Learning to Teach

Practice-Based Preparation in Teacher Education

Special Issues Brief

Center on GREAT TEACHERS & LEADERS at American Institutes for Research

CEEDAR CENTER

IDEAs that Work
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In Brief

The Challenge	The Opportunity	The Lessons
Learning to teach is not easy. Effective teachers have knowledge and skill sets that less effective teachers do not. This type of instructional expertise does not come from engaging in observation of teaching or from reading about the philosophy of teaching alone. It is developed through careful practice coupled with constructive feedback. For teacher candidates to learn to be effective, they need high-quality opportunities to practice. These opportunities, although informed by research, are often difficult to integrate due to intensive emphasis on coursework and challenges with finding high-quality placements in the field.	Educator preparation programs (EPPs), their faculty, and the local districts can work collaboratively to incorporate the essential features of practice-based opportunities within and across EPPs to structure coursework and field experiences that cultivate the skills that candidates need as beginning teachers.	EPPs and their faculty work with local districts to fully incorporate effective, deliberate, practice-based opportunities within both campus-based coursework and field experiences that encompass the features of deliberate practice: practice that is sequenced, coherent, and scaffolded over time and coupled with coaching, feedback, and reflection.

This Special Issues Brief from the Collaboration for Effective Educator Development, Accountability and Reform (CEEDAR Center) and the Center on Great Teachers and Leaders (GTL Center) outlines essential features for providing high-quality, structured, and sequenced opportunities to practice within teacher preparation programs. This brief is intended to support states, districts, and EPPs that are striving to prepare and support excellent teachers by:

- Showcasing several teacher preparation programs wherein faculty have enacted innovative strategies to embed practice-based opportunities into existing coursework and field experiences that more closely connect with the realistic demands of today's classrooms.
- Strengthening understanding of several practice-based approaches, informed by the science of learning, which have been found to increase beginning teacher candidates' capacity for teaching.
- Identifying potential action steps that EPPs, districts, and states can take to improve candidates' opportunities to practice.

The brief is intended for use by EPPs, districts, and state education agencies (SEAs). The information and considerations presented will be especially useful for EPP faculty engaged in transforming programs and for state policymakers in rethinking program approval requirements.

Introduction

Learning to teach is not easy. Effective teachers have knowledge and skill sets that less effective teachers do not. This type of knowledge and skill is not developed from reading books or studying about teaching alone (Phelps, 2009; Ball & Forzani, 2009). Rather, it is cultivated through high-quality opportunities to practice, coupled with support and feedback. Research in medicine, the military, and other performance-based fields consistently demonstrates that expertise is developed through repeated, well-structured opportunities to practice using knowledge and skills in authentic contexts. These practice-based opportunities teach novices to integrate critical knowledge and skills they need to teach effectively while receiving valuable feedback. Most importantly, it is the commitment toward deliberate opportunities to practice, rather than experience, that separates experts from their peers (Ericsson, 2014).

Why are practice-based opportunities important?

Candidates are more likely to be effective and to stay in the profession when their preparation experiences are connected to classroom practice (Boyd, Lankford, Loeb, & Wyckoff, 2009; Ronfeldt & Reininger, 2012).

Practice-based opportunities that are coherent, sequenced, and scaffolded can help teacher candidates automatize their knowledge and skill for teaching prior to entering complex classroom settings. Carefully structured practice sequences allow novices to develop skill fluency and decision-making abilities prior to entering settings in which mistakes can be costly. Candidates need a seamless experience from preservice to inservice that is strategic, where knowledge and skills are gradually developed and internalized, and where candidates employ metacognitive strategies to continually reflect upon their experiences and grow in their practice. Practice-based experiences matter; they provide candidates time to apply content pedagogy, to gain real experience, to understand school relationships—and, most importantly—to work with students within a supervised context.

Practice-Based Opportunities: What Are They?

Practice-based opportunities are those that afford candidates opportunities to integrate both content and pedagogy acquired through coursework into instruction (e.g., Ericsson, 2014). Simply put, this means that the skills learned in coursework—for example, evidence-based instructional practice—are then practiced. Despite the somewhat limited research base in teacher education (Zeichner, 2012), the science of effective practice is informed by a rich, deep body of scholarship that remains

promising and that can be leveraged to bolster EPPs. Teacher educators can draw upon this substantive research foundation to guide effective structuring of practice-based opportunities for candidates during coursework and field placements.

Three overarching ideas should guide the development of practice-based opportunities:

- **Focus.** The extent to which opportunities to practice emphasize the critical content and pedagogy depicted within the teacher standards; what all teachers need to know and be able to do (e.g., Ball & Forzani, 2009).
- **Duration.** The length of time candidates are provided to extend learning and develop mastery of the critical content and pedagogical approaches needed to be "learner ready" from day one (De La Paz, Malkus, Monte-Sano, & Montanaro, 2011; Hindman, Wasik, & Snell, 2016).
- **Coherence.** The extent to which common expectations of instructional practice are reinforced and advanced throughout and across coursework and field experiences, and the degree to which classes and courses are aligned, sequenced, and scaffolded (Phillips, Desimone, & Smith, 2011).

The *quality* of practice opportunities is as important as the *quantity* of practice opportunities provided, especially for beginning teachers. Critical skills and knowledge learned through coursework should be practiced repeatedly in increasingly complex settings to support teacher candidate learning. Thus, teacher educators should embed practice-based opportunities within both campus-based coursework and field experiences that are tightly aligned with skills and practices taught. They also should provide coaching, feedback, and opportunities for reflection so that their teacher candidates can develop the ability to teach effectively.

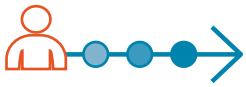
Planned, guided, and sustained interactions with students early and often during preparation are important. However, quality is more important than quantity. Practice-based opportunities are most effective when they are carefully planned, are interwoven with coursework, occur in high-quality settings, and are coupled with opportunities for feedback and reflection (Brownell, Chard, Benedict, & Lignugaris-Kraft, in press).

Features of High-Quality, Practice-Based Opportunities

The power of practice-based opportunities can be lost if they are not carefully and strategically organized and delivered. Without thoughtful attention to organization and delivery, programs can incorporate yearlong residency programs and still produce ill-prepared candidates. All opportunities to practice can be strengthened considerably when teacher educators are mindful of the essential features of high-quality, practice-based opportunities. Building on the science of effective practice, EPPs and teacher educators would do well to fully incorporate the following features into all practice-based opportunities:

Modeling is how teacher educators provide candidates examples of what expert performance looks like in practice.

- Teacher educators can model practices, explicitly demonstrating what expert performance looks like while also making visible the underlying knowledge base and thought processes being drawn upon while enacting the practice or skill.
- Pairing the use of "think-alouds" with modeling can be done to foster teacher-like thinking (Roberts, Benedict, & Thomas, 2014). Think-alouds can make expert decision-making processes transparent, helping candidates understand how instructional decisions are informed by specific pedagogical content knowledge, student thinking, and awareness of students' experiences as learners (Feiman-Nemser, 2001).



Spaced learning opportunities are those that offer candidates opportunities to practice the knowledge and skills acquired in coursework over a period of time, that are sustained and repeated, and that are scaffolded to deepen candidate expertise.

