



School Leadership Interventions Under the Every Student Succeeds Act: Evidence Review

Updated and Expanded

This report was updated in December 2017 to include Appendix D

Rebecca Herman, Susan M. Gates, Aziza Arifkhanova, Mark Barrett, Andriy Bega, Emilio R. Chavez-Herrerias, Eugeniu Han, Mark Harris, Katya Migacheva, Rachel Ross, Jennifer T. Leschitz, Stephani L. Wrabel

Acknowledgments

We are grateful to staff of The Wallace Foundation who provided input on the report—during a briefing on key findings and through feedback on an earlier draft of this report. Specifically, we appreciate the probing questions and insights from Ed Pauly and Jody Spiro. Kathryn Young, Dan Gordon, and Scott Palmer of Education Counsel provided legislative analysis and framing suggestions that markedly improved the quality of the report. We also thank Catherine Augustine and William Johnston from RAND and Jason Grissom from Vanderbilt University for feedback on the many iterations of this report, as well as Chandra Garber of RAND for her contributions to the text and accompanying documents. We take full responsibility for any errors.

Limited Print and Electronic Distribution Rights

This document and trademark(s) contained herein are protected by law. This representation of RAND intellectual property is provided for noncommercial use only. Unauthorized posting of this publication online is prohibited. Permission is given to duplicate this document for personal use only, as long as it is unaltered and complete. Permission is required from RAND to reproduce, or reuse in another form, any of our research documents for commercial use. For information on reprint and linking permissions, please visit www.rand.org/pubs/permissions.

For more information on this publication, visit www.rand.org/t/RR1550-3.

The RAND Corporation

The RAND Corporation is a research organization that develops solutions to public policy challenges to help make communities throughout the world safer and more secure, healthier and more prosperous. RAND is nonprofit, nonpartisan, and committed to the public interest.

RAND's publications do not necessarily reflect the opinions of its research clients and sponsors.

RAND® is a registered trademark.

www.rand.org

PREFACE

The reauthorization of the U.S. Elementary and Secondary Education Act, referred to as the Every Student Succeeds Act (ESSA), emphasizes evidence-based initiatives while providing new flexibilities to states and districts with regard to the use of federal funds, including funds to promote effective school leadership.

The RAND Corporation conducted a synthesis of the evidence base on school leadership interventions to better inform the use of school leadership interventions under ESSA; identify examples of improvement activities that should be allowable; and guide education policymakers, practitioners, and thought leaders on the use of research-based practices. This report describes the opportunities for supporting school leadership under ESSA, discusses the standards of evidence under ESSA, and synthesizes the research base with respect to those standards. The information can guide federal, state, and district education policymakers on the use of research-based school leadership interventions; help them identify examples of improvement activities that should be allowable under ESSA; and support the use of such interventions. The report expands on the version released in January 2017 (*School Leadership Interventions Under the Every Student Succeeds Act: Evidence Review—Updated and Expanded*, by Rebecca Herman, Susan M. Gates, Emilio R. Chavez-Herrerias, and Mark Harris) by including information about the interventions reviewed in Appendix D

This research has been conducted in RAND Education, a division of the RAND Corporation, with grant funding from The Wallace Foundation. The Wallace Foundation is committed to improving school leadership through better training, hiring, support, and evaluation of principals. For more than a decade, it has invested in research, initiatives, and evaluations to improve school and district leadership and contribute to an evidence base in this area.

Contents

Preface	iii
Chapter 1 Introduction	1
Chapter 2 How Does ESSA Support School Leadership Improvement?	4
Chapter 3 How Does ESSA Define <i>Evidence</i> ?	7
Chapter 4 What Is the Evidence of Effects of ESSA-Eligible School Leadership–Improvement Activities?	16
Chapter 5 Recommendations for Using This Review	28
Appendix A State Exemptions to ESSA Evidence Requirements	30
Appendix B Evidence Requirements Across Federal Legislation and Policy	31
Appendix C Summary of Updates to Evidence Report in December 2016 Release	34
Appendix D Descriptive Summaries of Evidence-Based School Leadership Interventions	37
Notes	56
Bibliography	58

CHAPTER 1. INTRODUCTION

The Every Student Succeeds Act (ESSA) presents a renewed focus on school leadership and acknowledges the importance of school principals to school improvement and effective instruction (Public Law No. 114-95, 2015).¹ The act allows states and districts to use federal funds for activities targeting the quality of school principals and other school leaders.

