difficult to implement because they require access to P-12 students and a shared virtual platform between teacher candidates and P-12 students. In addition, candidates must be well trained in the uses of the platform before beginning their work with the students. Virtual simulation is the most high-tech of the practices, and it requires licensing fees, which

can be expensive, depending on the needs of the teacher education program. The varied nature of the practices means any teacher education program would be able to implement many of them regardless of resources.

We have provided in this brief several resources, which include unedited videos, free access to textbooks, organizations for evidence-based information (see Appendix A), and technology platforms (see Appendix B).

Appendix A, “Resources for Teacher Educators to Enhance Practice-Based Opportunities Embedded Within Virtual Instruction,” provides website links to organizations educators need in order to establish learning for remote teacher-preparation programs. It is more imperative than ever that we provide critical questions in order to better support teaching and leading that improve equitable outcomes. Within this table, we have provided links to HLPs, UDL (Universal Design for Learning) Guidelines, and videos to utilize for teaching methods and strategies. During COVID, we found it was difficult to assess teacher candidates’ abilities to have authentic, effective opportunities to demonstrate evidence-based practices. These sites and videos combine concept-driven, culturally responsive teaching models.

Appendix B, “Teacher Education Technology Platforms,” bring together a multitude of educational tools for teacher educators. This table provides approaches to engagement with curriculum, classroom management, remote collaboration, teaching and meeting platforms, and platforms for creating videos, as well as new ways to use the old-time discussion boards. One example is Yellowdig, which is similar to a social media thread. Students can post original thoughts and ideas, responses to teacher educators’ questions, links, pictures, and so forth, creating an online community among participants. Interactive video platforms are avenues to approaching remote coaching, observations, and analyses of candidates’ vital skills. Other technology platforms provide teacher candidates with multiple ways to demonstrate knowledge (e.g., visual presentation, video, voice note) rather than writing papers alone.

## Concluding Thoughts

Whether preparing educators to teach face to face or within a virtual platform, practice-based opportunities are critical to supporting candidates in developing the knowledge and skills necessary to meet P–12 learners’ academic and socioemotional needs. Practice-based experiences, when structured intentionally, have the potential to transform the ways in which candidates are prepared within synchronous and asynchronous EPP programs. Furthermore, these experiences extend the reach of EPPs’ potential recruitment, making it possible for individuals interested in becoming educators who may not have an EPP at their doorstep access to EPPs.

This brief describes ways to implement the practice-based approaches of case learning, rehearsal, video analyses, virtual simulation, web-based tutoring, online lesson study, and virtual field placement, and also provides additional tools for teacher educators to bolster their teacher preparation programs structured within virtual learning environments.

The educational experiences and outcomes of students with disabilities depends on having access to high-quality instruction. Therefore, supporting teacher candidates in developing effective instructional skills is paramount. Although this brief offers EPPs some tools to help ensure that teacher candidates are learner ready in both in-person and virtual learning environments, more work must be done! More research is needed for examining the effectiveness of virtual learning approaches in deepening special education teacher candidates' knowledge and skills for effective instruction. In addition, EPP administration must provide support, resources, and incentives for teacher educators to learn these approaches and operationalize them within their programs with efficiency and effectiveness.

## References

- Al Otaiba, S., Lake, V. E., Greulich, L., Folsom, J. S., & Guidry, L. (2012). Preparing beginning reading teachers: An experimental comparison of initial early literacy field experiences. *Reading and Writing, 25*(1), 109–129. <https://doi.org/10.1007/s11145-010-9250-2>
- Andrews-Larson, C., Wilson, J., & Larbi-Cherif. (2017). Instructional improvement and teachers' collaborative conversations: The role of focus and facilitation. *Teachers College Record, 119*, 1–37. <https://doi.org/10.1177/01614681171900201>
- Archambault, L., Kennedy, K., Shelton, C., Dalal, M., McAllister, L., & Huyett, S. (2016). Incremental progress: Re-examining field experiences in K–12 online learning contexts in the United States. *Journal of Online Learning Research, 2*(3), 303–326.
- Ball, D. L., & Forzani, F. M. (2009). The work of teaching and the challenge for teacher education. *Journal of Teacher Education, 60*(5), 497–511. <https://doi.org/10.1177/0022487109348479>
- Benedict, A. E., Holdheide, L., Brownell, M. T., & Marshall, A. (2016). *Learning to teach: Practice-based preparation in teacher education*. [http://cedar.education.ufl.edu/wp-content/uploads/2016/07/Learning\\_To\\_Teach.pdf](http://cedar.education.ufl.edu/wp-content/uploads/2016/07/Learning_To_Teach.pdf)
- Bolliger, D. U., Inan, F. A., & Wasilik, O. (2014). Development and validation of the online instructor satisfaction measure (OISM). *Journal of Educational Technology & Society, 17*(2), 183–195.
- Brock, M. E., & Carter, E. W. (2017). A meta-analysis of educator training to improve implementation of interventions for students with disabilities. *Remedial and Special Education, 38*, 133–144. <https://doi.org/10.1177/0741932516653477>
- Brownell, M. T., Benedict, A. E., Leko, M. M., Peyton, D., Pua, D., & Richards-Tutor, C. (2019). A continuum of pedagogies for preparing teachers to use high-leverage practices. *Remedial and Special Education, 40*(6), 338–355. <https://doi.org/10.1177/0741932518824990>
- Brownell, M. T., Chard, D., Benedict, A. E., & Lignugaris/Kraft, B. (2018). Preparing general and special education preservice teachers for response to intervention: A practice-based approach. In P. Pullen & M. Kennedy (Eds.), *Handbook of response to intervention and multi-tiered instruction* (pp. 121–145). Routledge.
- Dalton, M. H. (2018). Online programs in higher education: Strategies for developing quality courses. *FOCUS on Colleges, Universities & Schools, 12*(1), 1–8.
- Dawson, M. R., & Lignugaris/Kraft, B. (2017). Meaningful practice: Generalizing foundation teaching skills from TLE TeachLivE™ to the classroom. *Teacher Education and Special Education, 40*, 26–50. <https://doi.org/10.1177/0888406416664184>
- De la Paz, S., Malkus, N., Monte-Sano, C., & Montanaro, E. (2011). Evaluating American History teachers' professional development: Effects on student learning. *Theory and Research in Social Education, 39*, 494–540. <https://doi.org/10.1080/00933104.2011.10473465>
- Dieker, L. A., Kennedy, M. J., Smith, S., Vasquez, E., III, Rock, M., & Thomas, C. N. (2014). Use of technology in the preparation of pre-service teachers (Document No. IC-11). <http://cedar.education.ufl.edu/tools/innovation-configurations>
- Ericsson, K. A. (2009). Enhancing the development of professional performance: Implications from the study of deliberate practice. In K. A. Ericsson (Ed.), *Development of professional expertise: Toward measurement of expert performance and design of optimal learning environments* (pp. 449–469). Cambridge University Press. <https://doi.org/10.1017/CBO9780511609817>
- Feiman-Nemser, S. (2001). Helping novices learn to teach: Lessons from an exemplary support teacher. *Journal of Teacher Education, 52*(1), 17–30.

