

## Practice-Based Teacher Education

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### Summary

Practice-based teacher education (PBTE) is an approach to preparing novice teachers that focuses on the importance of developing novices' ability to enact teaching practices. Ambitious approaches to PBTE attend to the development of teacher belief, knowledge, and judgment but do so through work on practicing instructional routines that occur with frequency in the work of teaching (e.g., facilitating discussion, modeling). Some scholars of PBTE have emphasized the role of practices or common professional activities in PBTE, while others have foregrounded the importance of practicing teaching for the purpose of improvement. PBTE contrasts with other approaches to teacher education that focus on building teachers' knowledge or beliefs without focusing on how that knowledge and belief gets instantiated in action.

**Keywords:** teacher education, teacher learning, practice-based teacher education, professional development, core practices

**Subjects:** Professional Learning and Development, Educational History

### Introduction

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Rates of teacher attrition are high, especially among teachers at the very outset of their careers, and some research suggests that lack of preparation is a chief cause of turnover (Ingersoll, 2002). This troubling reality indicates that teachers may need more support than they currently receive. To tackle this problem, some scholars and practitioners are promoting an approach to preparing teachers that they refer to as practice-based teacher education (PBTE). PBTE is an approach to the preparation of teachers that aims to prepare teachers to enact ambitious practice early in their careers.

This article provides an overview of PBTE, including a description of ways in which efforts to center practice in teacher education are distinct from historical teacher education reforms. In addition, this article describes structural, curricular, and pedagogical approaches to practice-based teacher education and provides examples of each. The authors describe and respond to major critiques of PBTE in the research literature. The authors aim to illustrate the approach to preparing teachers that PBTE offers and suggest directions for future research in practice-based pedagogies and curriculum for teacher learning.

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## Definition of Practice-Based Teacher Education

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Practice-based teacher education is an approach to preparing novice teachers that focuses on the importance of developing novices' ability to enact teaching practices. Ambitious approaches to PBTE attend to the development of teacher belief, knowledge, and judgment but do so through work on practicing instructional routines that occur with frequency in the work of teaching (e.g., facilitating discussion, modeling) (Zeichner, 2012). Some scholars of PBTE have emphasized the role of practices or common professional activities in PBTE (Ball & Forzani, 2009; Grossman & McDonald, 2008), while others have foregrounded the importance of practicing, or approximating, teaching for the purpose of improvement (Lampert et al., 2013; McDonald, Kazemi, & Kavanagh, 2013). PBTE contrasts with other approaches to teacher education that focus on building teachers' knowledge or beliefs without focusing on how that knowledge and belief gets instantiated in action.

Many teacher educators see their job as providing novice teachers with knowledge and ways of thinking that they can later apply in classrooms with K–12 students. In PBTE, knowledge doesn't come before practice, it is developed through practicing. The job of PBTE teacher educators is to support teachers to develop knowledge, beliefs, and ways of thinking through studying, practicing, and reflecting on the act of teaching (McDonald et al., 2013). Practitioners and scholars of PBTE value many forms of teacher knowledge and beliefs including content knowledge, theories of how children learn, and critical stances on education and pedagogy. By engaging novice teachers in the work of teaching during pre- and in-service learning, PBTE aims to ensure that teachers are prepared not only to know and to believe but to use their knowledge and beliefs in the service of student learning (Lampert et al., 2013).

To understand what PBTE is, it helps to understand what it is not. Take, for example, a teacher education course in which novice teachers are supported to learn about children's mathematical thinking. In the course, novice teachers engage in a range of activities that are commonplace in teacher education. They read and discuss articles. They collaborate on math tasks and talk about the skills and content knowledge they need to approach problems. They might even interview a student to learn more about her in- and out-of-school mathematical practices. In this course, however, novice teachers do not have an opportunity to examine children's work or watch videos of children talking about math in a classroom context. They never plan math lessons or practice responding to a child or a group of children about their mathematical ideas. The course takes place exclusively on a university campus, and, as a part of the course, novice teachers never enter a K–12 school or practice teaching or talking to children about mathematics. A course like this may be very influential for novice teachers' development and may exist in a larger teacher education program that calls itself "practice-based." However, if all of the courses in a program were like this one, the program would likely not consider itself a "practice-based" program because the program would not be leveraging the practice of teaching for the purpose of novice teacher learning.