Key findings

- School leadership can be a powerful driver of improved education outcomes.
- Activities designed to improve school leadership demonstrate positive impact on student, teacher, and principal outcomes, based on research that is consistent with ESSA evidence tiers.
- ESSA expands opportunities for states and districts to use federal funding for initiatives that strive to improve the quality of school leaders.
- ESSA's evidence tiers provide a framework for using evidence in school leadership policy and practice.
- ESSA's framework with tiers of evidence, coupled with the U.S. Department of Education's nonregulatory guidance, strongly emphasizes the use of evidence in setting direction for improving school leadership and prioritizes more-rigorous evidence.
- ESSA provides avenues to consider and build the evidence base for new and underresearched interventions.
- ESSA provides some flexibility for states to interpret and apply evidence requirements.

ESSA repeatedly calls for the use of *evidence-based* activities, strategies, and interventions (Public Law No. 114-95, 2015).² This makes good sense: Investments in education must produce results. Students' efforts, teachers' time, and scarce financial resources are more likely to be well spent when education-improvement activities are selected because there is evidence that they are effective. To select education-improvement activities without considering their proven impact may be seen as an irresponsible use of limited resources.

In particular, ESSA establishes a framework with tiers of evidence for consideration and use by policymakers and educators. While helpful, this framework does not resolve all questions about which leadership activities would meet these tiers to qualify as evidence-based and be most useful to states, districts, and schools. In the face of such ambiguity, the U.S. Department of Education's (2016c) *Non-Regulatory Guidance: Using Evidence to Strengthen Education Investments* (hereafter referred to

Using This Report

We encourage education policymakers and practitioners to look beyond the list. By identifying a number of school leader–improvement efforts that are consistent with ESSA evidence requirements, we hope that educators will be motivated to identify activities that fit their context and that are supported with the best available evidence.

as Evidence Guidance) provides some needed clarity. However, there remain some points of ambiguity. Clarification on these points would support broader application of the evidence tiers to education decisionmaking.

We interpret the language of the legislation in the context of other federal initiatives on education evidence, as well as the Evidence Guidance.

Although we feel that this work is well grounded, we acknowledge that others may provide different—and equally valid—interpretations of the ESSA evidence tiers. Further, our interpretations may change depending on future guidance. This report aims to be transparent about how we have defined each tier and our process for applying the criteria to the evidence we reviewed.

The RAND Corporation conducted a synthesis of the evidence base on school leadership efforts to inform the use of school leadership activities and interventions under ESSA. This report is intended to help federal, state, and district education policymakers understand and implement efforts to improve school leadership that are consistent with ESSA. A more limited version of this report was released in April 2016. Please see Appendix C for an explanation of the changes between the releases of the first and second reports.

In this report, we first offer an overview of the ways in which school leadership may affect outcomes of interest and then describe how school leadership is addressed by ESSA funding streams and statutory provisions. The key questions for this topic are

- What is the evidence that school leadership matters for school improvement?
- What school leadership–improvement activities are supported under ESSA?

We then describe the ESSA-defined tiers of evidence that such funding streams will require. We compare ESSA evidence tiers with evidence requirements for other federal education programs to identify ambiguities in the ESSA tiers. The key question for this section is

- How are the ESSA evidence tiers defined, how does current guidance clarify these tiers, and what further guidance might improve the use of these evidence tiers for education decisionmaking?

Having laid out relevant foci of ESSA as context, we then describe the evidence review. We provide a brief description of our methodology in reviewing the literature and then present findings on improvement activities that could reasonably be interpreted to fit within ESSA’s evidence framework, given the statute and guidance. The key question for this section is

- What is the evidence of effects of school leadership–improvement activities, as judged against the ESSA evidence tiers?

Finally, we offer recommendations to guide education policymakers, practitioners, and thought leaders on the use of research-based practices.

Why Focus on School Leadership?

States and districts have multiple ways to promote school improvement. What would justify a focus on school leadership? Research points to the value and importance of school leaders in driving student achievement gains. This research suggests that school leadership could be an important lever for school-improvement strategies pursued by states and districts.