- Green, N., Wolodko, B., Stewart, C., Edwards, H., Brooks, M., & Littledyke, R. (2013). Collaborative self-study of online teaching in early childhood teacher education. *International Journal for Academic Development*, 18(2), 166–177. <https://doi.org/10.1080/1360144X.2012.677747>
- Gunn, A. A., Peterson, B. J., & Welsh, J. L. (2015). Designing teaching cases that integrate course content and diversity issues. *Teacher Education Quarterly*, 42(1), 67–81.
- Hindman, A. H., Wasik, B. A., & Snell, E. K. (2016). Closing the 30 million word gap: Next steps in designing research to inform practice. *Child Development Perspectives*, 10(2), 134–139. <https://doi.org/10.1111/cdep.12177>
- Houge, T. T., Peyton, D., Geier, C., & Petrie, B. (2007). Adolescent literacy tutoring: Face-to-face and via webcam technology. *Reading Psychology*, 28(3), 283–300. <https://doi.org/10.1080/02702710601186399>
- Kamman, M. L., McCray, E. D., Brownell, M. T., Wang, J., & Ribuffo, C. (2014). Teacher education pedagogy: What we know about preparing effective teachers. [Unpublished manuscript]. University of Florida.
- Ke, F. (2010). Examining online teaching, cognitive, and social presence for adult students. *Computers & Education*, 55, 808–820. <https://doi.org/10.1016/j.compedu.2010.03.013>
- Kellogg, R. T., & Whiteford, A. P. (2009). Training advanced writing skills: The case for deliberate practice. *Educational Psychologist*, 44, 250–266. <https://doi.org/10.1080/00461520903213600>
- Kennedy, M. J., Newton, J. R., Haines, S. J., Walther-Thomas, C. S., & Kellems, R. O. (2012). A triarchic model for teaching “Introduction to Special Education”: Case studies, content acquisition podcasts, and effective feedback. *Journal of Technology and Teacher Education*, 20, 251–275.
- Lampert, M., Franke, M. L., Kazemi, E., Ghousseini, H., Turrou, A. C., Beasley, H., Cunard, A., & Crowe, K. (2013). Keeping it complex: Using rehearsals to support novice teacher learning of ambitious teaching. *Journal of Teacher Education*, 64, 226–243. <https://doi.org/10.1177/0022487112473837>
- Lee, E., Pate, J. A., & Cozart, D. (2015). Autonomy support for online students. *TechTrends*, 59(4), 54–61.
- Mandernach, B. J., Robertson, S. N., & Steele, J. P. (2018). Beyond content: The value of instructor-student connections in the online classroom. *Journal of Scholarship of Teaching and Learning*, 18(4), 12–17. <https://doi.org/10.14434/josotl.v18i4.23430>
- Moxley, J. A., Ericsson, K. A., & Tuffiash, M. (2017). Gender differences in SCRABBLE performance and associated engagement in purposeful practice activities. *Psychological Research*, 83, 1147–1167. <https://doi.org/10.1007/s00426-017-0905-3>
- Nagro, S. A., deBettencourt, L. U., Rosenberg, M. S., Carran, D. T., & Weiss, M. P. (2017). The effects of guided video analysis on teacher candidates’ reflective ability and instructional skills. *Teacher Education and Special Education*, 40, 7–25. <https://doi.org/10.1177/0888406416680469>
- Palloff, R. M., & Pratt, K. (2007). *Building online learning communities: Effective strategies for the virtual classroom*. John Wiley & Sons.
- Pea, R. D. (2004). The social and technological dimensions of scaffolding and related theoretical concepts for learning, education, and human activity. *Journal of the Learning Sciences*, 13(3), 423–451. [https://doi.org/10.1207/s15327809jls1303\\_6](https://doi.org/10.1207/s15327809jls1303_6)
- Phillips, K. J., Desimone, L., & Smith, T. (2011). Teacher participation in content-focused professional development & the role of state policy. *Teachers College Record*, 113(11), 2586–2630.

- Richardson, J. C., Besser, E., Koehler, A., Lim, J., & Strait, M. (2016). Instructors' perceptions of instructor presence in online learning environments. *International Review of Research in Open and Distributed Learning*, 17(4), 82–104. <https://doi.org/10.19173/irrod.v17i4.2330>
- Santagata, R., & Guarino, J. (2011). Using video to teach future teachers to learn from teaching. *ZDM Mathematics Education*, 43, 133–145. <https://doi.org/10.1007/s11858-010-0292-3>
- Santagata, R., Zannoni, C., & Stigler, J. (2007). The role of lesson analysis in pre-service teacher education: An empirical investigation of teacher learning from a virtual video-based field experience. *Journal of Mathematics Teacher Education*, 10, 123–140. <https://doi.org/10.1007/s10857-007-9029-9>
- Schroeder, A., Minocha, S., & Schneider, C. (2010). Social software in higher education: The diversity of applications and their contributions to students' learning experiences. *Communications of the Association for Information Systems*, 26(1), 25. <https://doi.org/10.17705/1CAIS.02625>
- Shulman, L. (1992). Toward a pedagogy of cases. In J. Shulman (Ed.), *Case methods in teacher education* (pp. 1–29). Teachers College Press.
- Spear-Swerling, L. (2009). A literacy tutoring experience for prospective special educators and struggling second graders. *Journal of Learning Disabilities*, 42, 431–443. <https://doi.org/10.1177/0022219409338738>
- Star, J. R., & Strickland, S. K. (2008). Learning to observe: Using video to improve preservice mathematics teachers' ability to notice. *Journal of Mathematics Teacher Education*, 11, 107–125. <https://doi.org/10.1007/s10857-007-9063-7>
- Tyminski, A. M., Zambak, V. S., Drake, C., & Land, T. J. (2014). Using representations, decomposition, and approximations of practices to support prospective elementary mathematics teachers' practice of organizing discussions. *Journal of Mathematics Teacher Education*, 17, 463–487. <http://dx.doi.org/10.1007/s10857-013-9261-4>
- van Es, E. A., Tunney, J., Goldsmith, L. T., & Seago, N. (2014). A framework for the facilitation of teachers' analysis of video. *Journal of Teacher Education*, 65, 340–356. <https://doi.org/10.1177/0022487114534266>
- Wilson, K. E., Martinez, M., Mills, C., D'Mello, S., Smiled, D., & Risk, E. F. (2018). Instructor presence effect: Liking does not always lead to learning. *Computers & Education*, 122, 205–220. <https://doi.org/10.1016/j.compedu.2018.03.011>
- Young, S., & Duncan, H. E. (2014). Online and face-to-face teaching: How do student ratings differ? *MERLOT Journal of Online Learning and Teaching*, 10(1), 70–79.