In contrast, consider a course with a similar goal: understanding how children think about mathematics inside of classroom discussion. In this class, novice teachers engage in similar activities, but those activities are marshaled for the purpose of preparing novice teachers to facilitate discussions about mathematics with K–12 students. Novice teachers might read and discuss an article on the social foundations of learning and an article about specific ways to elicit student thinking. Then they might watch video of a teacher facilitating discussion among fourth graders about a string of related mathematical problems. Novice teachers might then review a variety of problems that they could pose to students and create a string of problems that they think will prompt a similarly rich conversation among students. They could then rehearse facilitating a mathematical discussion as their classmates play K–12 students. In their rehearsal, novice teachers could practice the elicitation moves detailed in the article they read. Following rehearsal, novice teachers could visit a class of fourth-graders and practice facilitating the small group discussions they just rehearsed. They could video record their discussions and bring the recordings back to class to debrief. Together with their instructor, the novice teachers could then identify students whose thinking they find puzzling or intriguing and go on to interview these students to learn more about their mathematical thinking. Perhaps then the cycle could begin anew.

In debriefing these two hypothetical math methods courses, we wish to highlight three main differences. The first difference has to do with the learning goals for the courses. In the first example, the instructor wants novice teachers to (1) deepen their understanding of the theory discussed in the articles, (2) deepen their mathematical content knowledge and (3) complicate their thinking about when and how students think about and engage mathematics in their lives both inside and out of school. The instructor hopes that the novice teachers will develop a set of understandings and beliefs about children and learning that they can draw on in a future classroom.

In the PBTE course, the instructor has similar goals, but those goals are attached to a particular instructional routine—facilitating class discussion—that the novice teachers prepare for, enact, and debrief within the space of their teacher education course. By specifying an instructional routine and building opportunities to practice that routine inside the teacher education course, the PBTE instructor shifts the goal of the course from developing knowledge and beliefs for a hypothetical future context to developing novice teachers' ability to enact a teaching practice in context while concurrently developing new knowledge and beliefs. The intended result is that new teachers are prepared to do the work of teaching in a future context and to learn about that context as they go.

The second difference deals with the pedagogies employed in the respective courses. In the non-PBTE example, there were no opportunities to plan for, enact, or debrief the work of teaching. Nor were the class activities—discussing an article, working on math tasks, and interviewing a student—done in service of preparing for, breaking down, trying out, or unpacking any specific classroom practice. In the non-PBTE example, the teacher educator's pedagogy provides novice teachers with a chance to develop ideas about content, students, and teaching but little chance to try on or elaborate on those ideas inside the work of teaching.

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In contrast, the PBTE example contains a series of activities organized around a central opportunity to try on an instructional routine. The novice teachers have an opportunity to see an example of classroom discussion about student math work and the articles that they read provide lenses or frameworks through which the example can be broken down into component parts. They then have a chance to plan a discussion with a group of students, practice that discussion with peers, and then enact the planned discussion with students. The pedagogies of representation (providing examples), decomposition (breaking practice down) and approximation (trying practice on in low-stakes settings) are key parts of a practice-based approach to PBTE illustrated in our second example (Grossman et al., 2009).

Finally, a third difference between our two examples deals with the structural aspects of the teacher learning. In the first example, the teacher learning experience takes place almost entirely on a university campus. The novice teachers are never physically in a K–12 school, and their interaction with K–12 students, if it happens, is restricted to brief contact with students that does not resemble the daily routines of a classroom (e.g., an extended interview with a single student).

In our PBTE example, novice teachers physically visit a school to try out the discussions they have planned with students. Scholars and practitioners of PBTE have identified multiple potential structural changes to teacher education whose goal is to move teacher learning physically closer to K–12 students and classrooms. Our example is just one way that a structural shift might be accomplished. Some teacher educators use video assignments in lieu of classroom visits and others rely on rehearsals of teaching as a way of simulating a classroom visit.

## History

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While there is currently significant focus on PBTE among teacher educators and scholars of teacher education, focusing on practice in the preparation of teachers is not a new phenomenon (Zeichner, 2012). Another useful way of understanding PBTE is to consider the historical conceptions of practice-based work in teacher education and distinguish the qualities that make the current movement toward PBTE unique.