In their comprehensive review of the literature, Leithwood et al. (2004) concluded that principals are second only to teachers as the most important school-level determinant of student achievement. That finding is significant in view of the reality that there are far fewer principals than teachers in a district and that each principal has the potential to affect the outcomes of far more students. That review was conducted more than ten years ago, but subsequent research has reinforced that basic finding (see, for example, Coelli and Green, 2012; Dhuey and Smith, 2014; Grissom, Kalogrides, and Loeb, 2015). A principal scoring one standard deviation above the mean for principal effectiveness could move the mean student achievement from the 50th to the 58th percentile (Branch, Hanushek, and Rivkin, 2012). Research also demonstrates that principals are important to key teacher outcomes. Teacher turnover is lower in schools led by high-quality principals (Boyd et al., 2011; Branch, Hanushek, and Rivkin, 2012; Grissom, 2011; Ladd, 2011). More-effective schools retain and hire higher-quality teachers and have teachers who improve faster—and principal practices may contribute to these human resource patterns (Loeb, Kalogrides, and Béteille, 2012). Research further indicates that principal turnover leads to lower teacher retention and lower gains for students (Béteille, Kalogrides, and Loeb, 2012; Miller, 2013).³

In sum, there is substantial research evidence demonstrating that school leaders are a powerful driver of student outcomes. This evidence base justifies ESSA's investment in school leaders as part of school improvement. Although ESSA does not approach this level of specificity, federal, state, and district policymakers might consider guiding resources toward principal-improvement activities that have demonstrated impact on principals' actions and characteristics that are associated with improved student outcomes. In the next chapter, we explore the opportunities to improve school leadership through ESSA.

CHAPTER 2. HOW DOES ESSA SUPPORT SCHOOL LEADERSHIP IMPROVEMENT?

Linking Elements of ESSA to School Leadership Activities

School leadership is explicitly acknowledged as a valid target of educational-improvement activities across the titles in ESSA; in many areas of the act where school leadership is not explicitly called out (e.g., school improvement efforts under Title I), states and districts could still choose to support leadership-focused activities in pursuit of school improvement objectives. In this chapter, we provide a brief description of which elements of ESSA could be used for school leadership–improvement initiatives.

Title I (Improving Basic Programs Operated by State and Local Educational Agencies)

Title I of ESSA authorizes approximately \$15.0 to \$16.2 billion per year (2017–2020) to states in formula funding to improve basic state and local education programs.⁴ Title I provides broad allowable uses of funds, including the ability to support leadership. In addition, Title I has historically included a substantial investment in identifying and improving low-performing schools. Most recently, the School Improvement Grant program invested billions of dollars into supporting fundamental change in the lowest-performing schools in each state (see, e.g., U.S. Department of Education, 2016a). ESSA has replaced the School Improvement Grants with School Improvement Funds, which require a 7 percent set-aside of state Title I allotments,⁵ still focused on the lowest-performing schools (including the lowest-performing 5 percent of schools in a state, as well as high schools that fail to graduate one-third or more of their students). All schools receiving Title I school improvement funds must include in their plans proposed school improve-

ment activities that demonstrate strong, moderate, or promising evidence of effects (see ESSA’s evidence tiers I, II, and III, below). School Improvement Funds may be used to support activities to improve school leaders. In fact, under previous versions of the program, funds were frequently directed toward replacing or improving principals.

How Are School Leaders Defined in ESSA?

“SCHOOL LEADER.—The term ‘school leader’ means a principal, assistant principal, or other individual who is— (A) an employee or officer of an elementary school or secondary school, local educational agency, or other entity operating an elementary school or secondary school; and (B) responsible for the daily instructional leadership and managerial operations in the elementary school or secondary school building.”

SOURCE: Public Law No. 114-95, Every Student Succeeds Act, Title VIII, Sec. 8002, Definitions, December 10, 2015, p. 297.