## Appendices

## APPENDIX A.

### Resources for Teacher Educators to Enhance Practice-Based Opportunities Embedded Within Virtual Instruction

Site	Link	Description
CAST (Universal Design for Learning—UDL)	<a href="https://www.cast.org/impact/universal-design-for-learning-udl#.XVOHBZNKjs0">https://www.cast.org/impact/universal-design-for-learning-udl#.XVOHBZNKjs0</a>	CAST provides information and resources to support with UDL.
CEEDAR (Collaboration for Effective Educator Development, Accountability, and Reform)	<a href="http://ceedar.education.ufl.edu/plos/">The CEDAR Center at the University of Florida   The CEDAR Center</a>	The CEDAR Center supports teacher educators in preparing general and special educators so they can meet the needs of students with disabilities. Included on the CEDAR Center website are a plethora of resources that can be used to strengthen existing coursework and field experiences (e.g., innovation configurations, Course Enhancement Modules, research briefs, toolkits).
CEEDAR: PLO (practice-based learning opportunities) implementation	<a href="https://ceedar.education.ufl.edu/plos/">https://ceedar.education.ufl.edu/plos/</a>	This resource is useful in providing teacher educators with ideas for ways to design deliberate practice-based opportunities for teacher candidates.
CEC (Council of Exceptional Children)	<a href="https://exceptionalchildren.org/">https://exceptionalchildren.org/</a>	CEC is an advocacy organization for students with disabilities. On this website teacher educators can access current standards and policy, and learn about opportunities for professional development.
CEC HLPs (High-Leverage Practices)	<a href="https://highleveragepractices.org/about-hlp">https://highleveragepractices.org/about-hlp</a>	HLPs are organized around four aspects of practice: collaboration, assessment, social/emotional/ behavioral, and instruction. This website includes a plethora of resources to support knowledge development and application of the HLPs including example videos of the HLPs in practice.
Faculty Focus: Culturally Responsive Teaching and UDL	<a href="https://www.facultyfocus.com/articles/course-design-ideas/culturally-responsive-teaching-and-udl/">https://www.facultyfocus.com/articles/course-design-ideas/culturally-responsive-teaching-and-udl/</a>	Faculty Focus provides resources that support culturally responsive teaching.

Site	Link	Description
ITSE (International Society for Technology in Education)	<a href="https://www.iste.org/explore/Toolbox/30-tools-for-diverse-learners">https://www.iste.org/explore/Toolbox/30-tools-for-diverse-learners</a>	This website provides tools, resources, and standards for supporting teacher educators in preparing teachers to teach with technology.
Monarch Center for Autism	<a href="https://www.monarchcenterforautism.org">https://www.monarchcenterforautism.org</a>	Monarch Center provides resources that teacher educators can use for teacher candidates to learn about children and adolescents with autism spectrum disorder, or ASD.

## Videos

Site	Link	Description
High-Leverage Practices in special education	<a href="https://highleveragepractices.org/unedited-clips-teachers-implementing-hlps">https://highleveragepractices.org/unedited-clips-teachers-implementing-hlps</a>	<p>Videos included (content areas, grade levels, etc.):</p> <p>All special education—mix of inclusive and small-group settings</p> <ul style="list-style-type: none"> <li>■ Most are elementary (early and late)           <ul style="list-style-type: none"> <li>● Reading</li> <li>● Behavior</li> <li>● Mathematics</li> <li>● Science</li> </ul> </li> <li>■ One middle school and one high school (both mathematics)</li> </ul> <p>Brief description: These are unedited clips of classroom instruction, collected as part of the HLP video series. They range in length from 8 minutes to 19 minutes. There is a disclaimer at the beginning of each that says teachers were not given scripts but were asked to demonstrate a particular HLP (the HLP is not identified) and asks viewers to be respectful in their dialogue about the teacher and students. After that, the clips are unedited, authentic classroom videos.</p>

Site	Link	Description
Massachusetts Department of Elementary and Secondary Education	<a href="http://www.doe.mass.edu/edeval/resources/calibration/videos.html">http://www.doe.mass.edu/edeval/resources/calibration/videos.html</a>	<p>Videos included (content areas, grade levels, etc.):</p> <ul style="list-style-type: none"> <li>All general education</li> <li>■ English language arts—Grades K-12</li> <li>■ Mathematics—Grades K-12</li> <li>■ Science—Grades 4, 9, and 10</li> <li>■ Social studies—high school</li> </ul> <p>Brief description: These are videos provided as part of Massachusetts' teacher evaluation system. They are intended to be used to calibrate raters being trained on using the evaluation system. They range from 11 minutes to 53 minutes in length and are authentic classroom videos, with no commentary.</p>

**Use open educational resources (OERs) and other content available for free. This approach can help offload some of the work in creating lecture content.**

Open textbooks	Starting place to find resources for all subjects
<a href="#">Mason OER Metafinder</a>	Searches across dozens of sites for OERS and other openly licensed scholarly materials
<a href="#">OpenStax</a>	Affiliated with Rice University and publishes of some of the most widely used OERs focused on lower division, general education courses
<a href="#">Open Textbook Library</a>	Free, peer-reviewed, and openly-licensed textbooks for higher education
<a href="#">OER Commons</a>	Public digital library of OERs
<a href="#">MERLOT</a>	Free, international, and open peer-reviewed collection
<a href="#">American Institute of Mathematics Open Textbook Initiative</a>	Open textbooks approved by the American Institute of Mathematics Editorial Board
<a href="#">GALILEO Open Learning Materials</a>	Resources created by Georgia educators, some with grants from Affordable Learning Georgia

Open textbooks	Starting place to find resources for all subjects
<a href="#">Engage NY</a>	Open curriculum that includes materials for ELA and Mathematics all Grades P-12.
<a href="#">Internet Archive</a>	Millions of free books, movies, software, music, websites, and more
<a href="#">HathiTrust</a>	Collection of millions of titles digitized from libraries around the world
<a href="#">Project Gutenberg</a>	56,000 free eBooks

## APPENDIX B.

### Teacher Education Technology Platforms

It is important for teacher educators to actively engage teacher candidates and provide a variety of modalities in which these candidates can demonstrate their knowledge and practice. The table below provides access to a multitude of technology platforms for classroom teachers to utilize for activities, assignments, and assessments in EPPs.

