Practice Review

High-Leverage Practices and Teacher Preparation in Special Education

James McLeskey
University of Florida

Mary Brownell
University of Florida

October 2015
CEEDAR Document No. PR-1

IDEAs that Work

Office of Special Education Programs
U.S. Department of Education

Disclaimer:
This content was produced under U.S. Department of Education, Office of Special Education Programs, Award No. H325A120003. Bonnie Jones and David Guardino serve as the project officers. The views expressed herein do not necessarily represent the positions or polices of the U.S. Department of Education. No official endorsement by the U.S. Department of Education of any product, commodity, service, or enterprise mentioned in this website is intended or should be inferred.

Recommended Citation:

McLeskey, J., & Brownell, M. (2015). *High-leverage practices and teacher preparation in special education* (Document No. PR-1). Retrieved from University of Florida, Collaboration for Effective Educator, Development, Accountability, and Reform Center website: http://ceedar.education.ufl.edu/tools/best-practice-review/

Note: There are no copyright restrictions on this document; however, please use the proper citation above.

The CEEDAR Center

University of Florida
360 Norman Hall
PO Box 117050
Gainesville, FL 32611

www.ceedar.org
ceedar@coe.ufl.edu
352.273.4259

Table of Contents

List of Tables 4

A Rationale for Changing the Curriculum of Teacher Preparation Programs 8

Recent Developments in Program Accreditation 8

Recent Developments in Teacher Education 9

An Emerging Alternative: Teacher Education Centered in Classroom Practice 12

Criteria for Identifying High-Leverage Practices 13

An Example of a High-Leverage Practice for General Education Teachers 19

An Example of a High-Leverage Practice for Special Education Teachers 21

Discussion 24

References 27

List of Tables

Table 1: Criteria for Identifying High-Leverage Practices 15

Table 2: High-Leverage Practices for General Education Teachers 17

The passage of the No Child Left Behind Act (NCLB, 2002) marked a substantial change in accountability for educational outcomes because this law mandated that all students, including those with disabilities, meet challenging state standards in reading and mathematics. More recently, the U.S. Department of Education (2010) called for further increasing expectations for educational outcomes because every student should graduate "from high school prepared for college and a career" (p. 1). To support all students in meeting these college- and career-ready standards, federal policy (Individuals with Disabilities Education Act [IDEA], 2004; NCLB, 2002; U.S. Department of Education, 2010) requires the use of classroom programs and practices that have proved effective in improving student achievement based on scientifically based research (i.e., evidence-based practices [EBPs]).

Since the passage of NCLB, some evidence indicates that the achievement of students with disabilities has improved (National Center for Education Statistics [NCES], 2014). For example, the percentage of fourth-grade students with disabilities who performed at a basic level or above in reading on the National Assessment of Educational Progress (NAEP) increased from 28% in 2000 to 32% in 2011. However, even with this increase, students with disabilities continue to achieve far below desirable levels and do not compare favorably with their typical peers (i.e., 66% of all fourth-graders performed at a basic level or above on reading in 2011). Evidence also indicates that although the percentage of students with disabilities who graduate with a standard diploma has increased from 48% in 2001 to 64% in 2012 (Straus, 2015), many of these students, upon graduation, lack college- and career-ready knowledge and skills that give them opportunities for success, and they often lag behind peers on a range of measures of post-secondary education and employment accomplishments (Newman, Wagner, Cameto, Knokey, & Shaver, 2010).

The most direct approach to improving outcomes for low-achieving students is to improve the effectiveness of their teachers. Researchers have established that teachers have an impact on the achievement gains that their students make (Boyd, Lankford, Loeb, Rockoff, & Wyckoff, 2008; Hanushek & Rivkin, 2010; Kane, Rockoff, & Staiger, 2006; Master, Loeb, & Wyckoff, 2014), and the contribution that teachers make to student achievement is greater than that made by other school influences (e.g., instructional group size, per-pupil expenditure).

Unfortunately, students who need the best teachers (i.e., those living in poverty) are the least likely to have them (Boyd et al., 2008; Fall & Billingsley, 2008). For example, students in high-poverty schools are less likely to have teachers with higher value-added scores than teachers in more affluent districts, and the differences can be dramatic if districts do not undertake strategies for ensuring that more qualified and effective teachers are assigned to high-poverty schools (Boyd et al., 2008; Max & Glazerman, 2014). Students with disabilities attending high-poverty schools are similarly disadvantaged. Using a national data set, Fall and Billingsley (2008) showed that early career special education teachers working in high-poverty schools were also far more likely to be uncertified than their peers working in low-poverty schools.

Poor outcomes for students with disabilities and others who academically lag behind their peers (e.g., those from high-poverty backgrounds) place pressure on educators to produce learner-ready teachers with the necessary skills to demonstrably improve achievement outcomes for all students (Council for Accreditation of Educator Preparation [CAEP], 2013b; Council of Chief State School Officers [CCSSO], 2012). Prominent teacher educators in general education (Ball & Forzani, 2011; Grossman, Hammerness, & McDonald, 2009; Lampert, 2010; McDonald, Kazemi, & Kavanaugh, 2013; Windschitl, Thompson, Braaten, & Stroupe, 2012) have called

their colleagues to action by arguing the need for teacher education to more deliberately focus on instructional practice and develop teacher education programs that directly address this goal. These professionals center teacher education on what teachers do by identifying a set of high-leverage classroom practices that all teachers must learn (i.e., those that are frequently used in classrooms and have been shown to improve student outcomes) and developing practice-based teacher education programs that systematically train pre-service teachers to use these practices in classroom settings (Grossman et al., 2009). It is important to note that some special education teacher education researchers have focused on the need to improve instructional practice for quite some time (e.g., Alexander, Lignugaris/Kraft, & Forbush, 2007; Goe & Coggshall, 2007; Maheady, Jabot, Rey, & Michielli-Pendl, 2007; Scheeler, McAfee, Ruhl, & Lee, 2006; Spear-Swerling, 2009); however, the teacher education community in special education has not actively engaged in the movement to identify high-leverage practices (HLPs) and develop practice-based programs to ensure that pre-service teachers learn to use these practices.