In Francesca Forzani's (2014) history of PBTE, she describes several historical movements that were precursors to the current PBTE movement. She starts the story of PBTE in the United States with the advent of formal teacher education in the mid-19th century. The first schools of teacher education, called normal schools, were tasked with preparing teachers to develop curriculum based on socially accepted understandings of what students should be learning in school and train teachers in the techniques and pedagogies for transmitting curriculum to students. Many Americans at the time conceived of learning as a passive activity in which students' primary activity should be listening and receiving information from the teacher (Cuban, 1993). As a result, the aspiring teachers in normal schools focused on honing their craft in the areas of lecture, providing clear examples and explanations, and recitation (asking a series of questions to students). Forzani's history illustrates how normal school directors distinguished between understanding subject matter and being able to communicate it, or teach it, clearly to students. In other words, they saw a difference between the ability to solve a complex problem in calculus and

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the ability to explain that same problem to students. Few scholars today would identify lecturing and other teacher-centered pedagogies as the sole building blocks of a strong classroom. Still, while understandings of ambitious teaching practice have shifted since the normal school period, teachers at that time did engage in active planning for, rehearsal for, and debriefing of the routines of teaching valued at the time, making the normal school period a useful starting place for understanding the historical trajectory of PBTE.

In addition to the practice-focused pedagogies employed in the normal school period, Forzani discusses the ways that teacher educators of the time made initial attempts to enumerate and categorize practices they thought novice teachers should learn. Those early lists of teaching practices for novices, which included things like “power to control,” “skill in illustrating and explaining,” and “care of blackboard,” were later met with much criticism. Although the teaching practices emphasized during the normal school period were grounded in what is today considered an outdated perspective on teaching and learning, they were an initial attempt at a formalized body of practices that new teachers might learn and practice during their training. The practices identified across the normal school period typically minimized the complexity and inherently improvisational nature of teaching. As a result, the practice-focused pedagogies of the time often involved observation of a particular method, immediate practice, and immediate feedback on the fidelity of the learner’s attempt to execute that practice.

In the late 1800s, normal schools were largely subsumed by the colleges and universities that proliferated across the United States. With this change came a shift away from practice in teacher education: in an effort to become more academic, scholars in new departments of education focused their efforts on research (Labaree, 1997). One study during this time period bears some resemblance to both earlier and later efforts to develop comprehensive lists of teaching practices that might define a teacher education curriculum. This study, undertaken by education researchers Werrett W. Charters and Douglas Waples and published in 1929, was called *The Commonwealth Teacher Training Study*. In it, Charters and Waples (1929) used surveys of thousands of teachers to identify the daily routines and tasks of their work, ultimately creating a list of over 1,000 practices.

The Commonwealth Study represents a major effort to break down the work of teaching into parts that could be used in teacher education curriculum. In contrast to contemporary efforts to identify “core practices” of teaching, however, the Commonwealth Study was focused primarily on comprehensiveness and detail. The authors aimed to identify nearly every move a teacher might make in the classroom. They placed much less, if any, emphasis on describing the teaching practices that are connected to student learning or that might be particularly important for new teachers to work on in teacher education settings. These differences separate the practices identified in the Commonwealth Study from current conceptions of “core” and “ambitious” teaching practices that might guide teacher education (Zeichner, 2012).

A second major effort to break teaching down into a list of teaching techniques that could drive teacher education curriculum was a project, undertaken in the 1960s and ’70s, called competency-based teacher education (CBTE). Scholars of CBTE attempted to locate techniques

and characteristics of “effective” teachers and design learning modules in which novices could learn how to enact those techniques and strategies. CBTE bears two main similarities to contemporary approaches to PBTE (Forzani, 2014; Zeichner, 2012).

First, practitioners of CBTE worked to identify and define skills or “competencies” necessary for novice teachers to learn and to break those competencies down into learnable and practice-able pieces. In contrast to the researchers from the Commonwealth Study, CBTE practitioners and researchers were less interested in naming every single action a teacher might take in a classroom and more concerned with establishing the elements of teaching that would benefit novices the most at the outset of their careers. Teaching practices such as facilitating class discussion were named and broken down into discrete parts such as “ask a question, pause 3–5 seconds, then call on pupil.” Practitioners of CBTE created learning “modules” designed to introduce the practices and offer new teachers opportunities develop skill within them.