Engagement with curriculum		
Name of app, platform, or software	Link to website	Description
Adobe Spark	<a href="https://www.adobe.com/education/express/">https://www.adobe.com/education/express/</a>	Spark offers candidates a way to express their ideas in creative stories from any browser. This app includes templates, fonts, music and a variety of photos.
Classkick	<a href="https://classkick.com/">https://classkick.com/</a>	Classkick is an app and web-based instructional tool that creates paperless classrooms with real-time feedback.
Digital Creation	<a href="https://www.commonsense.org/education/top-picks/best-tech-creation-tools">https://www.commonsense.org/education/top-picks/best-tech-creation-tools</a>	Digital Creation offers teacher-educators a list of the top creation tools. These tools offer engaging ways to assess candidates.
Digication	<a href="https://workspace.google.com/marketplace/app/digication/153012855969">https://workspace.google.com/marketplace/app/digication/153012855969</a>	Digication is an ePortfolio tool focusing on candidates' learning and reflection.
Jamboard	<a href="https://jamboard.google.com/">https://jamboard.google.com/</a>	With Jamboard, you can <ul style="list-style-type: none"> <li>■ write and draw</li> <li>■ search Google</li> <li>■ insert images or webpages</li> <li>■ sketch a box, star, cat, or dragon.</li> <li>■ have up to 50 people working on a jam at the same time</li> </ul>
Mentimeter	<a href="https://www.mentimeter.com/">https://www.mentimeter.com/</a>	Mentimeter presents interactive polls, quizzes, and word clouds.

Name of app, platform, or software	Link to website	Description
Microsoft— PowerPoint narration	<a href="https://support.microsoft.com/en-us/office/record-a-slide-show-with-narration-and-slide-timings-0b9502c6-5f6c-40ae-b1e7-e47d8741161c">https://support.microsoft.com/en-us/office/record-a-slide-show-with-narration-and-slide-timings-0b9502c6-5f6c-40ae-b1e7-e47d8741161c</a>	Teacher educators can turn their PowerPoints into timed self-running slide decks that include sound and narration.
Miro	<a href="https://miro.com/">https://miro.com/</a>	Miro is a fast, free, and simple-to-use digital whiteboard built to help teacher educators interact and collaborate with candidates.
Nearpod	<a href="https://nearpod.com">Nearpod.com</a>	This platform combines presentation, collaboration, and real-time assessment tools into one integrated solution.
Padlet	<a href="https://padlet.com/">https://padlet.com/</a>	Padlet allows <ul style="list-style-type: none"> <li>■ adding posts with one click, copy-pasting, or dragging and dropping;</li> <li>■ working the way your mind works—with sight, sound, and touch;</li> <li>■ autosaving changes; and</li> <li>■ sharing simple links for quick collaboration.</li> </ul>
Pear Deck	<a href="https://www.peardeck.com/">https://www.peardeck.com/</a>	Pear Deck is designed for the use of formative assessment, that provides teacher educators and candidates with opportunities to engage with content.
Piktochart	<a href="https://piktochart.com/">https://piktochart.com/</a>	Piktochart offers infographics, presentations, and reports maker.
Socrative	<a href="https://www.socrative.com/">https://www.socrative.com/</a>	Teacher educators can create formative assessments through quizzes, quick question polls, exit tickets, and space races, all with their Socrative app. Socrative will instantly grade, aggregate, and provide visuals of results to help identify opportunities for further instruction.

## Classroom management

Name of app, platform, or software	Link to website	Description
ClassDojo	<a href="https://www.classdojo.com/remotelearning">https://www.classdojo.com/remotelearning</a>	ClassDojo helps classroom teachers instantly communicate and engage with all families and students, to keep building strong relationships, whether teaching remotely or in person.
Instant Classroom	<a href="https://www.superteachertools.us/instantclassroom/">https://www.superteachertools.us/instantclassroom/</a>	Instant Classroom easily creates an unlimited number of classes with up to 100 students each.  Allows for management of classes online with the <ul style="list-style-type: none"><li>■ Seating Chart Maker</li><li>■ Random Name Generator</li><li>■ Classroom Group Maker</li></ul>

## Remote collaboration, teaching, and meeting platforms

Name of app, platform, or software	Link to website	Description
Dotstorming	<a href="https://dotstorming.com">https://dotstorming.com</a>	Dotstorming presents a collection of tools allowing for collaborative brainstorming and decision making.
Google Classroom	<a href="https://edu.google.com/products/classroom/">https://edu.google.com/products/classroom/</a>	Google Classroom is a secure tool that helps educators manage, measure, and enrich learning experiences.
Google Drive	<a href="https://drive.google.com">https://drive.google.com</a>	Google Drive is a cloud-based storage solution that allows saving files online and accessing them anywhere from any smartphone, tablet, or computer. Drive also makes it easy for others to edit and collaborate on files.
Zoom	<a href="https://zoom.us/">https://zoom.us/</a>	Zoom is an easy-to-use platform that offers teacher educators synchronous sessions with remote screen-sharing, collaboration, and session recording.

## Discussions

Name of app, platform, or software	Link to website	Description
Flipgrid  (also a fun video option)	<a href="https://info.flipgrid.com/">https://info.flipgrid.com/</a>	Teacher educators can create a discussion topic and share it with their learning community. Candidates record and share short video responses. Can be used also for simulations. Candidates develop a lesson and teach and post to Flipgrid. Other candidates observe video and provide feedback on implementation.
Slack	<a href="https://slack.com/">https://slack.com/</a>	Slack is a group messaging system allowing teacher educators to create a channel for each course, topic, or candidate.
VoiceThread	<a href="https://voicethread.com/">https://voicethread.com/</a>	Voice Thread is an interactive way to add the social element to classroom discussions.
Yellowdig	<a href="https://www.yellowdig.co">https://www.yellowdig.co</a>	Yellowdig is an online community for candidates to share ideas, to pass and absorb related knowledge, and to dig deeper throughout the important act of learning.