Our intention for this paper was to provide a general overview of recent changes in teacher education programs to produce classroom-ready teachers by using HLPs as the core curriculum for these practice-based programs (e.g., Grossman et al., 2009; McDonald et al., 2013; Windschitl et al., 2012). In this paper, we first addressed recent developments in program accreditation and teacher education that provide a rationale for these changes. We then described an emerging approach to teacher education centered in classroom practice and built around a curriculum of HLPs that all teachers should learn to use before entering the classroom. We followed with a description of an HLP that is used across disciplines by general educators and a description of an HLP that we consider important for all special education teachers. We

concluded with a brief discussion of several key challenges related to the use of HLPs as the core curriculum for teacher preparation in special education.

A Rationale for Changing the Curriculum of Teacher Preparation Programs

Recent Developments in Program Accreditation

In 2010, the National Council for Accreditation of Teacher Education (NCATE, 2010) published a report titled *Transforming Teacher Education Through Clinical Practice: A National Strategy to Prepare Effective Teachers*. This influential document called for turning the education of teachers upside down.

> To prepare effective teachers for 21st century classrooms, teacher education must shift away from a norm which emphasizes academic preparation and course work loosely linked to school-based experiences. Rather, it must move to programs that are fully grounded in clinical practice and interwoven with academic content and professional courses. (p. ii)

Since the publication of this document, CAEP, the successor to NCATE and now the national accrediting body for teacher preparation programs), has revised program approval standards to enact these recommendations. The recently approved CAEP Accreditation Standards for Educator Preparation (2013a) now place major emphasis on high-quality clinical practice. This emphasis is illustrated in Standard 2, Clinical Partnerships and Practice—one of five standards used for the approval of teacher preparation programs. This standard states that teacher education programs must ensure "that effective partnerships and high-quality clinical practice are central to preparation so that candidates develop the knowledge, skills, and dispositions necessary to demonstrate positive impact on all P-12 students' learning and development" (CAEP, 2013a, p. 6).

These clinical experiences are intended to ensure that graduates of approved teacher education programs are classroom ready (CAEP, 2013b). CAEP recommends that typical and suggested measures of performance for classroom readiness should include assessments of "teaching practices at key points along a developmental continuum, including but not limited to documentation of expected instructional practices and candidate performance" (CAEP, 2013a, p. 40). In response to this recommendation, several states and many teacher preparation programs have begun to use measures of classroom practice for program evaluation and/or approval (Wei & Pecheone, 2010), and the use of these measures is rapidly spreading. For example, as of September, 2015, one such measure—the edTPA (The Stanford Center for Assessment, Learning, and Equity [SCALE], 2015)—was being used by 633 educator preparation programs in 35 states, and policies regarding the use of this measure (either required or as an acceptable alternative) were in place in 11 states (The American Association of Colleges for Teacher Education [AACTE], 2015).

Recent Developments in Teacher Education

Changes in NCATE and CAEP accreditation standards have been influenced by an ongoing discussion among teacher educators regarding changes needed in educator preparation to improve the practice of program graduates (Ball & Bass, 2003; Ball & Forzani, 2009; Grossman et al., 2009; Lampert, 2010; Sykes, Bird, & Kennedy, 2010). Teacher educators have been motivated to make changes in teacher preparation by the need to improve learning outcomes for all students, especially those who lag behind their peers (McDonald et al., 2013), as well as by research showing that "the day-to-day practices of teachers exert the most powerful influence on learning" (Windschitl et al., 2012, p. 879). These teacher educators have concluded that because student learning depends on what happens in the classroom (Ball & Forzani, 2011;

McDonald et al., 2013), teacher education should directly and unambiguously focus on preparing pre-service teachers for the work they do in classrooms.

This change in focus for teacher education has been driven by several concerns regarding how teachers are currently prepared—and the realization that much of this preparation does not generalize to the classroom (Korthagen, Kessels, Koster, Lagerwerf, & Wubbels, 2001; Levine, 2006; McLeskey & Billingsley, 2008). One concern is that teacher preparation largely occurs in settings that are remote from practice. Although many teacher education programs now include more school-based experiences (Brownell, Ross, Colon, & McCallum, 2005), a large part of most teacher education programs is university course work that emphasizes reflection and investigation rather than the teaching practice (Grossman et al., 2009). Given this circumstance, most teacher preparation programs focus on what teachers need to know *about* instructional practices rather than systematically preparing teachers to *use* instructional practices in classrooms (Grossman et al., 2009).

Another closely related issue for many teacher preparation programs is the loose connection between teacher education course work and field experiences. Although many teacher educators recognize that more closely blending course work with field experiences is needed to support pre-service teachers in linking this information to classroom practice (Brownell et al., 2005), limited progress has been made in addressing this issue (Grossman et al., 2009; Lampert, 2005). The separation between course work and practice results in fragmentation between theory and practice and "places the focus of learning to teach upon conceptual underpinnings of teaching as opposed to the concrete practices new teachers may need to enact when they begin teaching—practice is not at the core of the curriculum" (Grossman et al., 2009, p. 275).

Additionally, teacher educators have expressed concerns that most pre-service teachers' learning about classroom practices is largely left to chance (Ball, Sleep, Boerst, & Bass, 2009). At least in part, this occurs because there is no professional curriculum for teacher education, which produces learning opportunities for pre-service teachers that largely "reflect the orientations and expertise of their instructors and cooperating teacher" (Ball et al., 2009, p. 459). Thus, what pre-service teachers learn is "constrained by the past experiences, skills, and worldviews of their instructors and cooperating teachers" (Windschitl et al., 2012, p. 879). Further constraints are placed on learning because teacher educators have little control over what pre-service teachers learn in field settings. As Grossman and McDonald (2008) pointed out, "university-based teacher educators leave the development of pedagogical skill in the interactive aspects of teaching almost entirely to field experiences, the component of professional education over which we have the least control" (p. 189). Therefore, pre-service teachers may learn practices because they happen to encounter them in field settings, but core practices are most often not identified and systematically taught through closely aligned course work and field experiences (Forzani, 2014).