Second, similar to contemporary approaches to PBTE, practitioners of CBTE engaged novice teachers in trying out practices in low-stakes environments. Opportunities to try out practice in CBTE were called “micro-teaching.” Often placed within a learning cycle that involved watching video exemplars of practices and planning a portion of a lesson segment using the focal practice, micro-teaching involved trying out a practice with a small group of peers and videorecording the teaching. Novices viewed and analyzed video of themselves and initiated a new cycle of learning based on their analysis (MacLeod, 1987).

Current researchers and practitioners of PBTE distinguish their efforts from those of the CBTE movement in important ways. The teaching practices that CBTE names and the component pieces of those practices largely ignore the role that student thinking plays in driving the actions of teaching. PBTE takes the work of eliciting, responding to, and orchestrating student thinking to stimulate learning to be an underlying element of nearly every teaching practice. By contrast, in CBTE, none of the parts of the practice of leading class discussion deal with responding to the ideas that students bring up in discussion and making decisions about ways to take up that thinking for the benefit of the individual student and the class.

Unlike the practices defined in CBTE, many current conceptions of PBTE aim to specify subject-specific teaching practices, or ways in which practices are different dependent upon the content area in which they are used. There are many elements of the practice of facilitating classroom discussion, for example, that are seen similarly across content areas. Teachers in multiple disciplines might work on facilitative moves like “posting” or revoicing student comments. In contrast, some practices, such as modeling historical thinking within a discussion, are discipline-specific (Fogo, 2014). In math, an example of a discipline-specific discussion practice is the way that teachers select and sequence student work to bring to the class for discussion (Smith & Stein, 2011). An emphasis on student thinking and content-specificity, where appropriate, distinguishes PBTE from CBTE.

Following CBTE, the field saw a major turn away from practice. In the 1980s Lee Shulman and colleagues initiated an effort to identify the types of knowledge that teachers need in order to teach well. Bemoaning the disappearance of content from tests for entry into the teaching

profession and lists of competencies for novice teachers, Shulman set out to disprove the adage: “He who can, does. He who cannot, teaches.” “Our central question concerns the transition from expert student to novice teacher,” Shulman (1986) wrote: “How does the successful college student transform his or her expertise in the subject matter into a form that high school students can comprehend?”

Shulman’s research identified three components of content knowledge for teaching. First was subject matter content knowledge, or the knowledge of the “substantive and syntactic” structures of a given subject. Teachers, he argued, need to know not only the basic concepts and principles of biology or calculus, for example, but also the ways in which knowledge in those fields is organized. Next, teachers must possess “pedagogical content knowledge” (PCK). For the key concepts and ideas of a given subject, PCK includes “the most useful forms of representation of those ideas, the most powerful analogies, illustrations, examples, explanations, and demonstrations—in a word, the ways of representing and formulating the subject that make it comprehensible to others.” Another part of PCK is an understanding of typical ways that students misunderstand various parts of a subject—in other words, what makes particular aspects of the content easier or more difficult for students. PCK might be summed up as the specialized knowledge of a subject needed not to research or write about it but to teach it. Last, Shulman identified curricular knowledge, or the knowledge of the range of materials and programs that have been developed for the teaching of a specific topic and the ability to select from among those materials to match the appropriate curriculum to the goals of the lesson, unit, or class (Shulman, 1986).

Through the 1980s and early ’90s, a great deal of research elaborated on forms of teacher knowledge, including further classification of parts of PCK and subject matter knowledge (e.g., Loewenberg Ball, Thames, & Phelps, 2008; Hill, Loewenberg Ball, & Schilling, 2008). Efforts to describe knowledge for teaching have added much-needed nuance to teacher educators’ conceptions of what it means to prepare aspiring teachers. However, contemporary turns toward practice are a response to the pendulum having swung so far in the knowledge direction. Respecting the advances made by Shulman and others working to define forms of teacher knowledge, PBTE researchers and practitioners recognize the importance of multiple forms of knowledge development among novice teachers. Unlike historical attempts to develop practice-based approaches to teacher education, proponents of PBTE distinguish themselves by considering the role of content in both descriptions of ambitious teaching and the development of practice-focused pedagogies in which novices can develop various forms of subject matter knowledge for teaching.