## Video platforms

Name of app, platform, or software	Link to website	Description
Animoto	<a href="https://animoto.com/">https://animoto.com/</a>	Animoto allows teacher educators to create and customize their own videos as a creative way to share content with teacher candidates.
Camtasia	<a href="https://www.techsmith.com/video-editor.html">https://www.techsmith.com/video-editor.html</a>	With Camtasia, teacher educators can construct asynchronous lectures with engaging videos with built-in assessments.
GoReact	<a href="https://get.goreact.com/">https://get.goreact.com/</a>	GoReact allows candidates to easily capture video for assessment of vital skills and advanced feedback.

Name of app, platform, or software	Link to website	Description
Mursion	<a href="https://www.mursion.com/">https://www.mursion.com/</a>	Mursion is virtual simulation software that allows candidates to practice remote options of instruction and interact with students in a classroom without physically being there. Requires purchase of a site license.
PlayPosit	<a href="https://go.playposit.com/">https://go.playposit.com/</a>	PlayPosit allows asynchronous learning using interactive short videos that offer delivery of material in short segments in sequential order.
Screencast-O-Matic	<a href="https://screencast-o-matic.com/">https://screencast-o-matic.com/</a>	With Screencast-O-Matic, teacher educators create flipped/blended learning classrooms, video conversations, student assignments, feedback, and much more.

## APPENDIX C.

### Reenvisioning Practice-Based Opportunities Within Online Environments: Examples From the Field

In the subsequent section we provide a more detailed description of each of the seven practice-based preparations in teacher education in virtual learning environments.

APPENDIX C.1
Case Study



Varied Learning



Analyzing and Reflecting

<b>Where</b>	Clemson University, Clemson, South Carolina
<b>Who</b>	Abby Allen, assistant professor
<b>What</b>	<p>Dr. Allen has been a Clemson faculty member since 2016. She teaches undergraduate courses for Special Education majors in their junior year about early intervention strategies for young students and characteristics of and ways to identify autism spectrum disorder (ASD).</p> <p>When COVID interrupted field experiences, Dr. Allen had to adapt to find another way for candidates to acquire the knowledge and skills that they would typically be developing in their practicum. She looked across previous assignments based on field placements and developed a fictional student profile of an early childhood student with ASD for her junior candidates. This practicum is one of the candidates' first experiences in the field, and it consists primarily of observation.</p>
<b>How</b>	<p>The original assignment was for candidates to observe a student with ASD within their placement and to summarize the strengths and challenges for the learner. On the basis of these observations, candidates were to design an instructional activity tailored to the student's individual needs.</p> <p>Dr. Allen developed a case study to support candidates in deepening their understanding of early childhood learners with ASD. The case study integrated data on the student's medical history, current academic and socioemotional level of functioning, and descriptive data related to the student's behaviors during different parts of his instructional day (e.g., snack, play, circle time).</p> <p>In preparation for each segment of the case study, Dr. Allen introduced new content and provided models through videos.</p>

For example, when introducing new academic data, Dr. Allen might show a YouTube™ video of a teacher administering an assessment similar to the measure used in the case study, or when teaching candidates the characteristics of young children with ASD, she might show a video of a student of a similar age and with similar behaviors to the learner's in the case study.

The case study was broken into segments and taught across the entire semester with the cumulating assignment for teacher candidates to design an instructional activity aligned with the student's individual academic and socioemotional needs during circle time. At each phase, candidates received feedback from the teacher educator.

#### Tips for Implementation

Dr. Allen suggests starting with a shell. One example of this would be to start with a National Center on Intensive Intervention, (IRIS Center), module and tailor it to the course objectives. Then teacher educators should decide what they want their teacher candidates to focus on with each case study, video model, or other method.

Dr. Allen has seen great outcomes with her teacher candidates. She has noticed that the greatest improvements have been in confidence and self-efficacy for most of her candidates between participating in the first and second simulator sessions. Also, this type of case learning work has been easing the stress of her candidates over having to find a student for the project within field placements; case learning provides consistency, and candidates feel more control in their school work. However, the challenges involved with this approach are that candidates need to create and assemble materials themselves, have to plan the way they want to make up their students' data to arrive at a specific conclusion and must decide on the way to score and keep track of performance and also manage pieces for the simulator when using Mursion lab.

**APPENDIX C.2 | Rehearsal**


**Where** Georgia State University, Atlanta, Georgia

**Who** Dr. DaShaunda Patterson, associate dean for Faculty Development and Equity

**What** In this practice-based approach, candidates prepare and teach 10-minute minilessons around content in which they are self-identified “experts.” Their peers give feedback on the basis of the following guiding questions: “What was the purpose of the leader’s lesson?” and “Does the product provide evidence of learning the purpose?” The aim of this exercise is to help candidates develop an instructional segment that aligns purpose (objectives), process (teaching strategy or approach), and product (the outcome that is directly connected to the objective) on a content-neutral topic. Dr. Patterson integrates rehearsal into her instructional methods class in one of the following two programs: master of arts in Teaching (MAT) in special education, in the 2nd of 5 semesters; and undergraduate dual elementary and special education teaching, in the 2nd semester of junior year. Rehearsal is also utilized in conjunction with candidates’ first practicum.

**How** Dr. Patterson created this opportunity because in-person observation of instruction was not occurring and she also noticed that candidates were not making connections to their lesson planning and quality of instruction. She also saw that traditional observation induced anxiety in candidates. She wanted to design a process that took a step back from the overwhelming observation forms and focused solely on the fundamentals—the practices teachers needed to develop in order to deliver a lesson. The purpose of this lesson was to help teach candidates with the basics of lesson planning. First, Dr. Patterson taught about lesson plans, teaching the candidates the way to define the lesson’s purpose, process, and product. Then candidates created a 10-minute minilesson in which they taught small groups of three or four peers about a topic of their choice.

This lesson provided an opportunity for candidates to rehearse delivering a lesson with content they were comfortable with, thus reducing any anxiety related to content knowledge. This also ensured that the feedback did not focus on how much the teacher knew; it focused on what the teacher did or did not do to help students grasp the content. When giving feedback, candidates focused on process and interaction, not content knowledge.

When instruction shifted to virtual learning because of COVID-19, Dr. Patterson restructured her approach to rehearsal. Instead of the candidates' teaching the lesson live in class to their peers, candidates now recorded their minilessons. Candidates gave a collective debriefing in small groups via Zoom. A benefit of having recordings was that now the candidates delivering the lesson could watch themselves and partake in the same analysis. The recording could be used by teacher educators to give feedback. The approach was structured for peer observers to utilize a checklist in order to provide focused feedback on the following: Did they teach us what they said they were going to? How do I know? What were the steps they took?