Finally, teacher educators have expressed concern that teaching is complex work that must be learned, which is often not recognized in how we organize and deliver teacher preparation programs (i.e., pre-service teachers are not prepared to *use* a set of identified practices). Ball and Forzani (2010-2011) contended that teaching is complex and unnatural work that is different in three ways from informal showing, helping, or telling. First, teaching requires specialized knowledge that involves unpacking content in ways that make it accessible and learnable by others. Second, teaching is unnatural because teachers must see information, ideas, and details from the perspectives of others, and many of students may learn in ways that are

different from how the teacher learned. Moreover, teachers must analyze learning tasks with which they are fluent into teachable units to effectively teach all students. Finally, teaching seldom involves working with one student but requires that teachers design and manage classroom environments that must enable a broad range of students to learn. Thus, learning to use teaching practices in classrooms is intricate work, requiring teacher education programs that are carefully designed in ways that help teachers learn to skillfully enact teaching practices. Overall, this training involves "seeing examples of each task, learning to dissect and analyze the work, watching demonstrations, then practicing under close supervision and with detailed coaching aimed at fostering improvement" (Ball & Forzani, 2009, pp. 497-498).

Currently, in most teacher education programs, there is a limited emphasis on carefully designing the experiences necessary for pre-service teachers to learn to use complex classroom practices in natural settings (i.e., classrooms). Rather, pre-service teachers leave preparation programs with a substantial range of knowledge *about* effective instructional practices but with very limited classroom-ready skills that allow them to *use* these practices with students. This led Ball and Forzani (2009) to conclude that "many beginners learn to teach on the job, with either minimal or misfocused and underspecified opportunities to learn practice" (p. 498). Moreover, they suggested that the focus of professional education should be to prepare candidates for the specialized work of teaching and improving on what can be learned through experience alone. To effectively prepare teachers, teacher educators must focus on the details of instructional practice and design professional education programs that offer novices multiple opportunities to learn, practice, and fine-tune their skills.

An Emerging Alternative: Teacher Education Centered in Classroom Practice

In response to the concern about effecitively preparing educators, teacher education is currently undergoing a major shift in focus away from specifying the knowledge needed for

teaching (i.e., learning about teaching) and toward the identification of a core set of classroom practices around which teacher education is built (i.e., learning to teach; CAEP, 2013b; McDonald et al., 2013; NCATE, 2010). As one teacher educator stated,

> much of the recent work on core practices has focused on understanding the practices that teachers engage in to help all students reach ambitious learning goals and on designing and sequencing experiences that will help novices develop proficiency with those practices. (Forzani, 2014, p. 359)

At the heart of this movement toward more systematic training of teachers is the development of a common core of practices that all teachers should be taught as practice becomes the core of teacher education (Ball & Forzani, 2010-2011). Several groups of teacher educators are making practice the core of teacher preparation by developing sets of HLPs in elementary, foreign language, mathematics, reading, and science teacher education (Ball & Forzani, 2011; Grossman et al., 2009; Hlas & Hlas, 2012; Kucan et al., 2011; Windschitl et al., 2012). These HLPs are defined as "a set of practices that are fundamental to support K-12 student learning, and that can be taught, learned, and implemented by those entering the profession" (Windschitl et al., 2012, p. 880). In the following sections, we have described criteria for identifying HLPs and have provided an extended discussion of one HLP for general education teachers: leading a whole-class discussion. We have concluded this section with a description of an HLP related to small-group instruction that we believe is important for all special education teachers.

Criteria for Identifying High-Leverage Practices

Criteria for identifying HLPs are included in Table 1. As these criteria reveal, HLPs are applicable and important because they focus on instructional practices that are effective and are frequently used in the classroom. Similarly, HLPs should preserve the integrity and complexity of teaching and can be learned by pre-service teachers (Grossman et al., 2009). One criterion

that is particularly important is the need to identify a manageable number of fundamental practices that can be taught to all pre-service teachers. How limited should this number be? Several researchers have suggested that it takes 20-100 hours for a teacher to learn to use a complex practice in the classroom (Darling-Hammond, Wei, Andree, Richardson, & Orphanos, 2009; Guskey & Yoon, 2009; Neuman & Cunningham, 2009). As teacher educators have developed HLPs in mathematics and elementary education, they have identified about 20 practices that can reasonably be taught during the course of a teacher preparation program (e.g., Davis & Boerst, 2014).

Table 1

Criteria for Identifying High-Leverage Practices

Applicable and Important to the Everyday Work of Teachers	Applicable and Important to Teacher Education
Focus directly on instructional practice. Occur with high frequency in teaching. Research based and known to foster important kinds of student engagement and learning. Broadly applicable and usable in any content area or approach to teaching. So important that skillfully executing them is fundamental to effective teaching.	Limited in number (about 20) for a teacher education program. Can be articulated and taught. Novices can begin to master. Can be practiced across university and field-based settings. Grain size (i.e., how detailed the practice should be) is small enough to be clearly visible in practice but large enough to preserve the integrity and complexity of teaching. System (or group of HLP) considerations: • Embody a broader theory regarding the relationship between teaching and learning than individual practices. • Support more comprehensive student learning goals (i.e., the whole is more than the sum of its parts).

Note. Criteria compiled from the following resources: Ball, Sleep, Boerst, & Ball, 2009; Grossman, Hammerness, & McDonald, 2009; McDonald, Kazemi, & Kavanaugh, 2013; Windschitl, Thompson, Braaten, & Stroupe, 2012.