NOTE: The Evidence Guidance indicates that principal supervisors are considered “school leaders.”⁶

Title II, Part A (Supporting Effective Instruction)

Title II, Part A, authorizes approximately \$2.3 billion per year (2017–2020) to states in formula funding to improve the quality of teachers,

principals, or other school leaders.⁷ States may select from a broad array of state-level allowable uses of Title II formula funds to help improve leadership quality, and states may also reserve up to an additional 3 percent of the amount set aside for district subgrants for those activities designed to improve the principal pipeline, such as

- improving principal certification (regular and alternative), evaluation, and support systems
- improving preservice (principal preparation programs and academies)—within certain limitations
- providing training or professional development on such topics as differentiating performance; evaluating teachers; cultural competency; instruction and student learning; postsecondary coursework for students through dual enrollment or early college high school; and science, technology, engineering, and mathematics and career and technical education instruction
- recruiting, retaining, and training school leaders (among others)
- improving induction and mentoring for early-career principals
- differentiating pay for hard-to-fill positions
- offering more-focused opportunities not explicitly targeting school leadership, such as transition to elementary school and school readiness, pre-K–3 alignment, implementing bullying prevention and restorative justice practices, and sexual-abuse prevention.

Although some of these allowable Title II, Part A, uses of funds require an evidence base (from evidence tiers I–IV), others do not. However, the Department of Education’s recent guidance on evidence encourages states and districts to use the strongest evidence appropriate to the need (U.S. Department of Education, 2016c).

Title I Leadership Support Under No Child Left Behind and ESSA

Both No Child Left Behind (NCLB) and ESSA provide resources for comprehensive school support and improvement, which can involve whole-school initiatives that focus on principals. NCLB specifies that school improvement plans must include strategies based on scientifically based evidence. Similarly, comprehensive support and improvement plans under ESSA must include evidence-based interventions. So, both laws require evidence of effects. The major difference between ESSA and NCLB in Title I is the greater flexibility under ESSA school improvement funds for states and districts to select or develop interventions. NCLB’s School Improvement Grant program, as implemented under the American Recovery and Reinvestment Act, gave states and districts a select set of interventions; for schools that had persistent low performance, all of the prescribed interventions explicitly required or implicitly suggested removing the principal. ESSA does not have that requirement. Title I comprehensive school reform under ESSA, unlike School Improvement Grants under NCLB, can be used for a very broad array of improvement initiatives—including principal-focused initiatives.

Title II, Part B (National Activities)

Title II, Part B, authorizes \$469 to \$489 million per year (2017–2020) for all parts of Title II, Part B, National Activities (including support for both teachers and principals), through which the Department of Education administers several programs. This includes the competitive Teacher and School Leader

Incentive Fund, which allows states and districts to develop human-capital management systems, including performance-based incentives, such as bonuses for teachers or principals based on improved student achievement.⁸ These performance incentives can be used with both school leaders and teachers; before ESSA, the incentives only explicitly targeted teachers.

The Supporting Effective Educator Development (SEED) Grant Program is another national activity. The SEED program is a competitive federal grant program to support the development of effective educators, including school leaders, through nontraditional certification programs, evidence-based professional development on several topics (e.g., literacy, numeracy, incorporating postsecondary coursework in the K–12 curriculum), and other learning opportunities (e.g., learning through partnerships, activities leading to credentials).⁹

Finally, ESSA national activities include the School Leader Recruitment and Support fund, a competitive grant program to support efforts to improve the recruitment, preparation, placement, support, and retention of effective principals or other school leaders in high-need schools.¹⁰ Such activities could include traditional or alternative preservice training programs; recruiting, selecting, developing, and placing leaders in high-need schools, with the purpose of implementing reforms; continuous professional development; and developing and disseminating information on best practices.

Both the SEED program and the School Leader Recruitment and Support fund prioritize applications that include activities that meet evidence tiers I–III. Otherwise, Title II supports for school leadership improvement can call on evidence tiers I–IV.

Summary

ESSA provides opportunities to improve school leadership by supporting school improvement programs that have a strong leadership component and by improving steps in the principal pipeline, such as preparation programs, certification, professional development, and recruitment and placement. These investments include formula funding with broad allowable uses, some of which contain expectations that activities meet one of the four evidence tiers (e.g., some Title II, Part A, activities); targeted formula funds with specific requirements around evidence tiers I–III (e.g., School Improvement Funds); and competitive grants that may be used to advance leadership, several of which contain competitive priorities around activities that meet evidence tiers I–III (e.g., the School Leader Recruitment and Support fund). In the next chapter, we explore ESSA evidence requirements, especially for school leadership–improvement activities.