After the instructional delivery and analysis, candidates next analyzed the lesson plan using the following guiding question: Did the lesson plan include a process that allowed the learner to develop a product that matched the purpose? Candidates repeated this activity later in the semester, next using rehearsal to teach content knowledge aligned with upcoming instruction in their practicum.

Candidates have reported that the rehearsal opportunities have changed their approach to lesson planning. They are more intentional about their process and have more clarity regarding what they want their students to learn.

#### Tips for Implementation

Dr. Patterson noted a challenge moving this lesson to an asynchronous virtual format: she had to re-envision the way she might model for candidates staying focused on the guiding question when observing the lesson and providing feedback to peers. She recorded a quick "how to" video for candidates to watch, but because they watched it on their own, they could not ask questions and receive clarification right away. One tip she recommends to overcome this is to have candidates record their lessons in advance, then hold a synchronous Zoom class session in which candidates watch one another's assigned videos in breakout rooms while providing in-time feedback.

Candidates also teach minilessons in the AVATAR lab. They teach the same lesson taught to their peers, but the avatars add another layer with real-time feedback that necessitates that candidates make adjustments in their processes. The lab also reinforces the need for preparation, as candidates must plan the way they anticipate errors and the way they prepare to reteach on the spot. In addition to the avatar feedback, candidates receive feedback from their practicum supervisors.

**APPENDIX C.3 | Video Analysis**


**Where** Virginia Commonwealth University, Richmond, Virginia

**Who** Dr. Adria Hoffman, Anna Lou Schaberg professor of Practice, Teaching and Learning

**What** One way to use video analysis in virtual environments is in a “flipped” course structure. First, students read about a core practice, and then they are provided time during synchronous instruction to watch a video showcasing that practice. After class, they watch the video independently and provide feedback. Teacher educators can provide feedback on candidates’ analyses and approximations of practice. Utilizing video analysis with teacher candidates exposes them to various elements of instruction while providing a framework for examining and analyzing the instructional practices featured within each video. As teacher candidates develop their analysis skills, they are able to apply this thinking to their own instruction to improve their pedagogy.

Dr. Hoffman uses video analysis in her general methods and classroom community and management courses for general and special education teacher candidates. Candidates enrolled in these courses are in their fourth year of undergraduate studies or at the master’s level.

**How** To ensure that the videos successfully model the focus practice, Dr. Hoffman spends time carefully selecting the videos to present to the candidates. To ensure that candidates provide specific feedback on the practices they see in the video, Dr. Hoffman poses questions such as, “What did you see the teacher do?” and “What did the students do in response?” She models video analysis by thinking aloud as she observes the teachers and students in each video. Sometimes Dr. Hoffman uses a video as a model in class and then assigns students to watch it again as homework to complete other activities.

To support her candidates as they develop their analysis skills, Dr. Hoffman encourages them to use direct quotes from the teachers and students in the videos to further foster understanding of the practice. Some core practices, such as eliciting student thinking, are particularly difficult for teacher candidates to analyze, so the teacher educator provides additional support for videos featuring these challenging elements through teacher educator modeling.

Feedback is an integral part of helping teacher candidates develop their skill in analysis. To provide explicit feedback to the teacher candidates, Dr. Hoffman splits the video-based activities into two sections: analysis of practice and approximation of practice. Teacher candidates are required to respond to several prompts—for example

1. Watch this very brief video (links to an external site) of an early childhood classroom transitioning from one learning activity to another.
2. As you watch, write down what you hear the teacher say and the teacher's volume/ tone as she speaks. Direct quotes are encouraged!
3. Replay the video, taking note of the student responses to the teacher's direction.
4. What effective Positive Behavioral Interventions and Supports practices do you notice, and how do you know they are effective?

When providing feedback to teacher candidates, Dr. Hoffman looks for evidence-based practice and HLP language. She also ensures that her candidates are using the associated terminologies correctly. In addition, her feedback focuses on academic grammar and the inclusion of evidence instead of inferences.

As the candidates begin writing their first lesson plans, Dr. Hoffman encourages them to make adaptations with “Track Changes” enabled to insert comments for future lesson planning based on what they have learned from the video analysis. In addition, after learning about each HLP, candidates revise existing lesson plans to incorporate the HLP so they can utilize it the next time they teach that lesson. She also encourages her candidates to keep it simple. She asks them to focus on analyzing one specific example in a video by stating what they hear, see, and notice.

#### Tips for Implementation

Implementing video analysis in a virtual setting can seem daunting. Dr. Hoffman highlights the importance of modeling for teacher candidates. In order for them to develop skills in observation and analysis, extensive out-loud modeling of the thought process is required. In addition, the teacher educator must make clear distinctions between inferences and observations, between evaluative comments such as “The teacher did a good job” and an observational comment such as “The teacher walked over to the table and squatted down beside the students, using proximity.”

**APPENDIX C.4 | Virtual Simulation**


**Where** Kennesaw State University, Kennesaw, Georgia

**Who** Dr. Melissa Driver, associate professor of Special Education, and Dr. Kate Zimmer, director of the AVATAR Lab and associate professor of Special Education

**What** In this practice-based approach, teacher candidates participate in virtual field experiences with avatars representing real students. The AVATAR Lab is a mixed-reality simulation that creates an immersive environment for participants to practice and master skills. It allows teacher candidates to receive immediate feedback on the effectiveness of their instruction and use of behavior management strategies, while providing a safe space for the candidates to make mistakes.

Drs. Driver and Zimmer typically integrate the AVATAR Lab in coursework, and during COVID, it has become the main vehicle for providing field experiences to students. However, it has also been used beyond the college of education, with both nursing and business students.

**How** The AVATAR Lab is a service provided by Mursion, a virtual reality provider (<https://www.mursion.com>). Institutions of Higher Education can either purchase a site license or purchase a select number of hours. The AVATAR lab can be used either on campus or remotely via Zoom.

Upper elementary and middle school emulated classroom environments are available for candidates. The AVATAR Lab also provides the option for simulations that allow candidates to interact in situations such as facilitating an Individualized Education Program meeting or parent–teacher conferences.

The AVATAR Lab has more than 30 premade scenarios and also allows users to create custom-designed scenarios. Examples of premade scenario topics are

- classroom management
- content area lesson delivery
- administrator–teacher evaluations
- parent–teacher conference
- student socioemotional regulation

In custom scenarios, teacher educators can tailor the environment to focus on the specific skills they want candidates to focus on. Mursion provides specialists to assist teacher educators in designing custom scenarios.