Teacher educators at the University of Michigan developed a set of HLPs intended for use with all general education teachers (see Table 2). A description of the process used to develop these practices follows:

> At the University of Michigan, we are piloting a new model of teacher education, which is built on 19 high-leverage practices, as part of our Teacher Education Initiative. Drawing on research linking particular practices to student achievement, published

descriptions of teaching, videos of teachers at work, and personal experience, a group of University of Michigan-based researchers, teachers, and curriculum developers created a comprehensive list that included more than 200 items. Because few studies have identified specific instructional practices that should be taught during initial teacher education, we also relied on wisdom of the profession and analysis of the demands of effective instruction. We narrowed our list to 19 practices that met our definition of high leverage. (Ball & Forzani, 2010-2011, p. 44)

Table 2

High-Leverage Practices for General Education Teachers

1.	Making content explicit through explanation, modeling, representations, and examples.
2.	Eliciting and interpreting individual student's thinking.
3.	Leading a whole-class discussion.
4.	Establishing norms and routines for classroom discourse central to the subject-matter domain.
5.	Recognizing particular common patterns of student thinking in a subject-matter domain.
6.	Identifying and implementing an instructional response to common patterns of student thinking.
7.	Teaching a lesson or segment of instruction.
8.	Implementing organizational routines, procedures, and strategies to support a learning environment.
9.	Setting up and managing small-group work.
10.	Engaging in strategic relationship-building conversations with students.
11.	Setting long- and short-term learning goals for students referenced to external benchmarks.
12.	Appraising, choosing, and modifying tasks and texts for a specific learning goal.
13.	Designing a sequence of lessons toward a specific learning goal.
14.	Selecting and using particular methods to check understanding and monitor student learning.
15.	Composing, selecting, interpreting, and using information from methods of summative assessment.
16.	Providing oral and written feedback to students about their work.
17.	Communicating about a student with a parent or guardian.
18.	Analyzing instruction for the purpose of improving it.
19.	Communicating with other professionals.

Note. Adapted from http://www.teachingworks.org/work-of-teaching/high-leverage-practices. Copyright 2015 by TeachingWorks. Reprinted with permission.

The development and use of HLPs reflect an effort by teacher educators to move away from an emphasis on standards and a curriculum for teacher preparation that focuses on what teachers need to know *about* effective core practices to an emphasis on ensuring that pre-service teachers learn to *use* effective practices in classroom settings (Grossman et al., 2009). Thus,

HLPs represent instructional practices that constitute "a common core of fundamental professional knowledge and skill that can be taught to aspiring teachers" (Ball & Forzani, 2011, p. 19) as part of practice-based teacher preparation programs.

Two caveats regarding this description of HLPs are important. First, at times, HLPs do not directly address instructional practices, but they include practices that teachers frequently use to support sound instructional practice. Examples in Table 2 include HLPs such as engaging in strategic relationship-building conversations with students, communicating about a student with a parent or guardian, and communicating with other professionals (TeachingWorks, 2015). Special education teachers also engage in similar practices to support student learning. Thus, HLPs for both general and special education teachers must also include non-instructional practices that are important to their success as beginning teachers.

A second caveat to note is that HLPs for general and special education teachers are somewhat difficult to differentiate because many HLPs are important for all teachers. For example, a review of the list of HLPs for general educators (see Table 2) includes explicit instruction (Item 1) and small-group instruction (Item 9), both of which are important for special education teachers. We contend that differences in HLPs for general and special education teachers are often a matter of the types of practices used with explicit instruction or small groups, coupled with the focus and intensity of this instruction and emphasis on the use of assessment for instructional decision making. These factors have been described as making special education *special* (Kauffman & Hallahan, 2005). We have addressed this issue further and, later in this paper, have discussed small-group instruction as an illustrative HLP for special education teachers.

In the next section, we have highlighted a practice (i.e., leading a whole-class discussion) that has been identified as an HLP by general educators across disciplines (Ball & Forzani, 2010-2011; Hlas & Hlas, 2012; Grossman et al., 2009). This example illustrates a practice that many general educators have concluded meets the criteria for an HLP and provides a description of how an HLP may be decomposed into components that can be taught in teacher preparation programs. This section is followed by a similar description of an HLP for special education teachers related to small-group instruction.

An Example of a High-Leverage Practice for General Education Teachers

The criteria discussed in Table 1 provide a useful context for considering an informative example of an HLP. An HLP should be supported by research and frequently used by teachers across content areas. Also, it should be a practice that can be learned by novices and taught in teacher preparation programs and should be of a useful grain size. Identification of HLPs that are a useful grain size to get "inside the work of teaching" (Ball & Forzani, 2011, p. 44) is not a simple task. Ball and Forzani (2011) suggested that the identification of these HLPs should begin by asking what the practice requires a teacher to do. A practice that has a useful grain size should preserve the complexity and integrity of teaching, and teacher educators should be able to decompose the practice into component skills that novices can practice and learn to fluency and then integrate back into a whole (Grossman et al., 2009). Some practices, such as calling on students or using wait time, may be learned as a component of an HLP but are too narrow or limited to be considered a stand-alone HLP (Ball & Forzani, 2010-2011).

A practice that is viewed as meeting the criteria for an HLP, including appropriate grain size, by general education teacher educators across disciplines (e.g., mathematics, elementary education, foreign language education) is leading a whole-class discussion. TeachingWorks (2015) provided a description and purpose for whole-group discussion:

> In a whole-class discussion, the teacher and all of the students work on specific content together, using one another's ideas as resources. The purposes of a discussion are to build collective knowledge and capability in relation to specific instructional goals and to allow students to practice listening, speaking, and interpreting. In instructionally productive discussions, the teacher and a wide range of students contribute orally, listen actively, and respond to and learn from others' contributions. (Item 2)

This practice is a useful example of an HLP because "it can be analyzed, can be taught and rehearsed, and is applicable to different contexts and contents of instruction" (Hlas & Hlas, 2012, p. S78). Furthermore, leading a group discussion requires "careful planning to enact discussions that go beyond plot recall to interpretation, conceptual understanding, and the creation of intertextual connections" (Hlas & Hlas, 2012, p. S86). This practice also provides an example that can be decomposed into component parts, practiced and learned to a level of fluency by pre-service teachers, and then integrated into a whole. Finally, general educators have concluded that research supports the importance of leading discussions for classroom teachers across a range of disciplines (Ball & Forzani, 2011; Ghousseini, 2008; Grossman et al., 2009; Hlas & Hlas, 2012; Leinhardt, 2004; Leinhardt & Steele, 2005). This research has revealed that teachers who lead effective discussions increase student engagement (Franke et al., 2009) and opportunities to learn (Gee, 2008); make material more explicit and comprehensible for students (Andrews & McNeill, 2005); promote, sustain, and extend student thinking (Franke et al., 2009); improve student development of critical thinking and reading comprehension (Murphy, Wilkinson, Soter, Hennessy, & Alexander, 2009); and increase students' understanding of content (Doerr, 2006).