- Spaced learning opportunities provide experiences to apply knowledge and skills acquired through coursework; they increase candidates' overall effectiveness (e.g., Cepeda, Pashler, Vul, Wixted, & Rohrer, 2006; Russ-Eft, 2002).
- Executed well, these opportunities work to extend candidates' current knowledge through support and guidance, which are gradually removed as candidates grow more proficient (Beed, Hawkins, & Roller, 1991).

Varied learning opportunities are those that provide candidates with opportunities to practice the knowledge and skills they learned in their coursework across varying contexts, with a diverse range of student learners, and with differing degrees of support.

- Varied learning opportunities expose candidates to multiple contexts (e.g., general education classroom, co-taught classroom, resource room) in which students require varying levels of instructional support (e.g., typical developing learners, students with disabilities, struggling learners, English language learners). Varied learning opportunities play a critical role in deepening candidate expertise.

- Varied learning opportunities allow candidates to practice in different contexts and under different conditions; they are interleaved and allow learners to practice two or more strategies at once (e.g., Dunlosky, Rawson, Marsh, Nation, & Willingham, 2013; Taylor & Rohrer, 2010).

Coaching and feedback opportunities are those in which supervisors provide explicit coaching and constructive feedback as candidates practice the knowledge and skills they acquired in their coursework. The focus of the coaching and feedback is on improving candidates' practice and expertise.

- Coaching and feedback are fully integrated within opportunities to practice. This purposeful pairing assists candidates in understanding what effective implementation looks and feels like (Ericsson, 2009; Kellogg & Whiteford, 2009).

- Provided over time, coaching and feedback promote increased independence and, if applied correctly, should promote candidates' capacity to reflect on their own practice.

Analyzing and reflecting opportunities are those in which candidates practice the knowledge and skills they acquired in their coursework while engaging in analysis and reflection upon both their practice and their impact on student learning.

- Candidates are provided with opportunities to analyze and reflect upon their practice before, during, and after instruction (Berliner, 1986), and they are expected to employ metacognitive skills to both reflect upon and improve their practice (Nagro, deBettencourt, Rosenburg, Carran, & Weiss, in press).

- Full integration of analysis and reflection across all points of instruction and practice is a powerful feature that enables candidates to identify areas for improvement so that resources and support can be provided to strengthen candidate performance. This process of metacognition can be carried out with educators across all points of the educator career continuum.

Practice-Based Approaches

High-quality, practice-based approaches can be embedded in both campus-based coursework and field experiences. For the purposes of this document, the term *field experiences* encompasses clinical experiences, field placements, student teaching, and residential programs.

Scaffolded practice-based opportunities are those in which candidates apply the knowledge and skills they acquired through their coursework, within teaching experiences that gradually increase in complexity over time with fading support from teacher educators to promote deeper learning of content, improved instructional implementation, and, ultimately, autonomous performance (Pea, 2004).

- Research has demonstrated that when candidates are provided supportive strategies that are incrementally removed over time, the candidates are more likely to gradually shift toward increased independence and responsibility (Kamman, McCray, & Brownell, 2014).

Although the essential features of high-quality, practice-based opportunities are listed separately, they often are—and should be—integrated to provide practice opportunities that are ideal for achieving skill fluency and that launch candidates on a path toward acquiring well-integrated knowledge more reflective of experts (Brownell, Chard, Benedict, & Lignugaris/Kraft, in press). These features are highlighted within the course-based and field-embedded, practice-based examples that follow and that are further described in the appendices.

Practice-Based Opportunities Within Teacher Education: Supporting Teaching Candidates' Learning

By integrating pedagogical approaches that incorporate the features of deliberate practice described earlier, teacher educators can support candidates in developing candidate readiness or preparedness for delivering effective instruction. In the section that follows, several high-quality, practice-based approaches are highlighted, including practical examples of innovation within EPPs.

Practice-Based Opportunities in Campus-Based Coursework

Practice-based opportunities in campus-based coursework advance candidates' confidence and skills in a particular pedagogical practice before they set foot in the classroom. Following are four examples of practice-based opportunities that can be embedded in coursework by teacher educators. Alignment to the features of high-quality, practice-based opportunities is denoted within each example.

Microteaching is a practice-based approach in which candidates plan a lesson and teach it in front of their peers. The candidates are provided coaching, feedback, and the opportunity for reflection. Microteaching includes:

- A mechanism to familiarize candidates with new content and strategies, whereby impact is most powerful when followed by additional practice in more authentic settings (e.g., virtual simulations, field-based classrooms; Dawson & Lignugaris/Kraft, 2013; Elford, Carter, & Aronin, 2013; Garland, Vasquez, & Pearl, 2012).
- Rehearsal of content and delivery of instructional strategies before engaging P–12 learners (Kamman, McCray, & Brownell, 2014).
- Feedback to the candidate following the lesson, coupled with opportunity for reflection.

PRACTICAL EXAMPLE | **Laboratory Experiences**
(Virtual simulations and lab-like experiences)

Where University of Michigan's TeachingWorks Center

Who Dr. Deborah Lowenberg Ball, Professor and Director of TeachingWorks, and Nicole Garcia, Director of the Elementary Mathematics Laboratory

What The Elementary Mathematics Laboratory (EML) is a multilayered professional development experience taught by Dr. Deborah Loewenberg Ball, a professor at the University of Michigan and the director of TeachingWorks, and facilitated in collaboration with Ms. Nicole Garcia. EML partners with local school districts to enroll students in the upper elementary grades in the program. Practicing teachers, curriculum leaders, district administrators, teacher educators, and researchers around the world come to observe and reflect on problems of mathematical practice and instruction.

For more information on this example, download the full Practical Example overview (http://www.gtlcenter.org/sites/default/files/Laboratory_Experiences.pdf).

Case-based instruction is a technique that teacher educators use whereby candidates analyze cases of instruction across various contexts as a method for advancing candidates' conceptual understanding of new pedagogical content, and

their ability to analyze instruction and student learning in real-life teaching situations (Kagan, 1993).

- Case-based instruction can be coupled with technology and is especially promising for assisting candidates in generalizing newly acquired skill to classroom practice.
- Video-case instruction can be integrated with case-based instruction in which candidates observe and analyze practice via video (see the video analysis description on pages 9–10 in this brief) to help candidates learn to analyze the effectiveness of instruction.
- Video-case instruction research suggests that teacher candidates had better analytical skills than peers who did not participate in the exercise (Anderson & Lignugaris/Kraft, 2006).

Virtual simulations and lab-like experiences are approaches that teacher educators can use to give candidates practice teaching in virtual, or more controlled, environments before they begin to teach students in the classroom (Clark, 2013).

- This approach has been demonstrated to be very promising in supporting novice teachers' ability to transfer skills first practiced within a simulated environment to the classroom setting (Dieker, Straub, Hughes, Hynes, & Hardin, 2014).
- TLE TeachLivE™ (Dieker, Hynes, Hughes, & Smith, 2008) predominantly use virtual simulations through the use of an avatar-based, mixed-reality lab (see the practical example).