### Tips for Implementation

When in a simulated classroom, candidates interact with avatars of children, each of whom has a unique personality. The scenarios have low, medium, and high settings requiring varying levels of problem-solving, allowing teacher educators to provide experiences that align with candidates' ability level. For example, teacher educators might create a scenario focused on behavior management strategies. In a class of first-year candidates, the scenario could be set at the low level, in which student behaviors are mild and student avatars respond easily to teacher candidates' redirections. The low-level setting is ideal for having teacher candidates practice discrete behavior management skills in a low-stakes environment. However, in a class with more advanced students, the scenario might be set at a high level, in which the student avatars' behaviors are more extreme and their reactions to teacher candidates are less compliant, requiring the teacher candidates to be more flexible and responsive in their use of behavior management strategies.

AVATAR sessions also support candidates in developing reflective skills. Teacher educators can assign AVATAR scenarios in a classroom setting, allowing candidates to observe and give feedback to their peers. In addition, AVATAR sessions can be recorded, which allows teacher candidates to watch them and reflect on their performance.

**APPENDIX C.5 | Web-Based Tutoring**


**Where** Northern State University, Aberdeen, South Dakota

**Who** Dr. Timothy T. Houge, professor and Reading Clinic Director

**What** Dr. Houge has been an NSU faculty member and director of the Reading Clinic since 2000. In this role, he coordinates and supervises more than 80 candidates each year. The age of the children receiving tutoring services ranges from kindergarten to 12th grade. Dr. Houge felt that candidates needed a learning environment beyond the classroom that would allow them to practice effectively delivering focused reading/spelling instruction to meet children's literacy needs. In addition, he longed to reach underserved children in rural areas of his home state of South Dakota. As a result, in 2006, he developed a one-on-one online tutoring program. When Covid arrived, Dr. Houge's clinic was already prepped to engage K–12 learners safely in literacy tutoring.

The primary purpose of the reading clinic is to advance K–12 children's literacy skills, using an online synchronous format, and provide a tutorial context for candidates that allows them to practice writing and delivering literacy lessons under the direct supervision of a reading specialist.

**How** Today's world demands teacher preparation programs to develop preservice teachers' basic aptitude for delivering strategic and effective literacy instruction on entering the classroom after graduation. In addition, a sobering percentage of K–12 children cannot successfully spell and read grade-level text. To address these imperatives, NSU developed and implemented a clinical requirement for all candidates majoring in elementary and/or special education that delivered one-on-one literacy instruction to children from the community. Existing research literature makes it clear that preservice teachers benefit from instruction about reading processes and opportunities to practice teaching in a tutorial environment. Furthermore, three essential components for successful implementation are evident: (1) maintain a coordinator—preferably one with a literacy background, (2) require lesson plans, (3) provide training prior to and during the clinical experience, and (4) utilize an online format to expand access of tutors to rural corners of South Dakota.

Prior to enrolling in the clinical experience, candidates complete a 3-hour reading methodology course with a major focus on English orthography and instruction, to accommodate diverse levels of literacy competency for children of various ages. Developing scripted lessons helps candidates build their knowledge and skill for effective instruction. Lesson features include (1) review of the previous lesson; (2) word study instruction, including reading, spelling (explicit teacher-led think-aloud and practice activity); (3) reading of text using comprehension questions and vocabulary; and (4) review of lesson with simple oral or written retelling.

This type of tutoring began the following semester, with three technology prerequisites: audio, video, and chalkboard feature. Lesson plans and implementation of lessons remained intact and maintained the objective of developing candidates' instructional knowledge and serving the needs of the children. At NSU, the candidates tutoring online taught their lessons at the reading clinic even during Covid, allowing the reading clinic director to efficiently supervise each tutoring session. However, this instruction could easily happen remotely.

#### Tips for Implementation

Candidates experienced challenges as they moved from face-to-face instruction to online instruction; most notable was student engagement. Day-to-day environmental activities such as UPS or USPS delivery services, pets, or siblings crawling onto a child's lap were a distraction. This problem was addressed by providing children with a headset equipped with a microphone. Although they were not noise cancelling, the headsets did improve engagement, and the microphone aided in delivering crisp audio while the candidate and student conversed.

Similarly, candidates noted that behavior during video tutoring was sometimes difficult to manage, or at the very least consumed more time than if they were meeting in a face-to-face tutoring session. For example, a child might intentionally sit outside the view of the camera or leave the tutoring session. This challenge was addressed prior to the start of ongoing tutoring by providing the child's parent or guardian with a written document of requirements for establishing a positive learning environment.

## APPENDIX C.6 | Online Lesson Study



**Where** Whitworth University, Spokane, Washington

**Who** Kristen Arnold, EdD, teacher educator

**What** Lesson study is a backward-design practice-based approach that provides opportunities for authentic instruction and deliberate practice within clinical settings. In lesson study, candidates plan a series of lessons in teams, implement the lessons, record themselves teaching the lessons, observe, and reflect on the impact of their instruction on students' learning. Teachers carefully explore all aspects of student learning, thinking, and behaviors to improve teaching strategies and methods. Lesson study promotes teacher candidates' development of reflective instructional planning and analysis skills. Candidates build knowledge about the way students learn and think and the way their instruction affects their students' thinking. Lesson study supports teacher educators in aligning course content with fieldwork.

Dr. Arnold uses lesson study in a 13-month master's program that grants preservice teachers a concurrent master's degree and a Washington State teaching certificate. Candidates choose either an elementary or secondary general education track for their program of study.

**How** Dr. Arnold has broken lesson study into a five-step process for her students. Teacher candidates learn and practice the steps one at a time as they learn instructional strategies. High-leverage practices (HLPs) are embedded in each step (related HLPs are listed at the end of each step). The steps are as follows:

1. Step 1: Collect and analyze student data. In the first step, teacher candidates learn about using student performance data to inform their instructional decisions. In this step, the candidates collect data from an entire class of students. They work together to analyze the data, identifying students who may be at-risk, and describe the performance level of the entire class. (HLP #6: Use student assessment data, analyze instructional practices, and make necessary adjustments that improve student outcomes.)
2. Step 2: Plan lesson with lesson study team. This step typically starts about a month into the course, at a point when the students feel comfortable and able to easily converse in pairs, in small groups, and in front of the whole class. Step 2 is designed

to build collaboration, trust, and the ability to be vulnerable in front of others. In this step, teacher candidates are placed into groups of three. They meet with their groups to plan instruction based on student data and grade-level curriculum. (HLP #12: Systematically design instruction toward a specific learning goal; HLP #13: Adapt curriculum tasks and materials for specific learning goals; HLP #1: Collaborate with professionals to increase student success.)