CHAPTER 3. HOW DOES ESSA DEFINE EVIDENCE?

States and districts must show evidence of prior success for some of the leadership-improvement activities allowed under ESSA. The level and type of evidence depends on the exact source of funding for the intervention. We discuss the different tiers of evidence required by ESSA and identify which tiers are needed for each relevant ESSA funding stream.

To frame this discussion, we begin by presenting a theory of action that indicates paths by which school leadership initiatives may be linked to desired student outcomes to understand what types of evidence may be acceptable under ESSA standards.

Identifying What Counts as a School Leadership Initiative

ESSA calls for the use of *evidence-based* activities, strategies, and interventions. A key question for our review is what counts as an evidence-based school leadership initiative? Figure 1 describes the simplified theory of action that guided our review.¹¹ In this theory, a catalyst for change, such as a state policy, drives policymakers and educators to focus on improving school leadership. They select and implement activities, strategies, or interventions designed to improve school leadership. These improvement activities change school leaders' behaviors, which improve instruction, the school climate, and other teacher and school outcomes, which then improve student outcomes. ESSA evidence tiers focus on two parts of the theory: activities and outcomes. (In ESSA, outcomes are somewhat loosely defined, as explored below.) Consistent with ESSA, our review focuses on research

Defining *Evidence-Based* Under ESSA

“(2) EVIDENCE-BASED.—

(A) IN GENERAL.—Except as provided in subparagraph (B), the term ‘evidence-based,’ when used with respect to a State, local educational agency, or school activity, means an activity, strategy, or intervention that—

(i) demonstrates a statistically significant effect on improving student outcomes or other relevant outcomes based on—

(I) strong evidence from at least 1 well-designed and well-implemented experimental study;

(II) moderate evidence from at least 1 well-designed and well-implemented quasi-experimental study; or

(III) promising evidence from at least 1 well-designed and well-implemented correlational study with statistical controls for selection bias; or

(ii) (I) demonstrates a rationale based on high-quality research findings or positive evaluation that such activity, strategy, or intervention is likely to improve student outcomes or other relevant outcomes; and

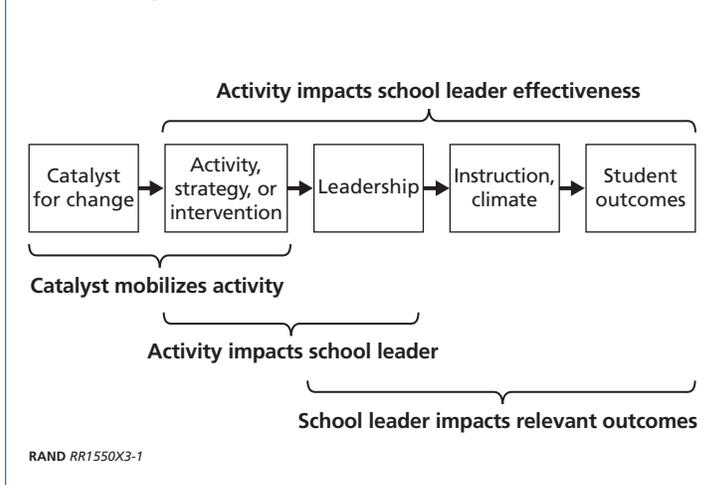
(II) includes ongoing efforts to examine the effects of such activity, strategy, or intervention.

B) DEFINITION FOR SPECIFIC ACTIVITIES FUNDED

UNDER THIS ACT.—When used with respect to interventions or improvement activities or strategies funded under section 1003 [Title I], the term ‘evidence-based’ means a State, local educational agency, or school activity, strategy, or intervention that meets the requirements of subclause (I), (II), or (III) of subparagraph (A)(i).”

SOURCE: Public Law No. 114-95, Every Student Succeeds Act, Title VIII, Sec. 8002, Definitions, December 10, 2015, pp. 289–290.

Figure 1. Simplified Theory of Action for School Leadership Activities



relating school leadership–improvement activities to student, teacher, and school outcomes. However, even in a simplified model, it matters how one gets from improvement activities to outcomes, and so we do discuss other parts of the model (e.g., how activities change leader behavior) in this report. Our simplified theory of action provides a context for the review, which focuses on the relationship between school leadership–improvement activities, intermediate outcomes (such as instruction and climate), and student outcomes. The theory also suggests

other important bodies of evidence not explicitly noted in ESSA but relevant to improving schools (see discussion below).