Unsurprisingly, emphasizing teaching practice in teacher education is not a new idea. In fact, its roots in the American education system can be traced back nearly two centuries. It could be said that the pendulum of teacher education swung far toward practice early on, with various efforts to enumerate the teacher actions that make up the work of teaching. But in efforts to articulate long lists of techniques, the interactional, human component of teaching is lost. Shulman’s work represents a substantial swing toward teacher knowledge. His assertion that teaching practice cannot be content-neutral was a crucial contribution to the field. Still, teaching is undoubtedly improvisational and context-dependent work. It is not based solely on cognitive understandings

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of disciplinary ideas or aspects of child development. Scholars of PBTE hold that in order to learn to navigate the interactions that teaching requires, novices need intentional practice in complex environments rather than lists of isolated actions or even content-specific coursework. Learning from important historical advances, PBTE attempts to find a center where practice, content, context, and the interplay between those things matters and where teacher educators are equipped with rich ways of engaging novices to learn in and through practice.

## Types of PBTE

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While practice-based teacher education is a common phrase, it is often used to describe very different approaches to shaping novice teachers' learning experiences. Some practice-based reforms have focused on changing structures of teacher education while others have focused on transforming the curriculum for learning to teach. Still others have focused on developing teacher educators' pedagogical approaches. We describe each of these types below.

## Structural Approaches to PBTE

Traditionally, teacher education programs have held classes in university settings which are physically distant from K–12 schools. More and more, settings for teacher education courses and learning experiences are expanding beyond college campuses. Currently, teacher education settings include controlled environments such as university classrooms, authentic settings like K–12 classrooms, and designed settings that include some aspects of both (McDonald et al., 2013). Proponents of PBTE suggest that practice-focused approaches can be utilized in a variety of settings but that teacher educators should consider the constraints and affordances of those settings and be willing to move some parts of novice teachers' learning experiences beyond the university, particularly when a K–12 setting might help novices better engage in context-specific aspects of teaching practice.

PBTE is likely to take advantage of authentic settings in order to connect novice teachers' learning to students and their ideas. For instance, if a teacher education course meets in an open classroom during the school day, novices are more likely to be able to move in and out of a nearby classroom to learn about student learning via observation or looking at student work and then practice particular teaching moves with students. The activities that can be undertaken in authentic teacher education settings allow for novices to practice responsiveness to student thinking in a way that is much more difficult to orchestrate in controlled settings. The recent push toward developing teacher residencies that are run through partnerships between districts and universities is one way that the field is attempting to close the structural gap between teacher education programs and K–12 schools. Along with residencies, teacher education programs that run lab schools (K–12 schools where a significant portion of novice learning takes place) are another example of one way that teacher education programs are attempting to create authentic settings for novice teacher learning. While successful models exist, adhering to the K–12 school day and finding space for teacher education classes to meet in often crowded school buildings place real constraints on the extent to which novice teacher learning can be pushed into K–12

schools. Few schools are set up to host teacher education courses in a way that does not disrupt or take resources away from teachers and their students. While the affordances of authentic settings are evident, more work is needed to understand ways in which they can be mutually beneficial to students, novice teachers, and school-based professionals (Zeichner, Payne, & Brayko, 2015).

Practitioners of PBTE also create designed settings for teacher education courses. The physical location of designed settings can vary—classes may be located in university classrooms, schools, or elsewhere. More importantly, in designed settings teacher educators replicate some qualities of K–12 classrooms so that novices have opportunities to practice teaching. For example, in PBTE courses, teacher educators often orchestrate mock classrooms in which one novice practices an instructional routine while classmates play the roles of K–12 students. Sometime these “students” have particular parts to play, representing common understandings and misunderstandings of the subject matter among students of a certain grade level. Other times, classmates simply engage in the lesson as themselves, offering their “teacher” a chance to practice eliciting and responding to their ideas. Practicing teaching third-grade math content to a group of aspiring elementary math teachers (who are masters of third-grade math content) is a different experience than teaching a group of third graders who likely represent a range of math skill. There are limitations to the extent to which K–12 settings can or should be replicated for the purposes of PBTE; nevertheless, designed settings for teacher education have the potential to offer many of the affordances of authentic settings without disruption to teachers and students (Samena et al., 2012).