It is noteworthy that teacher educators across content areas have identified a range of component practices that are important for leading discussions (Ball & Forzani, 2010-2011; Hlas & Hlas, 2012; Grossman et al., 2009). This is not unusual, considering the complexity of HLPs, and leads to the conclusion that pre-service teachers are unlikely to learn to use all of the components of leading a whole-class discussion (or any other HLP) at a fluent level during the course of their teacher education programs (Grossman et al., 2009). Given this circumstance, Grossman and colleagues (2009) suggested that teacher educators have pre-service teachers focus on learning a limited number of critically important components for leading a discussion (e.g., those supported by practice and/or research-based evidence) such as choosing rich problems, identifying and asking generative questions, and learning to revoice student ideas during a discussion. As students progress in learning these components, they may then focus on integrating practices as they orchestrate a classroom discussion by "asking questions or posing problems to begin a discussion, monitoring student participation during discussion, and responding to student ideas" (Grossman et al., 2009, p. 281).

Additional examples of HLPs for general educators developed by TeachingWorks (2015) at the University of Michigan are included in Table 2. Teacher educators have been at the forefront of developing core HLPs for all general education teachers, math teachers, and elementary teachers (Ball, 2011; Davis & Boerst, 2014; TeachingWorks, 2015). In the next section, to complement and extend this discussion of general education HLPs, we have described an HLP related to small-group instruction that we believe is important for all special education teachers.

An Example of a High-Leverage Practice for Special Education Teachers

One of the most important instructional practices for special education teachers is providing small-group instruction to students who are struggling to learn academic content.

Although small-group instruction is included among HLPs for general education teachers (see Table 2), these groups are often heterogeneous and focus on collaborative work using formats such as cooperative learning (TeachingWorks, 2015). In contrast, special education teachers often provide focused, intensive instruction for homogeneous groups of students who have similar instructional needs. The skills to provide this intensive instruction to small groups are typically not included in general education teacher preparation but are often part of the specialized knowledge and skills included in special education teacher preparation programs (Brownell et al., 2005; Brownell et al., 2009).

Small-group instruction meets the criteria for an HLP because special education teachers frequently engage in this type of instruction, the practice is usable across content areas, and it is supported by research to improve student learning (Foorman & Torgesen, 2001; Gersten et al., 2009; McLeskey & Waldron, 2011; Rosenshine & Stevens, 1986). Furthermore, small-group instruction is an appropriate grain size because as it is complex instruction that can be broken down into component parts that can be taught to pre-service teachers. We, therefore, conclude that skill in small-group instruction is fundamental to effective teaching for special education teachers and is an important HLP that should be included as part of the core curriculum in all special education teacher preparation programs.

This HLP could be characterized as follows: Special education teachers organize and manage effective small group instruction to provide focused, intensive instruction for students who are struggling to learn academic content. This practice requires that special education teachers learn several component skills to effectively use small-group instruction (Foorman & Torgesen, 2001; Gersten et al., 2009; McLeskey & Waldron, 2011; Rosenshine & Stevens, 1986). These components include explicitly defining the learning goals of instruction and

criteria for group assignment; identifying an appropriate group of students who have similar learning needs based on knowledge of the students' backgrounds and data from formal and informal assessments; designing and delivering systematic, well-paced instruction to maximize student engagement and learning using strategies such as explicit instruction, scaffolding, feedback, and guided practice; and using appropriate strategies to monitor student learning and adjust instruction. Student benefits from small-group instruction include effective and efficient learning, developing self-direction, and becoming actively engaged in the learning process.

Additional HLPs for special education teachers could address a range of skills such as

- collaborating with other professionals to improve instruction and student learning;
- using informal assessments (e.g., curriculum-based measures) to monitor student learning and improve instruction;
- establishing an organized, consistent, and respectful learning environment;
- conducting functional behavior assessments and developing behavior improvement plans;
- using peer-assisted strategies to support student learning;
- adapting curriculum and tasks for specific learning goals; and
- using cognitive, metacognitive, and organization skills or strategies to support student learning and independence.

(These examples were adapted from a draft list of HLPs for special education teachers, which is being developed by a working group appointed by the Council for Exceptional Children [CEC], the Teacher Education Division of CEC, and the CEEDAR Center).

Discussion

This practice-based approach to teacher education will likely appeal to many special educators for at least two reasons. First, this approach is not novel to special educators. The use of a practice-based approach to teacher education and HLPs as the core curriculum reflects the core beliefs of special education teacher educators about teaching and learning (i.e., explicitly defining a curriculum that is research based, breaking down practices into components, systematically teaching instructional practices, and ensuring that practices generalize to settings in which they are used). Second, special educators have long been concerned with the research-to-practice gap or, more specifically, the lack of use of effective practices by special education teachers in their classrooms (Burns & Ysseldyke, 2009; Cook, Tankersley, & Landrum, 2009; Greenwood & Abbott, 2001; McLeskey & Billingsley, 2008). This concern has been reflected in the research of several teacher educators in special education who have sought to demonstrate the impact of different pedagogical approaches and field experiences on helping special education teachers learn to implement EBPs (e.g., Alexander, Lignugaris/Kraft, & Forbush, 2007; Goe & Coggshall, 2007; Maheady etl al., 2007; Scheeler, McAfee, Ruhl, & Lee, 2006; Spear-Swerling, 2009).