PRACTICAL EXAMPLE | **Virtual Simulation**

Where University of Central Florida

Who Dr. Lisa Dieker, Professor and Lockheed Martin Eminent Scholar, Developer of TeachLivE™

What TeachLivE™, an avatar-based learning platform, affords teachers an opportunity to practice teaching content and positive behavior strategies within a virtual environment. In this mixed-reality environment, teacher educators have the ability to personalize a candidate's instructional experience to specific content based on the candidate's learning needs. Teacher educators can adjust the number of students whom the candidate is teaching, the students' characteristics, and the instructional content area being taught. The platform addresses a wide range of content areas, grade levels, and situations, from instruction in middle school science to addressing a crisis prevention situation, or providing instruction to a small group of preschool students with autism.

For more information on this example, download the full Practical Example overview (http://www.gtlcenter.org/sites/default/files/Virtual_Simulation.pdf).

Field-Based, Practice-Based Experiences

Coupling coursework with field-based, practice-based opportunities for teacher candidates is a powerful approach to teacher development. When these opportunities are scaffolded and deliberately designed to be aligned with coursework content and evidence-based practices, candidates are able to practice applying newly acquired knowledge and skills in the classroom setting while receiving the support they need in learning to teach (Brownell, Chard, Benedict, & Lignugaris/Kraft, in press). Following are examples of approaches that teacher educators can take to structure effective, practice-based opportunities that support learning in coursework.

Coursework-aligned, field-based practice opportunities are field-based placements that are components of, or are closely aligned with, program coursework. Candidates are provided opportunities to practice the knowledge and skills they acquired through coursework in authentic settings. These opportunities:

- Offer significant potential for deepening candidates' knowledge for teaching and improving classroom practices (Maheady, Jabot, Rey, & Michielli-Pendl, 2007).
- Have been found to improve candidates' use of evidence-based practices and degree of fidelity when practices learned in classes are applied with students in authentic settings (Maheady et al, 2007).

PRACTICAL EXAMPLE | **Coursework-Aligned, Field-Based Practice Opportunities**

Where State University of New York (SUNY), Buffalo State

Who Dr. Lawrence Maheady, Professor and Horance Mann Endowed Chair

What The Responsive Educator Program includes a series of highly structured, developmentally sequenced clinical experiences that begin during candidates' first year and continue throughout the program. Preservice candidates gradually assume more instructional responsibilities by teaching individuals, small groups, and entire classes in predominantly high-need schools.

For more information on this example, download the full Practical Example overview (http://www.gtlcenter.org/sites/default/files/Scaffold_Field_Experiences.pdf).

Video analysis is a practice in which teachers' instructional experiences are captured on video and used as a tool for teacher educators to engage candidates in observation and discussion concerning effective practice. Video models include:

- Opportunities for candidates to analyze videos of practicing teachers, their own instruction, and their peers' instruction. Candidates can engage in reflection and discussion concerning observed practices and identify strengths and

areas for improvement (Borko, Jacobs, Eiteljorg, & Pitman, 2008; Friel & Carboni, 2000).

- Modeling practice through video, allowing candidates to observe and experience this practice, advancing candidates' capacity to analyze instruction (Santagata, Zannoni, & Stigler, 2007).
- Discussion and analysis that research suggests positively affect candidates' self-analysis of instruction (Santagata, Zannoni, & Stigler, 2007).

PRACTICAL EXAMPLE | Video Analysis

Where University of Virginia

Who Dr. Adria Hoffman, Field Placement Coordinator

What MyTeachingPartner–Preservice (MTPP) is a professional development system developed in collaboration with colleagues (e.g., Allen, Pianta, Gregory, Mikami, & Lun, 2011) and is designed to support teachers through video analysis and individualized coaching. Preservice teachers record themselves teaching and are provided high-quality feedback and a structure for how to reflect, revise, and monitor changes to instruction based on feedback.

For more information on this example, download the full Practical Example overview (http://www.gtlcenter.org/sites/default/files/Video_Analysis.pdf).

Tutoring is a structured opportunity to practice, such as one-on-one teaching, allowing candidates to practice teaching using newly acquired pedagogical knowledge and instructional skills within a controlled environment.

- Tutoring is effective at improving candidates' implementation of evidence-based practices as well as the academic performance of struggling learners (e.g., Al Otaiba, 2005; Al Otaiba et al., 2012; Spear-Swerling, 2009, Spear-Swerling & Brucker, 2003).
- This approach allows teacher candidates to develop some facility with implementing instructional approaches prior to employing them in more complex classroom settings in which many cognitive distractions exist.

PRACTICAL EXAMPLE | Structured Tutoring

Where Southern Methodist University

Who Dr. Stephanie Al Otaiba, Centennial Chair in Teaching and Learning

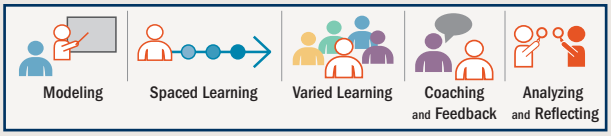
What Structured tutoring is a practice-based approach that teacher educators can tightly align with coursework by providing candidates the opportunity to apply content and instructional practices directly acquired through coursework within a supervised, authentic environment.

For more information on this example, download the full Practical Example overview (http://www.gtlcenter.org/sites/default/files/Structured_Tutoring.pdf).

Lesson study is a collaborative, practice-based approach that involves teams of teacher candidates collaboratively (a) analyzing student data, academic standards, and curriculum; (b) planning a lesson based on that analysis; (c) implementing the instruction with assigned students, (d) analyzing the instruction and its impact on student learning, and (e) debriefing about the lesson and discussing next steps. Lesson study allows:

- Collaborative observation and analysis of practice, which provide teacher candidates' feedback on instruction, promote their ability to implement knowledge and skills, and promote increased reflection and analysis of instruction.
- Opportunities for teacher candidates to think and talk about their instruction in more articulate ways (Roberts & Benedict, in review).
- Opportunities to learn effective collaboration skills, which are integral to the design of effective, coordinated, multi-tiered instruction for students with disabilities (Benedict, 2014).

PRACTICAL EXAMPLE | Lesson Study



Where University of Washington

Who Dr. Carly Roberts, Assistant Professor

What Lesson study's collaborative planning and observation and analysis process can be used as a mechanism to support candidates in transferring knowledge and skills acquired in coursework into classroom practice.

For more information on this example, download the full Practical Example overview (http://www.gtlcenter.org/sites/default/files/Lesson_Study.pdf).

Coaching is a practice used within EPPs during field experiences wherein feedback and coaching are provided to candidates as a means toward improving skill implementation.

- Studies indicate that coaching positively impacts teacher candidates' implementation of effective instruction (e.g., Cornelius & Nagro, 2014; Kretlow & Bartholomew, 2010; Solomon, Klein, & Politylo, 2012).

PRACTICAL EXAMPLE | Bug-in-Ear Coaching

Where University of North Carolina at Greensboro

Who Dr. Marcia Rock, Associate Professor

What Drawing on the research on the relationship between immediate feedback and effective instruction, bug-in-ear (BIE) coaching provides candidates real-time support in improving with instruction and behavior management strategies during the act of teaching.

For more information on this example, download the full Practical Example overview (http://www.gtlcenter.org/sites/default/files/Bug-in-ear_Coaching.pdf).