### **Curricular Approaches to PBTE**

PBTE is not only about *where* to do teacher education but also about *what* to teach in it. Efforts to identify a set of fundamental teaching practices have resulted in multiple classifications that go by varying names. For example, Grossman, Hammerness, and McDonald (2009) identify a set of 13 “core practices” specific to the teaching of secondary English, while Ball and Forzani (2009) describe “high-leverage” teaching practices that span grade levels and content areas. More recently, Fogo (2014) has identified core practice in secondary history teaching, while Windschitl, Thompson, Braaten, and Stroupe (2012) and Kloser (2014) have pursued similar work in the teaching of secondary science. Identifying core practices in this way can be thought of as the first step in breaking down teaching into practice-able and learnable chunks for novices.

What various classifications of teaching practice have in common is an effort to identify routines of teaching that are research-based, fundamental to diverse curricular approaches, and connected to student learning. Researchers across multiple content areas have emphasized the importance of identifying core practices in teaching both to strengthen understandings of teaching as a profession and to improve the practice of teacher education (Ball & Forzani, 2009; Fogo, 2014; Grossman & McDonald, 2008; Grossman et al., 2009; Kazemi, Franke, & Lampert, 2009).

Some examples of core practices in English teaching are establishing instructional purpose and providing feedback to students. Establishing instructional purpose refers to teachers' ability to target learning objectives that are both clear within a lesson itself and connected to the larger curriculum in the class (Borko & Livingston, 1989; Smith & Feathers, 1983). For English teachers, providing feedback to students is also a core practice, especially with regard to student writing (Sadler, 1989; Sperling & Freedman, 2001). Establishing instructional purpose and providing feedback are just two of the core practices that have been identified in the teaching of secondary English.

Additional research on core practice has taken various forms. As previously mentioned, core practices have been identified in different content areas (Fogo, 2014; Kloser, 2014; Windschitl et al., 2012) and elaborated extensively in elementary mathematics (Ball & Forzani, 2009; Kazemi et al., 2009). On the whole, naming core practices is a way to see the trees in the forest of teaching. Core practices are like the large building blocks of teaching, made up of principles, skills, and beliefs about students and learning. The blocks are fundamental to strong teaching practice and may be further decomposed into component parts and routines. For those learning to teach or working to lift the level of their teaching practice, focusing on particular core practices provides a common ground in which novices and teacher educators can talk about and work on teaching.

### **Pedagogical Approaches to PBTE**

Along with getting teacher education coursework physically closer to K–12 classrooms and students (structural PBTE) and organizing the teacher education curriculum around a set of practices (curricular PBTE), PBTE can also involve transforming teacher educator's pedagogy. Pedagogical approaches to PBTE focus on aligning the way that teacher educators teach. Research in PBTE describes pedagogical approaches to engaging novice teachers in learning in and through practice. Grossman and colleagues (2009) identify the need for clear models or examples of ways to teach (representations), descriptions of those models that are broken down into comprehensible parts (decompositions), and opportunities to practice different elements of teaching (approximations).

Teacher educators represent teaching in a variety of ways, including the use of video, live modeling, transcripts, and written cases. The purpose of representation is to provide novices with a vision of some aspect of teaching practice. For example, along with supporting novices to read about and discuss teaching practices, teacher educators also strategically represent teaching practices like orchestrating a classroom discussion. Representations show novices what high-quality enactments of particular practices look like, and they can be used strategically to illustrate the component parts of a practice or to slow down a teacher's enactment of a practice in order to discuss how and why they made particular moves (Linsenmeier & Sherin, 2009; Sherin, 2008).

Along with representing teaching, teacher educators also decompose teaching. Decomposition involves finding appropriate language to describe practices and naming special features and components of the practice that may later be tried out by novice teachers. For example, component parts of the practice of whole class discussion include preparing a text for discussion

by formatting it in a way that is accessible for students and reading it carefully to generate discussion questions. Other parts of the practice involve designing opportunities for students to practice talking in small groups before they are expected to discuss a text with the whole class or asking follow up questions during the discussion to elicit student thinking (Barker, 2015). Each of these decomposed pieces contributes to the larger practice of orchestrating whole class discussion.