3. Step 3: Teach and record lesson. During a 2-week window, students teach and record their lesson. (HLP #16: Use explicit instruction.) Instruction can be provided in virtual, hybrid, or face-to-face environments.
4. Step 4: Observe and analyze instruction. In this step, candidates watch peers' and their own videos, using a rubric to guide their observations. On the basis of the evidence of observed student learning, candidates reflect deeply on the peer's actions that supported (or hindered) student learning. (HLP #6: Use student assessment data, analyze instructional practices, and make necessary adjustments that improve student outcomes.)
5. Step 5: Debrief. The last step of lesson study involves a whole class debriefing led by a facilitator, who is a teacher candidate volunteer from the class. Dr. Arnold records this session and uploads it to the university's learning management system for candidates to review.

Lesson study increases teacher candidates' understanding of why reflection is essential to their practice, as well as how to refine their own practice of self-reflection. Lesson study cycles also allow teacher educators to set specific foci for analysis and improvement, such as providing opportunities to respond or specific feedback. The videos also provide a record of teacher candidates' growth over time, which can be beneficial to teacher educators and to the candidates themselves.

#### Tips for Implementation

In a virtual setting, candidates can share their lesson videos via a secure platform (e.g., Canvas, Blackboard). Teacher educators should consult with their college staff to identify a platform that conforms with the Family Educational Rights and Privacy Act standards. Many video platforms support peer feedback and reflection by providing a way to annotate videos. Annotations allow teacher candidates (and teacher educators) to post time-stamped comments on students' videos. Teacher candidates can hold group meetings to reflect and provide feedback on their teaching, using any online video conference software (e.g., Zoom, Google Meet).

Providing lesson study teams a structure for their planning, observation, and debriefing is critical. Dr. Arnold does this by using an e-Workbook TM (Google Drive) as a framework to guide candidates through each phase of the lesson study process.

Recording video can be challenging in virtual classrooms. School districts may have policies against recording the actual class settings. If not, teacher candidates must still receive permission from students' guardians in order to record. If they are not able to record the actual session, they may be able to record just themselves teaching it by putting a camera or smart phone facing themselves so as to avoid recording students on video. This may also require guardian permission, however. Teacher educators should consult with school district personnel to find out their policies on recording virtual classrooms.

**APPENDIX C.7****Virtual Field Placements****Where**

Mary Lou Fulton Teachers College (MLFTC), Arizona State University (ASU), Tempe, Arizona

**Who**

Ashley Katikos, assistant division director Professional Experiences; Betsy Fowler, executive director Strategic Initiatives ASU Prep Digital; and Jill Rogier head of Schools ASU Prep Digital

**What**

During COVID, Mary Lou Fulton Teachers College partnered with ASU Prep Digital to place undergraduate and graduate teacher candidates from elementary education, special education, and secondary education into virtual field placements.

**How**

Virtual placements provide candidates multiple models. No longer bound by place, candidates are able to observe instruction and work with mentor teachers across grade levels and content areas, as well as mentor teachers and P–12 students from states across the Southwest.

Before beginning their online practicum experience, teacher candidates engage in a professional development series to support their knowledge and skills around best practice for online/digital teaching. This introduction to online instruction familiarizes teacher candidates with the learning platform and exposes them to strategies that provide support for designing engaging online instruction and activities.

All instruction within ASU Prep Digital is recorded. This allows candidates' learning experiences to transcend time as candidates engage in both synchronous and asynchronous practicum experiences. Each week, candidates are provided with a Playlist, a digital newsletter, featuring the week's digital pedagogical learning goals and a menu of required and elective practicum experiences. The Playlist allows candidates to engage in a series of intentionally structured practicum experiences that are both shared and personalized to candidates' degree program (e.g., special education, general education, or secondary) and interests. For example, candidates may have a synchronous observation of a lesson, coupled with the directions to complete two asynchronous extension activities based on their degree program and one activity of each candidate's personal choice.

As beginning candidates progress in their first teaching placements, the experiences they are afforded become increasingly more complex. First, candidates engage in observation, and next they will teach one on one or tutor a small group of students. After these experiences, candidates plan and deliver an entire digital lesson. During this process, candidates receive feedback from their peers, ASU faculty, and mentor teachers.

Candidates in more advanced placements are assigned a lead mentor teacher and placed on an instructional team. Instructional teams are comprised of two or three senior-year candidates completing student teaching or advanced internship (first semester junior year or first semester graduate) who request to have the digital experience. ASU Prep Digital teachers engage in planning, just as any other traditional brick-and-mortar teaching team would. Teacher candidates are involved in weekly planning meetings with the lead mentor teacher. In addition, the mentor teacher is supporting the team by determining appropriate roles that each candidate will play in the learning environment. Roles may include student engagement support, small-group instructor, and tutoring support. <https://workforce.education.asu.edu/wp-content/uploads/2020/11/New-support-roles-for-educator-teams-in-online-hybrid-settings-v2.pdf>

The Teacher Advancement Program (TAP) rubric is used as both a mechanism for feedback and a tool for self-reflection and analysis. To increase coherence, MLFTC site coordinators work closely with MLFTC faculty teaching coursework. Featured each week is a specific TAP indicator that aligns with course objectives. The playlist items are created around skills and strategies that are built into small-group student tutoring sessions and the culminating development of a full lesson. Candidates are given ample ideas and strategies to be successful in a digital platform.

#### Tips for Implementation

Partnerships matter. The MLFTC leadership meets weekly with ASU Prep Digital leadership. During these calls, the team discusses the mutual needs of mentor teachers and teacher candidates.

Teacher candidate feedback has played an important role in ensuring that candidates have positive and diverse experiences. After every observation or instructional experience, the teacher candidates complete a brief exit survey. Feedback from candidates drives the design of the experience. Data from the exit survey incorporates candidates' satisfaction with all aspects of their digital student teacher training, including (a) ease of using technology, (b) quality of training content/materials, (c) flexibility to meet the schedule and (d) support for teaching provided by the ASU team.





This content was produced under U.S. Department of Education, Office of Special Education Programs, Award No. H325A170003. David Guardino serves as the project officer. The views expressed herein do not necessarily represent the positions or policies of the U.S. Department of Education. No official endorsement by the U.S. Department of Education of any project, commodity, service, or enterprise mentioned in this website is intended or should be inferred.