- Resource-intensive, innovative technology has made coaching more cost-effective and accessible. For example, bug-in-ear (BIE) coaching is one approach that is rapidly gaining popularity because it allows teacher educators to provide support and feedback to teacher candidates remotely (e.g., Scheeler, McKinnon, & Stout, 2012).
- The real-time, corrective feedback provided to candidates during instruction was found to increase the effectiveness of candidates' instruction (Scheeler, Bruno, Grubb, & Seavey, 2009; Scheeler, McAfee, Ruhl, & Lee, 2006).

Resource Highlight

The National Board for Professional Standards' Accomplished Teacher, Learning, and Schools™ (ATLAS) project provides a searchable, online library of authentic videos showing National Board Certified Teachers at work in the classroom. Each video is accompanied by the teacher's written reflection about the instruction or the activity shown. Aligned to professional teaching standards and indexed by teachers, ATLAS serves as a window into what accomplished teaching looks like and is a valuable resource for teacher educators.

This resource can be accessed at http://www.nbpts.org/atlas.

Infrastructure Challenges

High-quality, practice-based opportunities could result in better prepared teachers if the field were to fully acknowledge their essential role in preparation. There are, however, significant barriers that can limit such innovation, and if care is not exercised, these can lead to meaningless structural changes (e.g., extending student teaching) if they do not fully integrate the essential features described earlier.

What are the barriers?

- **Structural.** Campus-based teacher preparation programs are coursework intensive, and these courses offer largely inauthentic opportunities for teacher candidates to apply their knowledge (Leko, Brownell, Sindelar, & Kiely, 2015). Likewise, state certification and program approval requirements may stipulate that a certain number of courses/credits be completed successfully (Geiger, Mickelson, McKeown, Barton, Kleinhammer-Tramill, & Steinbrecher, 2014). These requirements, when viewed strictly as "seat time" or "course based," may be perceived as barriers restricting candidates' access to practice experiences that are routinely associated with field placements.
- **Limited Opportunities.** High-quality, practice-based opportunities, if considered in the traditional sense, may be seen as viable only within field placements. Without strong local partnerships, field placements may become scarce. High-quality field placements that embody aligned philosophical underpinnings about instruction and set expectations for effective instructional practices to be demonstrated in classrooms may be difficult to secure. And, even if placements are secured, cooperating teachers may not receive sufficient training to ensure that observation, feedback, and coaching are provided to support the development of candidate practice.

- **Program Approval and Certification Standards.** State certification standards and program approval requirements often do not prescribe a level of depth concerning expectations of practice-based opportunities as described earlier. In particular, specifics concerning the types of instructional practices that candidates should acquire may be absent or insufficiently defined to ensure consistency in expectations. Understandably, the lengthy regulatory process in the establishment of standards may prevent this level of detail concerning practice. Moreover, the research supporting practice evolves over time, leaving the need to keep standard development at a high or broad level. However, without considerable attention to and provision of detail in other policy and practice levers, this lack of specificity may result in mixed messages and incoherence regarding expectations about effective instructional strategies. Undoubtedly, there are opportunities to influence instruction—within program coursework and field experiences, licensure and certification performance assessments, and observation of practice at the inservice and preservice levels. This level of coherence, however, requires concerted effort and shared coordination across departments, which may be difficult to achieve with demanding—and sometimes conflicting—state and federal requirements.

These barriers are not insurmountable, but they do require thoughtful consideration and planning. Clearly, all parties at the state, preparing program, and district levels share vested interests in the quality and success of teacher candidates; however, the policies, regulations, priorities, and needs do not always lead to an infrastructure that promotes coherence, alignment, and shared ownership. Therefore, partnerships are essential, shared investment is crucial, and deliberate design of practice-based opportunities is fundamental. Innovation at many teacher preparation programs is under way, demonstrating potential and opportunity for replication and scaling up statewide as detailed through the preceding practical examples.

Shared Interest

At each level (federal, state, local, and preparing program) and in every role (chief, faculty, principal, and teacher), there exists a shared interest in the success of our teachers in preparing students for the world that awaits them. Whether through the lens of purpose and/or accountability, there are many initiatives and vehicles emphasizing and reinforcing the need for deep and sustained collaboration to create the policies, leverage the resources, and establish the infrastructure that foster quality preparation and support at both the preservice and inservice levels. Creating authentic, practice-based opportunities—particularly within field experiences—requires shared partnership and investment among the EPPs and districts, with the potential of SEAs advancing such efforts through policy levers.

The National Council for Accreditation of Teacher Education (NCATE), now known as the Council for the Accreditation of Educator Preparation programs (CAEP, 2013), acknowledged the need for shared ownership in the formation of a task force charged with the development and dissemination of the Blue Ribbon Panel report on clinical preparation and partnerships. This report, available at the NCATE website (http://www.ncate.org/Default.aspx), identified two shifts necessary for improving teacher candidates' opportunities to practice in classroom settings:

1. Redesign preparation programs to reflect a more scientific and deliberate approach to adult learning, whereby practice is at the center of teaching preparation.
2. Develop strategic partnerships between university or alternative preparation programs, school districts, and the state. Effective partnerships ensure shared investment and accountability in the preparation of highly effective teachers.

The CAEP standards cite the Blue Ribbon Panel recommendations and provide the framework for partnerships. Specifically, Standard 2 calls for "mutually beneficial partnerships involving preparation providers and various P–12 schools" and "clinical experiences that are of sufficient depth, breadth, diversity, coherence, and duration to demonstrate positive impact on candidates' development and P–12 students learning and development." In addition, the American Association of Colleges for Teacher Education (AACTE) recently affirmed the importance of clinical practice to the field of teacher preparation by assembling a task force to develop a report on this topic that will be released soon. Likewise, state departments, district administrators, principals, and teachers are all implementing a variety of reform initiatives (e.g., Excellent Educators for All Initiative, educator evaluation and support systems, multi-tiered systems of support) in an effort to ensure that there are high-quality teachers in every classroom experiencing success with every student. Although the shared interest is evident, the shared investment, including alignment and coherence across initiatives, is less so.

Weaving It All Together: Considerations at All Levels

Creating authentic, practice-based opportunities—particularly within course-connected field experiences—requires shared partnership and investment among the EPPs, the districts, and even the state departments of education. This moves well beyond the creation of partnerships wherein shared meetings are held on a quarterly basis, but, rather, toward investment in which all partners share accountability for success.

Moreover, with such limited resources and capacity at all levels, these partnerships need to be created to leverage and incentivize efforts (e.g., EPPs, which assist schools in mentoring new teachers in exchange for placing candidates in field experiences).

Requiring EPPs to create partnerships is only one part of the equation. Shared investment can only be achieved if all partners have a demonstrated commitment and established role. Without such, practice-based opportunities will be met with marginal results. Following are considerations—across all levels—that can foster the infrastructure necessary to advance high-quality, practice-based opportunities such that candidates emerge from programs learner ready and devoted (and supported) to continual learning and growth.