Despite how appealing this approach may be to some special educators, developing a core curriculum built around HLPs and related practice-based teacher education experiences that will support pre-service teachers in learning to use these practices presents many issues to address and obstacles to overcome (Grossman et al., 2009; McDonald et al., 2013; Windschitl et al., 2012). These issues range from the large and conceptual to those that are narrowly defined and technical. Together, they result in many unanswered questions for those who are developing these programs. Some of the more prominent unanswered questions about large and conceptual issues include the following:

- What infrastructure changes are required in higher education related to staffing programs? What are faculty roles in these programs? How does this influence faculty assignments and faculty evaluations?
- What infrastructure changes are required in clinical settings (i.e., P-12 schools) to support these programs? What are P-12 faculty roles? How does this influence the assignment and evaluation of P-12 faculty?
- What changes are required in the relationship between teacher education programs and local schools? How does this influence the roles of teacher education faculty and teachers in local schools? How can these new relationships and roles be negotiated?
- What types of pedagogy are best used to support pre-service teachers in learning to use HLPs?

Shulman (2005) suggested that teacher education lacks a clearly identifiable signature pedagogy such as those developed in medicine, law, architecture, and engineering. Developing a signature pedagogy for teacher education may be part of developing practice-based programs. At the very least, to develop effective practice-based programs, teacher educators must examine and redesign the learning process required to prepare pre-service teachers to learn to use HLPs. For example, McDonald and colleagues (2013) suggested the use of a learning cycle consisting of (a) introducing and learning about the HLP, (b) preparing for and rehearsing the activity, (c) enacting the activity with students, and (d) analyzing enactment. Teacher educators further recommend the types of pedagogy that should be used in each component of the learning cycle.

There are also several unanswered questions related to issues that are more narrowly defined and technical:

- How are sufficient numbers of highly effective teachers identified to provide models and coaching for pre-service students as they learn to use HLPs?
- How can teacher education programs and schools collaborate to increase the number of highly effective teachers and highly valuable clinical sites?
- What part will technology play in helping pre-service students learn to use HLPs such as using simulations (e.g., TeachLive; Garland, Holden, & Garland, 2015)?
- What is the nature of the relationship between HLPs and EBPs?
- How will HLPs evolve over time as research demonstrates which practices can be most effectively taught to pre-service teachers and also demonstrates the impact of these practices on student learning?

In conclusion, it is important to note that the practice-based approach to training described herein has long been common practice in several professions, including medicine, nursing, plumbing, aviation, and cosmetology. Training in these professions routinely includes clear specification of skills needed for independent practice, systematic development of these skills to a level of fluency through clinical experiences, and performance assessment of skills before independent practice is allowed (Ball, 2012). Ball and Forzani (2010) concluded that just as airline pilots are systematically taught key skills such as take-offs, landings, and turns before being allowed to fly a plane, teachers should be systematically prepared to perform the core tasks of teaching before assuming responsibility for student learning. We contend that this should also be the case for special education teachers. The intricacy of teaching students with disabilities demands a disciplined approach to training that identifies effective practices and systematically trains pre-service teachers to use them in classrooms before they assume responsibility for the safety and well-being of students with disabilities in classrooms.

References

The American Association of Colleges for Teacher Education. (2015). Participation map. Retrieved from http://edtpa.aacte.org/state-policy

Alexander, M., Lignugaris-Kraft, B., & Forbush, D. (2007). Online mathematics methods course evaluation: Student outcomes, generalization, and pupil performance. *Teacher Education and Special Education*, *30*, 199-216. doi:10.1177/088840640703000401

Andrews, S., & McNeill, A. (2005). Knowledge about language and the "good language teacher." In N. Bartels (Ed.), *Applied linguistics and language teacher education* (pp. 159-178). New York, NY: Springer.

Ball, D. L. (2011). *Supporting high-quality mathematics instruction*. Session presented at Math Intervention Leadership Summit, Austin, TX. Retrieved from http://www-personal.umich.edu/~dball/presentations/030211_Scholastic.pdf

Ball, D. L. (2012). *(How) can teacher preparation be improved?* Session presented at AASCU Summer Meeting, San Francisco, CA. Retrieved from http://www.aascu.org/WorkArea/DownloadAsset.aspx?id=5576

Ball, D. L., & Bass, H. (2003). Toward a practice-based theory of mathematical knowledge for teaching. In B. Davis & E. Simmt (Eds.), *Proceedings of the 2002 annual meeting of the Canadian Mathematics Education Study Group* (pp. 3-14). Edmonton, AB: CMESG/GCEDM.

Ball, D., & Forzani, F. (2009). The work of teaching and the challenge of teacher education. *Journal of Teacher Education*, *60*(5), 497-511. doi:10.1177/0022487109348479

Ball, D., & Forzani, F. (2010). What does it take to make a teacher? *Phi Delta Kappan*, *92*(2), 8-12. doi:10.1177/003172171009200203

Ball, D., & Forzani, F. (2010-2011). Teaching skillful teaching. *Educational Leadership, 68*, 40-45.

Ball, D., & Forzani, F. (2011). Building a common core for learning to teach: And connecting professional learning to practice. *American Educator, 35*(2), 17-21, 38-39. Ball, D. L., Sleep, L., Boerst, T., & Bass, H. (2009). Combining the development of practice and the practice of development in teacher education. *Elementary School Journal*, *109*, 458-476.

Boyd, D., Lankford, H., Loeb, S., Rockoff, J., & Wyckoff, J. (2008). *The narrowing gap in New York City teacher qualifications and implications for student achievement in high-poverty schools*. New York, NY: Calder Urban Institute. Retrieved from http://www.nber.org/papers/w14021.pdf

Brownell, M., Bishop, A., Gersten, R., Klingner, J., Denfield, R., Dimino, J., . . . Sindelar, P. T. (2009). The role of domain expertise in beginning special education teacher quality. *Exceptional Children*, *75*, 391-411. doi:0.1177/001440290907500401

Brownell, M., Ross, D., Colon, E., & McCallum, C. (2005). Critical features of special education teacher preparation: A comparison with general education. *The Journal of Special Education*, *38*(4), 242-252. doi:10.1177/00224669050380040601

Burns, M., & Ysseldyke, J. (2009). Reported practices of evidence-based instructional practices in special education. *The Journal of Special Education, 43*(1), 3-11.