A key part of practice-based approaches to teacher learning is approximation of practice. Approximation may involve brief opportunities to run through isolated teaching routines similar to approaches to micro-teaching described above. More commonly, approximations take the form of opportunities to practice more robust teaching routines in designed settings (with colleagues) or low-stakes settings such as small groups of students.

One form of approximation, the rehearsal, is a public chance for teachers to deliberately practice engaging students using specific instructional practices in the presence of an expert coach. The aim of rehearsal is for teachers to practice teaching in action, drawing on knowledge of content and responding to student thinking while receiving targeted feedback. Research suggests that through rehearsal, teachers develop their skill in eliciting and responding to student thinking (Lampert et al., 2013).

PBTE programs typically reflect attention to one or more of the categories described above. Shifts toward practice-based approaches to the structure, curriculum, and pedagogy of teacher education all comprise the work of offering novice teachers opportunities to learn in and from practice.

An expanding body of research focuses on practice-based pedagogies in pre-service teacher education (Grossman et al., 2009; Lampert et al., 2013; McDonald et al., 2013) as well as teaching practices that might make up a practice-focused teacher preparation curriculum (Ball & Forzani, 2009; Grossman & McDonald, 2008). McDonald et al. (2013, p. 382) describe a “cycle for collectively learning to engage in authentic and ambitious instructional activity” that incorporates and connects opportunities for novices to see examples of, break down, and try on teaching practices. Additional studies have examined practice-based professional development, finding that it can strengthen teachers’ science discourse practices (Fishman et al., 2017), develop responsiveness through approximations of practice, and support appropriation of new practices (Cohen, Schuldt, Brown, & Grossman, 2016). These studies offer insight into the potential of practice-based teacher education as well as practice-focused teacher professional development.

## Criticisms of PBTE

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As with nearly all new ideas in education, some scholars and practitioners have voiced concerns about the merits of PBTE. There are three main types of critique of PBTE, each of which highlights valuable considerations for researchers and practitioners.

A first set of critiques is grounded in questions about whether breaking down practice into discrete parts obscures the complexity of teaching. In other words, critics worry that by breaking teaching down into isolated pieces and focusing on teaching those pieces to novices, we run the risk of training teachers who are unprepared to make purposeful decisions about *when* and *why* to employ particular practices. Novices may be able to deliver a writing strategy lesson, a core practice in an English language arts classroom, but they might not know when a set of students would benefit from a strategy lesson nor how to choose a helpful strategy. Mary Kennedy points out that teaching novice teachers a set of practices does not ensure that they will be able to use those practices to achieve their goals in the classroom. She writes,

When we define teaching by the visible practices we see, without attending to the role these practices have in the overall lesson, novices are likely to use their newly acquired practices at the wrong times, in the wrong places, or for the wrong reason. Clarity about purposes is especially important for novices because novices themselves hold many misconceptions about what teachers do and why (Kennedy, 2016, p. 9).

Identifying practices absent goals and purposes for learning turns teaching into a series of visible behaviors instead of a complex professional activity. Novices need support not only in enacting the work of teaching but in doing it in goal-driven and principled ways.

A second bucket of critiques stems from questions about whether focusing on the activity of teachers takes focus away from understanding students and context, particularly in a rapidly changing digital age (Haddix, Garcia, & Price-Dennis, 2016). Some worry that efforts to emphasize potentially outdated teaching practice will mean that novice teachers focus less on the work of knowing and understanding students and the ever-shifting digital spaces in which they increasingly operate. Teachers will become technocrats who are concerned only about teaching with fidelity to an image of practice to the exclusion of developing relationships with students and teaching in ways that respond meaningfully to the children in the classroom. Still others reject the idea that it is possible to identify teaching practices that exist outside the specific sociocultural context of a given classroom or school community.

Finally, there remains a lack of consensus in the field around what makes teacher education practice-based. Critics argue that without conceptual clarity, PBTE is a construct with limited utility. Zeichner (2012) points out, for example, that efforts to define core practices of teaching have vacillated between extensive and complex enumerations of skills that are an impractical basis for teacher education curriculum (like the Commonwealth Study referenced above) to lists of more general standards and indicators that leave too much to interpretation. The proliferation of practice-based teacher education efforts both historically and within the contemporary movement has left the field wanting for clarity around exactly what makes for an effective practice-based approach. Does it include core practices? Must it be situated in K-12 sites? Are rehearsals an essential component of the pedagogy? Critics caution against repeating the mistakes of past efforts to focus on practice in teacher learning.