State Education Agencies

State departments of education often approve and reapprove preparation programs through the states' program approval policies, through accrediting bodies such as CAEP, or both. Although many policies include requirements for field experiences, most include language indicating that field experiences need to happen early and often. Frequency of experiences, however, does not ensure quality preparation. States might consider strengthening their program approval policies by holding the preparation programs, both traditional and alternative, to the same high standards while accomplishing the following:

- Requiring evidence that practice-based opportunities are embedded within campus-based coursework and field experiences within programs.
- Emphasizing that field experiences need to happen early and often and that field experiences must be deliberate and strategic (i.e., candidates are offered opportunities to practice content and pedagogy learned in coursework).
- Requiring that programs demonstrate how and when candidates apply what they have learned in varied learning contexts, and that the programs are sequenced and scaffolded such that learning is extended and supported to deepen expertise over time.
- Requiring that preparation programs assess and collect meaningful, purposeful data that are direct measures of candidates' knowledge and skills and that demonstrate growth in candidate competency over time.

Potential Funding Resources

ESSA provides an opportunity for states to retain 5% of the Title II A funds, of which 3% of those funds may be used to implement innovation in induction and mentoring. In addition, flexibility is built into the use of Title V: Rural and Low-Income School (RLIS), in which LEAs may use funds across Titles—for example, Title II A—to support teacher development.

- Requiring and/or incentivizing local/district partnerships with EPPs, including mutual investments and shared accountability in candidate readiness. See the callout box leveraging Title II A to facilitate local district partnerships.
- Considering leveraging the Every Student Succeeds Act (ESSA) for opportunities to fund both cooperating teachers and field experience supervisors so that adequate time is available to properly coach candidates, allowing them to improve their practice.

Educator Preparation Programs

Educator Preparation Programs (EPPs) are charged with covering standards at the depth and breadth required within program approval requirements. Adding courses and time within preparation programs is costly and may be unrealistic when return on investment for candidates is considered. Therefore, preparation programs need to be deliberate and strategic in every learning opportunity offered. EPPs might consider strengthening their programs by:

- Assessing program courses and field experiences to identify those that offer practice-based opportunities to learn characterized by the features highlighted earlier. The guidance framework offered in this brief and in the callout box can assist in this process.
- Researching the use of technology (e.g., video platforms, bug-in-ear, virtual simulation) as described in the case studies and determining applicability in and across programs.
- Requiring that all coursework include a practice-based component, particularly in methodology courses and courses that address pedagogy.
- Strengthening expectations of field experiences through shared training across field experience coordinators, cooperating teachers, district administrators, and teacher candidates so that common expectations of practice are achieved, reinforced, and maintained.
- Strengthening field-based experience observation forms so that the field experience supervisors, cooperating teachers, and candidates have a common understanding of instructional expectations.

How are you doing? Do your courses and field experiences fully integrate practice-based opportunities including the essential features?

The CEEDAR Center has developed a guidance framework to help teams of teacher educators to collaboratively analyze their coursework and field-based practice-based approaches. This framework provides a brief description of each feature of high quality practice-based opportunities and guiding questions teacher educators can use to effectively integrate these practice-based approaches into coursework and field experiences. This tool can be accessed for free here: http://www.gtlcenter.org/sites/default/files/Rubric.pdf

- Using the CEEDAR Center's Innovation Configurations (available at http://ceedar.education.ufl.edu/tools/innovation-configurations/) to determine which courses and field experiences address evidence-based practices and offer opportunities to practice. Innovation Configurations may be used in combination with the practice-based guidance framework included in this brief (described earlier) to identify where to strengthen both coursework and field experiences to ensure that they provide deliberate opportunities for practicing instructional strategies.
- Funding and/or incentivizing both cooperating teachers and field experience supervisors so that adequate time is available to properly coach candidates to develop and improve their practice.
- Using in-service teachers as practicum faculty to ensure that training is relevant and practice-based.

Local Districts

Local districts can be quite influential in informing EPPs about the challenges that new educators face and the skill sets they need by assisting in the design of quality, practice-based opportunities and offering high-quality field placements with well-trained cooperating teachers. Therefore, local districts might consider strengthening the preparation of candidates by:

- Engaging in partnerships with EPPs that demonstrate shared commitment, investment, and accountability for the design and establishment of high-quality, practice-based opportunities.
- Engaging with EPPs in discussions and problem solving concerning the establishment of practice-based opportunities. For example, they can be partners in discussions about field-based experiences and help EPPs implement field-based experiences that align with preparation coursework and mirror what candidates are likely to experience in their schools.
- Sharing and advancing consistency in expectations of instructional practice from the EPPs to the classrooms to create a seamless preservice-to-inservice transition (e.g., reinforcing practices taught in EPPs through local educator evaluation models and professional development efforts).
- Encouraging teacher leadership opportunities in which effective teachers are leveraged as cooperating teachers and/or mentors to establish expectations of high-quality, practice-based opportunities—specifically, by reinforcing and rewarding the importance of skilled, cooperating teachers and by establishing expectations of monitoring, coaching, and feedback to reinforce concepts learned in coursework.

- Making available and helping to identify high-quality field expectations for candidates by providing accessible information about the outcomes and objectives (e.g., what are candidates expected to do, learn, and demonstrate?) for performance in the various field experience opportunities.
- Ensuring that a system is in place to provide structure and regular feedback to the EPPs through district leadership and teachers about communication, gaps in training of candidates, and areas for improvement so that the programs can be strengthened.

Concluding Thoughts

Teaching is a complex job. It requires knowledge acquisition and application of practices in highly demanding and challenging contexts. To reach a level of automaticity such that the practice can be implemented with fidelity takes consistent practice with feedback, reflection, coaching, and more practice. This cannot be accomplished without rethinking preparation campus-based coursework and field experience requirements, the relationships between courses and field experiences, and establishing collaborative partnerships wherein all parties are equally vested.

Practice-based approaches to supporting candidates in learning to teach offers a promising opportunity to cultivate novice teachers' skill sets; yet, it is not without controversy. Beyond the limited empirical basis for practice-based approaches to teacher education, some researchers caution that it gives insufficient attention to aspects of teaching that are "fundamentally important for improving the quality of teaching" (e.g., social justice) (Zeichner, 2012, p. 376). Therefore, it is important for teacher educators to remember that it is not just the act of practice itself that is important, but also the quality of the candidates' practice as well as their capacity to examine that practice through various lenses (e.g., impact on student learning, impact on collaborative partnerships). This is challenging work that requires thoughtful planning, coordination, and evaluation. The potential impact, however, is long lasting. Practice-based approaches to supporting candidates in learning to teach can make instrumental strides in closing the achievement gap and ensuring that all students are prepared for the world that awaits them.

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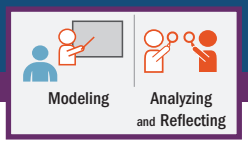
Appendices

PRACTICAL EXAMPLE | **Laboratory Experiences**



Where University of Michigan's TeachingWorks Center

Who Dr. Deborah Lowenberg Ball, Professor and Director of TeachingWorks, and Nicole Garcia, Director of the Elementary Mathematics Laboratory

What The Elementary Mathematics Laboratory (EML) is a multilayered professional development experience taught by Dr. Deborah Loewenberg Ball, a professor at the University of Michigan and the director of TeachingWorks, and facilitated in collaboration with Ms. Nicole Garcia. EML partners with local school districts to enroll students in the upper elementary grades in the program. Practicing teachers, curriculum leaders, district administrators, teacher educators, and researchers around the world come to observe and reflect on problems of mathematical practice and instruction.

Purpose EML is focused on supporting children in the community and professional educators as well as University of Michigan students through explicit work in teacher education. EML provides different lenses through which adult participants can examine concepts that are central to effective teaching of elementary mathematics (e.g., fractions, problem solving, articulating arguments).