Cook, B., Tankersley, M., & Landrum, T. (2009). Determining evidence-based practices in special education. *Exceptional Children*, *75*(3), 365-383.

Council for Accreditation of Educator Preparation. (2013a). *CAEP accreditation standards.* Washington, DC: Author. Retrieved from file:///Users/admin/Downloads/caep-2013-accreditation-standards.pdf

Council for Accreditation of Educator Preparation. (2013b). New accreditation standards adopted to ensure quality in educator preparation. Retrieved from http://www.ate1.org/pubs/CAEP_Commission_on.cfm

Council of Chief State School Officers. (2012). *Our responsibility, our promise: Transforming educator preparation and entry into the profession.* Washington, DC: Author.

Darling-Hammond, L., Wei, R., Andree, A., Richardson, N., & Orphanos, S. (2009). *Professional learning in the learning profession: A status report on teacher development in the United States and abroad.* Dallas, TX: National Staff Development Council.

Davis, E., & Boerst, T. (2014). *Designing elementary teacher education to prepare well-started beginners.* Ann Arbor, MI: TeachingWorks, University of Michigan School of Education.

Doerr, H. M. (2006). Examining the tasks of teaching when using students' mathematical thinking. *Educational Studies in Mathematics, 62*, 3-24. doi:10.1007/s10649-006-4437-9

Fall, A., & Billingsley, B. S. (2008). Disparities in teacher quality among early career special educators in high- and low-poverty districts. In T. E. Scruggs & M. Mastropieri (Eds.), *Advances in learning and behavioral disorders* (pp. 181-208). Bingley, United Kingdom: Emerald Group.

Foorman, B., & Torgesen, J. (2001). Critical elements of classroom and small-group instruction that support reading success in all children. *Learning Disabilities Research & Practice, 16*, 203-212.

Franke, M. L., Webb, N. M., Chan, A. G., Ing, M., Freund, D., & Battey, D. (2009). Teacher questioning to elicit students' mathematical thinking in elementary school classrooms. *Journal of Teacher Education, 60,* 380-392. doi:10.1177/0022487109339906

Forzani, F. (2014). Understanding "core practices" and "practice-based" teacher education: Learning from the past. *Journal of Teacher Education, 65*(4), 357-368. doi:10.1177/0022487114533800

Garland, K., Holden, K., & Garland, D. (2015). Individualized clinical coaching in the TLE TeachLivE lab: Enhancing fidelity of implementation of system of least prompts among novice teachers of students with autism. *Teacher Education and Special Education*. Advance online publication. doi:10.1177/0888406415600769

Gee, J. P. (2008). A sociocultural perspective on opportunity to learn. In P. A. Moss, D. C. Pullen, J. P. Gee, E. H. Haertel, & L. J. Young (Eds.), *Assessment, equity, and opportunity to learn* (pp. 76-108). New York, NY: Cambridge University Press.

Gersten, R., Compton, D., Dimino, J., Santoro, L., Linan-Thompson, S., & Tilly, D. (2009). *Assisting students struggling with reading: Response to Intervention (RtI) for elementary and middle schools.* Washington, DC: Institute for Education Sciences.

Ghousseini, H. (2008, April). Rehearsing discourse routines for learning about and leading classroom mathematics discussions. Paper presented at the annual meeting of the American Educational Research Association, New York, NY.

Goe, L., & Coggshall, J. (2007). *The teacher preparation > teacher-practices > student outcomes relationship in special education: Missing links and new connections*. Washington, DC: National Comprehensive Center For Teacher Quality. Retrieved from http://files.eric.ed.gov/fulltext/ED520770.pdf

Greenwood, C., & Abbott, M. (2001). The research-to-practice gap in special education. *Teacher Education and Special Education*, *24*(4), 276-289. doi:10.1177/088840640102400403

Grossman, P., Hammerness, K., & McDonald, M. (2009). Redefining teaching: Re-imagining teacher education. *Teachers and Teaching: Theory and Practice*, *15*(2), 273-290. doi:10.1080/13540600902875340

Grossman, P., & McDonald, M. (2008). Back to the future: Directions for research in teaching and teacher education. *American Educational Research Journal*, *45*, 184-205. doi:10.3102/0002831207312906

Guskey, T., & Yoon, K. (2009). What works in professional development? *Phi Delta Kappan*, *90*(7), 495-500. doi:10.1177/003172170909000709

Hanushek, E. A., & Rivkin, S. G. (2010). Generalizations about using value-added measures of teacher quality. *American Economic Review: Papers and Proceedings*, *100*, 267-271. doi:10.1257/aer.100.2.267

Hlas, A., & Hlas, C. (2012). A review of high-leverage teaching practices: Making connections between mathematics and foreign languages. *Foreign Language Annals*, *45*(51), S76-S97. doi:10.1111/j.1944-9720.2012.01180.x

Individuals With Disabilities Education Act, 20 U.S.C. § 1400 (2004).

Kane, T., Rockoff, J., & Staiger, D. (2006). *What does certification tell us about teacher effectiveness? Evidence from New York City* (Working Paper 12155). Cambridge, MA: National Bureau of Economic Research.

Kauffman, J., & Hallahan, D. (2005). *Special education: What is it and why we need it.* Boston, MA: Pearson Education.

Korthagen, F. A. J., Kessels, J., Koster, B., Lagerwerf, B., & Wubbels, T. (2001). Linking theory and practice: The pedagogy of realistic teacher education. Mahwah, NJ: Lawrence Erlbaum.

Kucan, L., Palincsar, A., Busse, T., Heisey, N., Klingelhofer, R., Rimbey, M., & Schutz, K. (2011). Applying the Grossman et al. theoretical framework: The case of reading. *Teachers College Record*, *113*(12), 2897-2921.

Lampert, M. (2005, March). Preparing teachers for ambitious instructional practice: Learning to listen and to construct an appropriate response. Paper presented at the annual meeting of the American Educational Research Association, Montreal, QC.