## Response to Critiques

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Proponents of practice-based teacher education have indicated that these criticisms are useful as cautionary tales about what could happen to practice-based approaches to teacher education if those approaches do not learn from historical turns to practice in teacher education as well as more recent understandings about the role of teacher knowledge in preparing to teach. Contemporary models of PBTE, proponents argue, must simultaneously attend to purpose and practice by embedding work on practices within cycles of learning that connect those practices to particular purposes relating to students, context, and content.

For example, imagine an English language arts methods class that meets over the summer in the same space as a summer school program for ninth and tenth graders. The novice teachers in the class are learning about cognitive modeling, a practice in which teachers verbally describe their thinking during complex reading or writing tasks in order to make the invisible processes of those tasks more visible to students. Cognitive modeling is considered a core practice of the teaching of English language arts, and it can be useful when a teacher wants to show students one way of thinking about a tough part of the writing process or a particular strategy for reading. But it can easily go wrong if used in ways that are not strategic and responsive (e.g., teacher models every thought that comes to mind over the course of reading a long passage). Cognitive modeling is a fairly teacher-centered practice, but, when done well, it is not necessarily an unresponsive one. The best models are of processes that will support a particular group of students in getting past a specific “stuck point” in their reading or writing. Knowing what to model, then, requires an understanding of where students are getting stuck.

For novice teachers, planning for and practicing cognitive modeling absent any students (or at minimum, student work) is a fairly meaningless endeavor that could easily give way to one or more of the potential pitfalls of practice-based approaches. In our PBTE example, however, novice teachers have access to a group of students whose writing and writing processes they can study to identify stuck points. They might watch a video of a teacher modeling and learn that effective models are closely aligned to the task that students will be asked to do and that they are clear, concise, and correct. Further decomposition of modeling would reveal that an important part of the practice is when the teacher explains not only what she is doing but also why she is doing it and how she made the decision to do it that way.

By learning about modeling in a practice-focused cycle, novice teachers would have an opportunity not only to see and name the component parts of strong modeling but to practice them with particular students and for a purpose that fits those students' needs at a given point in their writing process. They could find, for instance, that the students in the class were repeating a similar sentence structure across their narrative writing and decide to model the process of revising for varied sentence length to create dramatic effect at strategic points in a narrative. They could practice delivering the model with small groups of students, recording their teaching and bringing the video back to analyze with classmates and instructors. For the novice teachers in

this class, PBTE is driven by content-specific teaching goals derived from examining real student thinking and it offers an opportunity to practice interacting with children in a particular sociocultural context.

Historical efforts at preparing teachers for practice engaged teachers in practicing discrete skills because those skills were assumed to be useful across contexts. Contemporary efforts at PBTE utilize real or approximated teaching contexts, including learners, core practices or instructional routines, and content-specific learning goals to create spaces where novice teachers can learn in and from practice.

## Directions for Future Research

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More and more programs have begun to describe their work as “practice-based.” The phenomenon has even begun to extend beyond the United States (Hammerness & Klette, 2015). The growth of this work suggests that more research is needed to understand what it looks like in implementation and the extent to which it influences teacher practice and students learning. The field would benefit from understanding the nuanced variations that exist across different implementations of PBTE as well as variations in how practitioners conceptualize the work of PBTE. Along with descriptive research, investigations into how practice-based approaches to teacher education actually influence what early-career teachers do in their K–12 classrooms would greatly benefit the field, as would research into whether scaffolded and mediated opportunities to practice teaching result in changes to what K–12 students learn in classrooms led by novice teachers. Along with descriptive and outcomes-focused research, future research on PBTE might investigate the affordances and constraints of technology-assisted PBTE. Some PBTE programs have begun using technologies that offer opportunities for teachers to simulate teaching in virtual environments, research into these technologies and their effects on novice teachers, on programs, and on teacher education pedagogy is needed as programs begin adopting new technologies. While PBTE holds real promise for the preparation of teachers, ultimately it is through research that the field will determine whether practice-based reforms to programs are beneficial.

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