Description The EML is offered for 2 weeks each summer on the University of Michigan campus.

The teacher education program begins each morning before the children arrive. Participants are provided with a detailed lesson plan whose aim is to make visible what there is to see about the children, the mathematics, and the instruction. Participants are presented with a series of questions related to problems of practice, student thinking, or mathematical content. Dr. Ball facilitates a prebrief wherein participants engage in a discussion about student learning and instruction, including instructional design questions. Dr. Ball adjusts her teaching based on this conversation.

Following the prebrief, Dr. Ball teaches the adapted lesson to the children attending the EML summer program while the adult participants observe from bleachers in the classroom or through a remote viewing room. The participants are instructed to listen carefully to the children's conversation in whole and small groups and to take careful notes about their observations using tools tailored to the specific focus of the day or the EML theme. The observational tools are designed to support adult participants in paying close attention to the students and teacher's practice.

At the end of the lesson, Dr. Ball and the adult participants reconvene and spend 30 minutes examining the work that the students produced throughout the observed

class section. They consider what students were able to accomplish during the written work and mathematical discussion, and they are challenged to reframe their conceptualizations of what students can achieve mathematically.

Following this discussion, Dr. Ball and the adult participants debrief on the lesson. Dr. Ball leads the conversation with a 5- to 10-minute reflection on the issues that she encountered while teaching the lesson. She concludes by sharing several questions that she would like adult participants to consider, and she synthesizes her thoughts into two or three conversation points that the participants will discuss as a group. At this point, Dr. Ball steps out, and Ms. Garcia facilitates a conversation about those primary ideas. Ms. Garcia's goal is to encourage the observers to focus on the work of teaching—specifically, what is the work of the teacher, and how does this impact student learning?

Following the debriefing discussion, the EML provides the adult participants with content-focused professional development aligned with teaching practices that will be observed during Dr. Ball's demonstration lessons.

Impact

Participating in the EML has proved to be a powerful experience for both children and adults. At the conclusion of the 2-week session, students feel more successful in mathematics and demonstrate more confidence in engaging in the work. Adult participants have been given the opportunity to delve into students' thinking and to examine associated evidence. From Ms. Garcia's perspective, one of the most powerful takeaways for teachers is understanding the difference between teaching a student a procedure and observing the student as she or he achieves a conceptual understanding of mathematics.

PRACTICAL EXAMPLE | **Virtual Simulation**

Where University of Central Florida

Who Dr. Lisa Dieker, Professor and Lockheed Martin Eminent Scholar, Developer of TeachLivE™

What TeachLivE™, an avatar-based learning platform, is used in more than 80 teacher preparation programs across the United States and internationally with both general and special education preservice and inservice teachers. Dr. Dieker developed the program in conjunction with her colleagues Michael Hynes and Charles Hughes at UCF.

Purpose TeachLivE™ provides teachers with the opportunity to practice teaching content and positive behavior strategies within a virtual environment before applying them with students in the classroom environment. In this mixed-reality environment, teacher educators have the ability to personalize candidates' instructional experience with specific content based on individual candidates' learning needs. Teacher educators can adjust the number of students that the candidate is teaching, the students' characteristics, and the instructional content area that is taught. The platform addresses a wide range of content areas, grade levels, and situations, from instruction in middle school science to addressing a crisis prevention situation, or providing instruction to a small group of preschool students with autism.

Description TeachLivE™ is a practice-based approach that can be used with teachers across their careers. In addition, it can be used to provide teachers with opportunities to plan and teach collaboratively. At UCF, faculty provide opportunities for candidates to practice teaching with TeachLivE™ in co-teaching pairs and triads, providing them opportunities to practice planning and teaching collaboratively and to observe their peers' instruction.

Teacher educators who use the TeachLivE™ virtual simulation environment can employ a variety of strategies to model effective techniques and routines for teacher candidates. One approach is to provide candidates with opportunities to observe more experienced educators teach within the mixed-reality environment.

The After-Action Review (AAR) that follows teaching in the simulator is critical to supporting candidates as they integrated practiced skills within authentic classroom instructional settings, and as they work toward improving student achievement. Teacher educators using TeachLivE™ provide feedback during AAR in a variety of formats. At UCF, some candidates are afforded opportunities to reflect on the effectiveness of their instruction in meeting their students' learning needs. This reflection is first done by the candidates independently, is sometimes done through journaling, and is later discussed with faculty.

Other teacher educators provide candidates with virtual feedback on their teaching. In some instances, faculty used an observation protocol (e.g., Charlotte Danielson's Framework for Teaching or Marzano's Teacher Evaluation Model), providing feedback on specific behaviors (e.g., wait time, specific praise, avatar talk versus teacher talk time, and so forth). Some teacher educators sit in the environment with their candidates, observing and providing "just-in-time" feedback.

Impact

The simulated teaching environment provides an intensified practice experience for candidates. Simulation research demonstrates that in as few as 3 minutes—with the maximum time in the simulator typically being around 10 minutes—candidates have the ability to master one discrete skill. UCF's research team has found that in four 10-minute sessions, they can change a targeted behavior, and this change transfers back to the "real" classroom. This short, intensive use of the simulator is important for teacher educators to remember when they are using simulation as a practice-based approach with teacher candidates.

PRACTICAL EXAMPLE

Coursework-Aligned, Field-Based Practice Opportunities

Where

State University of New York (SUNY), Buffalo State

Who

Dr. Lawrence Maheady, Professor and Horance Mann Endowed Chair

What

Nearly 30 years ago, while Dr. Maheady was an associate professor at SUNY Fredonia, New York State issued a mandate that every general education teacher had to be prepared to teach diverse learners, including students with disabilities, students with culturally and linguistically diverse backgrounds, and students in poverty. Prior to developing a continuum of teaching opportunities, Dr. Maheady was strikingly aware of the disconnect between the backgrounds of his teacher candidates, who were primarily white females of privilege, and the backgrounds of the students whom he and his colleagues were preparing them to teach. Many schools neighboring the university were designated as "high need," and some were composed predominantly of students with diverse cultural and linguistic backgrounds. To address this problem, Dr. Maheady and his colleagues determined that it was necessary to increase their candidates' opportunities to teach within the field. In collaboration with his colleagues Dr. Maheady developed the Responsive Educator Program.

Purpose

The primary objective of this program is to scaffold the experiences of all K–12 teacher candidates, both general education and special education, to more effectively teach students with or at risk for developing disabilities.

Description

The Responsive Educator Program includes a series of highly structured, developmentally sequenced clinical experiences that begin during candidates' first year and continue throughout the program. Preservice candidates gradually assume more instructional responsibilities by teaching individuals, small groups, and entire classes in predominantly high-need schools.

Candidates are placed in pairs for all early field experiences. Initially, they serve as instructional assistants in classrooms and participate in a series of teacher-designated professional roles (e.g., working with individuals and small groups). They then serve as academic tutors for students with disabilities, or at risk for developing disabilities, in an afterschool tutoring program, and they eventually provide small-group instructional assistance. As they increase their knowledge, teaching skills, and confidence, the complexity of their practice-based experience is increased. Finally, candidates are placed in practicum experiences (i.e., two student teaching placements) in which they teach whole classes of learners.