Lampert, M. (2010). Learning teaching in, from, and for practice: What do we mean? *Journal of Teacher Education*, *61*, 21-34. doi:10.1177/0022487109347321

Leinhardt, G. (2004). Instructional explanations: A commonplace for teaching and a location for contrast. In V. Richardson (Ed.), *Handbook of research on teaching* (4th ed., pp. 333-357). Washington, DC: American Educational Research Association.

Leinhardt, G., & Steele, M. D. (2005). Seeing the complexity of standing to the side: Instructional dialogues. *Cognition and Instruction*, *23*(1), 87-163. doi:10.1207/s1532690xci2301_4

Levine, A. (2006). *Educating school teachers*. Washington, DC: The Education Schools Project.

Maheady, L., Jabot, M., Rey, J., & Michielli-Pendl, J. (2007). An early field-based experience and its impact on pre-service candidates' teaching practice and their pupils' outcomes. *Teacher Education and Special Education*, *30*(1), 24-33. doi:10.1177/088840640703000103

Master, B., Loeb, S., & Wyckoff, J. (2014). *Learning that lasts: Unpacking variation in teachers' effects on students' long-term knowledge* (Working Paper 104). New York, NY: Calder Urban Institute. Retrieved from http://cepa.stanford.edu/content/learning-lasts-understanding-variation-teachers-effects-students-long-term-knowledge

Max, J., & Glazerman, S. (2014). *Do disadvantaged students get less effective teaching? Findings from recent Institute of Education Sciences studies* (NCEE Evaluation Brief). Retrieved from National Center for Education Evaluation and Regional Assistance, Institute for Education Sciences website: http://ies.ed.gov/ncee/pubs/20144010/pdf/20144010.pdf

McDonald, M., Kazemi, E., & Kavanaugh, S. (2013). Core practices of teacher education: A call for a common language and collective activity. *Journal of Teacher Education*, *64*(5), 378-386. doi:10.1177/0022487113493807

McLeskey, J., & Billingsley, B. (2008). How does the stability of the teaching force influence the research-to-practice gap? A perspective on the teacher shortage in special education. *Remedial and Special Education*, *29*(5), 293-305. doi:10.1177/0741932507312010

McLeskey, J., & Waldron, N. (2011). Educational programs for elementary students with learning disabilities: Can they be both effective and inclusive? *Learning Disabilities Research and Practice*, *26*(1), 48-57. doi:10.1111/j.1540-5826.2010.00324.x

Murphy, P., Wilkinson, I., Soter, A, Hennessey, M., & Alexander, J. (2009). Examining the effects of classroom discussion on students' comprehension of text: A meta-analysis. *Journal of Educational Psychology*, *101*, 740-754. doi:10.1037/a0015576

National Center for Education Statistics. (2014). *The nation's report card.* Washington, DC: Author. U.S. Retrieved from https://nces.ed.gov/nationsreportcard/subject/publications/main2013/pdf/2014087.pdf

The National Council for Accreditation of Teacher Education. (2010). *Transforming teacher education through clinical practice: A national strategy to prepare effective teachers.* Washington, DC: Author. Retrieved from http://www.ncate.org/LinkClick.aspx?fileticket=zzeiB1OoqPk%3D&tabid=7

Neuman, S., & Cunningham, L. (2009). The impact of professional development and coaching on early language and literacy instructional practices, *American Educational Research Journal*, *46*(2), 532-566. doi:10.3102/0002831208328088

Newman, L., Wagner, M., Cameto, R., Knokey, A.-M., & Shaver, D. (2010). *Comparisons Across time of the outcomes of youth with disabilities up to 4 years after high school: A report of findings from the National Longitudinal Transition Study (NLTS) and the National Longitudinal Transition Study-2 (NLTS2)* (NCSER 2010-3008). Menlo Park, CA: SRI International.

No Child Left Behind Act of 2001, 20 U.S.C. § 6319 (2008).

Rosenshine, B., & Stevens, R. (1986). Teaching functions. In M. C.Wittrock (Ed.), *Handbook of research on teaching* (3rd ed., pp. 376-391), New York, NY: Macmillan.

Scheeler, M. C., McAfee, J. K., Ruhl, K. L., & Lee, D. L. (2006). Effects of corrective feedback delivered via wireless technology on preservice teacher performance and student behavior. *Teacher Education and Special Education, 29*, 12-25. doi:10.1177/088840640602900103

Shulman, L. (2005). Signature pedagogies in the professions. *Daedalus*, *134*(3), 52-59. doi:10.1162/0011526054622015

Spear-Swerling, L. (2009). A literacy tutoring experience for prospective special educators and struggling second graders. *Journal of Learning Disabilities*, *42*, 431-443. doi:10.1177/0022219409338738

The Stanford Center for Assessment, Learning, and Equity. (2015). edTPA. Retrieved from https://scale.stanford.edu/teaching/edtpa

Straus, C. (2015). *How we can build upon No Child Left Behind's progress for students with disabilities in a reauthorized ESEA?* Washington, DC: Center for American Progress.

Sykes, G., Bird, T., & Kennedy, M. (2010). Teacher education: Its problems and some prospects. *Journal of Teacher Education*, *61*(5), 464-476. doi:10.1177/0022487110375804

TeachingWorks. (2015). High-leverage practices. Retrieved from http://www.teachingworks.org/work-of-teaching/high-leverage-practices

U.S. Department of Education. (2010). *A blueprint for reform. The reauthorization of the Elementary and Secondary Education Act.* Washington, DC: Author.

Wei, R., & Pecheone, R. (2010). Assessment of learning in pre-service teacher education. In M. Kennedy (Ed.), *Teacher assessment and the quest for teacher quality: A handbook* (pp. 69-132). San Francisco, CA: Jossey Bass.

Windschitl, M., Thompson, J., Braaten, M., & Stroupe, D. (2012). Proposing a core set of instructional practices and tools for teachers of science. *Science Education*, *96*(5), 878-903. doi:10.1002/sce.21027