Candidates are supported in practicum experiences through on-campus coursework, participation in whole-class and small-group lessons in which teacher educators model new instructional practices, and provide ongoing opportunities for candidates to role-play and practice new strategies before they implement them with students. Opportunities to work with mentor teachers, however, vary based on placements, and preparation in peer coaching methods is provided for candidates. Course instructors visit candidate placements regularly for formal observation and feedback. Faculty offer explicit recommendations for improving candidate and student performance.

Throughout the Responsive Educator Program, candidates are taught to use research-based practices and monitor student progress using formative measures. In addition, throughout their practicum experiences, candidates engage in structured activities to prompt analysis of practice. In addition to guidelines that support reflective practices, candidates are required to record daily written reflections in which they evaluate the nature and quality of their field experiences. Twice a semester, the logs are summarized by candidates and submitted to instructors for further feedback.

Impact

The Responsive Educator Program has provided classroom teachers and their students with disabilities, as well as students at risk for developing disabilities, with much needed additional support. At the same time, the program has assisted candidates in learning to teach and in improving their abilities to closely examine student learning data. In addition to reducing the burden of inservice teachers through increased support in the classroom, the extra teaching practice has had a powerful impact on candidate performance. In a 2004 study that examined the impact of involvement in the program on candidates' skill for teaching, Dr. Maheady and his colleagues found that the program had a noticeable impact on practice. Candidates who had completed the Responsive Educator Program could implement a research-based practice (i.e., classwide peer tutoring) with a high degree of fidelity throughout a semester-long experience and produce high levels of student accuracy on curriculum-specific academic outcomes.

PRACTICAL EXAMPLE | **Video Analysis**

Where University of Virginia

Who Dr. Adria Hoffman, Field Placement Coordinator

What

Adria Hoffman, PhD, is the field placement coordinator in the Curry School of Education at the University of Virginia (UVA). In this role, she oversees the student teaching experiences of more than 140 K–12 general education and special education interns per year. Dr. Hoffman was concerned that the typical approach to the supervision of observation and coaching enabled candidates to passively receive feedback without engaging them in more rigorous analysis of their instruction. To solve this problem, she collaborated with UVA faculty to modify MyTeachingPartner™, a professional-development system designed to support teachers through video analysis and individualized coaching (e.g., Allen, Pianta, Gregory, Mikami, & Lun, 2011), to create MyTeachingPartner–Preservice (MTPP).

Purpose

MTPP allows Dr. Hoffman and her team of two teaching assistants, who serve as supervisors, to provide high-quality, rigorous, and consistent feedback, along with a structure for monitoring how candidates revise their instruction based on the feedback they receive. Dr. Hoffman uses the Classroom Assessment Scoring System™ (CLASS™), an observational instrument developed by UVA researchers, to assess candidates' instructional growth in three domains: emotional support, classroom organization, and instructional support (e.g., Pianta et al., 2012).

Description

Hoffman and her colleagues integrate this approach at UVA as part of the process of oversight during student teaching experiences for K–12 general education and special education interns.

Prior to participating in their student teaching experience, the candidates undergo two observation cycles using the MTPP during their last practicum experience. During student teaching, Dr. Hoffman structures the use of the MTPP to focus on one domain at a time, beginning with classroom organization. Gradually, she integrates one domain at a time into the candidates' instructional repertoire, until at the end of their student teaching experience they are designing lessons and demonstrating proficiency within all three domains.

Each candidate participates in six observation cycles, all recorded by video. Two weeks before their student teaching experience, the candidates submit and receive feedback on their lesson plans. Once the lesson has been taught and recorded, the supervisor selects

four or five instructional moments for the candidate to focus on during analysis. The candidate views the relevant video segments and then responds to a prompt called an enacting plan, which is provided by the supervisor. The enacting plan supports the candidate in thinking about what to watch for while analyzing the video. For example, the supervisor might prompt the candidate to consider the following: What do you see yourself doing here that is an indicator of classroom organization? The prompts are designed to support the candidates in focusing their response to their teacher-student interactions.

After the candidates independently examine their instruction and consider the supervisor's prompts, a face-to-face meeting takes place among the supervisor, mentor teacher, and candidate. This conference follows a protocol and concludes with both a summary and an action plan for the candidate and mentor teacher. For example, the action plan might be for the candidate and mentor teacher to watch exemplar videos demonstrating the specific instructional skill or strategy that the candidate is attempting to master, or it might include the recommendation that the candidate gather more research about how to engage in one of the three domains outlined in the CLASS.

Dr. Hoffman and her colleagues have aligned the feedback on instruction that the students receive from the CLASS with Virginia's teacher performance standards. This aligned system of feedback supports the candidates in reaching proficiency by the end of their program. In addition, the use of common language and the delivery of consistent feedback throughout the student teaching experience are highly useful. The coaching feedback provided during each observation cycle, the midterm feedback, and the final observation all make use of the same language and observation system.

Impact

The research that Dr. Hoffman and her team conducted on MTPP implementation shows a promising relationship between coupling high-quality feedback with video analysis on the preservice teachers' ability to reflect on their instructional practice and to talk about their teaching in productive ways. Teachers who were supported in analysis of their instruction through coaching and feedback were able to talk about the usefulness of their instruction on student learning in more articulate ways.

PRACTICAL EXAMPLE | **Structured Tutoring**

Where Southern Methodist University

Who Dr. Stephanie Al Otaiba, Centennial Chair in Teaching and Learning

What This approach allows preservice candidates and graduate students to work one on one with individual students and provide targeted, direct instruction.

Purpose Structured tutoring is a practice-based approach that teacher educators can tightly align with coursework by providing candidates the opportunity to apply content and instructional practices directly acquired through coursework within a supervised, authentic environment.

Description Driven by the belief that teachers need space within which to apply what they are learning, general education and special education candidates at Southern Methodist University have the opportunity to engage in structured tutoring throughout their preparation programs.

Tightly aligning the structured tutoring experience with coursework allows teacher educators to ensure that candidates are equipped with the skills necessary to experience success with their students. Candidates begin their experience by learning through coursework how to write a lesson plan based on a highly scripted program. Next, they learn how to teach that lesson to a student through their tutoring experience. They learn to collect data using diagnostic assessments and curriculum-based measures. Through these instructional experiences, all of which are provided under the careful supervision of teacher educators, the candidates learn to teach literacy as well as engage in action research and service learning. From Dr. Al Otaiba's perspective, the benefit of structured tutoring is reciprocal because the student and the teacher educator learn from each other.

The coursework and practicum experiences that Dr. Al Otaiba describes are initially highly scaffolded. Beginning candidates' coursework, specifically within the literacy program, starts with learning about the developmental stages of reading. Candidates then receive coursework that addresses more advanced stages of reading and teaches them about administering assessments and using data to inform reading instruction. Teacher candidates begin their experience working with an individual child by using a scripted intervention. In the subsequent semester, candidates work with a different child, but they have an opportunity to differentiate the intervention based on assessment data to better meet the child's specific needs. These learning experiences culminate with the final capstone course, in which candidates develop a formal action research project. The action

research project involves identifying an academic or behavior area to target for intervention, and then making instructional decisions about the nature of the intervention's design and the appropriate assessment required to monitor student growth. This project is presented to peers at the end of the semester.

During their structured tutoring experiences, candidates receive ample support and feedback from teacher educators through coursework and supervised fieldwork. In addition, candidates engage in rigorous and frequent analysis of their own teaching. Self-analysis of candidates' own effectiveness involves drawing upon data from curriculum-based assessments and mastery of learning objectives to determine whether students are making progress toward their academic goals.

Impact

Research that Dr. Al Otaiba has conducted around the candidates' structured tutoring experiences demonstrates that this opportunity not only improves novice teachers' abilities to implement effective literacy practices, but also impacts the achievement of the students participating in the tutoring experience. Furthermore, Dr. Al Otaiba observes that the structured tutoring experience provides teacher candidates with the opportunity to realize the unique synergy between research and practice, which also profits inservice cooperative teachers. Novice teachers are exposed to important instructional and assessment decision-making processes as they engage in thoughtful discussions about their learning and their students' learning. Inservice graduate students benefit from the experience as well. Whether at the preservice or graduate inservice level, teacher educators who participate in structured tutoring experiences help their districts to improve their curriculum. In addition, these structured tutoring experiences strengthen alignment between the values and the content to which teacher candidates are exposed in their teacher preparation programs and the values and teaching experiences to which candidates are exposed within local school districts.

PRACTICAL EXAMPLE | **Lesson Study**

Where University of Washington

Who Dr. Carly Roberts, Assistant Professor

What Lesson study is a collaborative planning process that engages teams of teachers in iterative cycles of collaborative planning, teaching, observation, and analysis.

Purpose The purpose of lesson study is to deepen teachers' knowledge of their students, curriculum, and pedagogical knowledge for teaching. Because the complete lesson study cycle includes observation and analysis, lesson study is also a promising approach to improving the effectiveness of teachers' instruction.

Description When coupled with subject-matter content (e.g.., methods course for teaching reading, or a professional development innovation designed to improve teachers' knowledge for teaching secondary science), lesson study can be tailored to meet the learning needs of teachers from a wide array of experiences (novices to teacher leaders), disciplines, (math, science, literacy) as well as teachers of different student groups (grade levels, students with disabilities, English learners).

Dr. Roberts has embedded the use of lesson study within the coursework of both undergraduate and master's level preservice teachers. Within a typical semester or quarter-length course, candidates are able to engage in as many as three complete, collaborative lesson study cycles. Lesson study begins by teaching candidates about the features of lesson study and discussion regarding how the lesson incorporates effective instruction and its potential impact on student learning. First, the candidates are introduced to video examples of teachers engaged in lesson study, thus modeling the process for the candidates. Through modeling and coaching, the candidates learn how to engage in productive talk concerning instruction and what to watch for when they are observing a peer during the lesson study process. In addition, support is provided during the candidates' collaborative planning and analysis through the use of a lesson-planning framework and debriefing guide. These tools are essential in supporting the teacher candidates in successfully moving through the lesson study process. (An in-depth description of process and forms can be found in Roberts, Benedict, Kim, & Tandy, in review.)

Next, candidates are supported in deepening their understanding of research-based instructional practices through coursework instruction. Immediately following the

introduction of new content and instructional practices, Dr. Roberts schedules her candidates to engage in a lesson study cycle. Using the collaborative planning framework, the candidates plan a collective lesson that integrates the research-based content covered in the course.

After the candidates have completed the collaboratively planned lesson, they participate in a practicum experience and teach the lesson. These lessons are recorded for later analysis by the group. The candidates watch the video independently in preparation for debriefing by using a data collection instrument to support the documentation of teachers' instructional behaviors and student behaviors.

During the subsequent course meeting, the lesson study teams reconvene to discuss the data collected, analyze the effectiveness of their collaboratively developed plan, and determine whether or not the students' instructional needs were met. Using an observation and debriefing form, the candidates discuss how the lesson impacted student engagement and learning. In addition, the team considers strengths and areas for improvement in the candidates' use of research-based practices. After engaging in this step, Dr. Roberts requires the candidates (if times allows) to reteach the revised lesson for further skill development.

Impact

Dr. Roberts believes that lesson study supports her candidates in preparing to enter the teaching field, not only by deepening their knowledge and improving their implementation of research-based practices, but also by teaching them how to collaborate effectively and to talk in productive ways about their teaching and its relationship to student learning.

PRACTICAL EXAMPLE | **Bug-in-Ear Coaching**

Where University of North Carolina at Greensboro

Who Dr. Marcia Rock, Associate Professor

What Bug-in-ear (BIE) coaching supports both inservice and preservice general and special educators with immediate and direct feedback for improving the effectiveness of their instruction.

Purpose Drawing on the research on the relationship between immediate feedback and effective instruction, BIE coaching provides candidates with real-time support in improving instruction and behavior management strategies during the act of teaching.

Description The flexibility of BIE coaching makes it useful for a wide variety of educators. Dr. Rock has used this approach with preservice teachers, beginning within the first year of their careers, and with established teachers who have as many as 20 years of teaching experience.

BIE coaching delivers specific, descriptive commentary directly into the ears of teacher candidates while they are engaged in the act of teaching. The coach observes a candidate virtually through video streaming and provides in-time feedback and support through Bluetooth technology. This approach can be used by teacher educators to support candidates in improving their instruction in specific content areas as well in positive behavior management. Because the BIE coaching sessions are cognitively intense, Dr. Rock has found that 20 to 30 minutes of BIE support is sufficient. The frequency and duration of observations and BIE coaching sessions can be adjusted by the teacher educator based on individual candidates' learning needs and the goals of their teacher preparation program.

In Dr. Rock's experiences, many candidates initially feel nervous about juggling delivery of complex instruction and classroom management while receiving continuous feedback from a coach. Within 3 to 5 minutes of the teaching session, however, most candidates are able to adjust to the auditory stimuli and to teach and respond to the coaching prompts. In fact, many teachers grow to appreciate the in-time support as well as the "extra eyes and ears" that the coach provides in the classroom.

The typical BIE coaching experience at the preservice level begins with the coach greeting the candidate, cooperative teacher, and students virtually through Skype and reminding the candidate of the instructional goals toward which he or she is working.

When Dr. Rock delivers in-time support to teachers, she embraces a running dialogue with her candidates that she describes as "4:1." That is, she provides candidates with four specific, positive comments for every one constructive comment aimed at improvement. During the coaching session, Dr. Rock also takes prolific field notes. At the end of the coaching session, Dr. Rock briefly meets with each candidate and provides him or her with a summary of the effective practices that she observed, along with feedback on one or two areas where the candidate has room for improvement. Candidates are expected to adjust their instruction based on feedback and to self-monitor progress toward achieving their goals. Typically, Dr. Rock meets with teacher candidates once each month to follow up on their progress monitoring efforts and the evidence that they have documented toward meeting their goals. She describes this experience as empowering for the candidates; it teaches them to embrace a growth mind-set and supports them in developing resiliency.

Impact

Through her experience, Dr. Rock has observed that BIE coaching stimulates candidates to engage in reflective practice while they are teaching in the classroom. "My voice becomes their voice over time," she reflects. As candidates listen to Dr. Rock's supportive comments while they are teaching, they begin to develop their own internal dialogue, which fosters a more analytical perspective on their instruction.

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