Introduction to ESSA’s Evidence Tiers

ESSA defines four tiers of evidence, in order of rigor, for judging whether an activity is evidence-based. To be eligible for Title I School Improvement Funds, and to meet a competitive priority under some discretionary grant programs (e.g., SEED or the School Leader Recruitment and Support Fund), an activity must demonstrate evidence in one of the first three tiers. Otherwise, an activity with an evidence-based requirement must demonstrate evidence under any of the four tiers to be approved.¹² The Evidence Guidance encourages the use of the strongest available evidence within the three or four allowable tiers; the legislation does not require it. To be evidence-based, an activity, strategy, or intervention must show statistically significant positive effects on student or other relevant outcomes, based on one or more of the following:¹³

- Tier I (strong evidence)—at least one well-designed and well-implemented experimental study (randomized controlled trial)
- Tier II (moderate evidence)—at least one well-designed and well-implemented quasi-experimental study
- Tier III (promising evidence)—at least one well-designed and well-implemented correlational study that controls for selection bias.

For most federally funded school leadership–improvement activities other than those mentioned above, tier IV is also generally considered sufficient evidence:

- Tier IV (demonstrates a rationale)—the activity, strategy, or intervention demonstrates a rationale based on high-quality research or a positive evaluation that suggests it is likely to improve student or other relevant outcomes. For tier IV activities, there must be ongoing efforts to evaluate the effects of the activity, strategy, or intervention.

Exactly where the evidence requirements apply can vary by program—ESSA’s evidence requirements can be complicated and sometimes unclear. Under Title I, Part A (School Improvement), comprehensive and targeted programs must include evidence-based interventions—using evidence from tiers I, II, or III—to be funded. In Title II, however, some entire programs are required to be evidence-based, some programs are required to be evidence-based for *some but not all components*, and some programs are required to be evidence-based but can be *exempted by the state* if there is insufficient evidence. For example, Teacher and School Leader Incentive Fund grant applications must propose evidence-based projects (using evidence from tiers I, II, III, or IV). Residency programs on school leadership must include evidence-based coursework, but clinical experience and mentoring are not required to be evidence-based. Further, the coursework can be exempted from the evidence requirement at the state’s discretion. Appendix A offers more detail on these distinctions.

Understanding ESSA Evidence Tiers in Relation to Other Federal Education Evidence Requirements

ESSA does not break new ground in setting an expectation that evidence should inform education decisions. No Child Left Behind (NCLB) also established that expectation, using the term scientifically based research 69 times (Public Law 107-110, 2002). The Department of Education’s Institute of Education Sciences was established in 2002 “to provide scientific evidence on which to ground education practice and policy” and developed resources such as the What Works Clearinghouse (WWC) to support that objective (Institute of Education Sciences, undated). (See Appendix B for a comparison of ESSA evidence requirements and requirements in other federal policy.)

Although federal policy has maintained a consistent emphasis on using evidence in education decisionmaking, the approach has evolved. The ESSA evidence tiers are new and differ substantially from prior evidence requirements, such as those used by the WWC (Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, 2014). For example, the WWC only allows evidence at the tier I and tier II levels, while ESSA provides opportunities to use tier III and tier IV evidence. Despite some differences in the language of the law, the Department of Education’s Evidence Guidance draws on the WWC and the Education Department General Administrative Regulations (EDGAR) to further specify the evidence tiers. The Evidence Guidance refers to EDGAR for definitions of research design (randomized controlled trial and quasi-experimental study), relevant outcomes, sample parameters (large, multisite), and logic models.¹⁴ The Evidence Guidance refers to the WWC as a potential source for evidence (original studies and reviews) and suggests that WWC evidence standards can help judge whether a study is well designed and well implemented. In this way, the Evidence Guidance provides useful—although nonregulatory—information to help interpret ESSA’s evidence tiers. Table 1 identifies ambiguities in the ESSA evidence tiers, clarifications provided by the Evidence Guidance, areas where the Evidence Guidance does not provide clarifications (middle column, italics), and sources for the clarifications.

The Evidence Guidance provides suggestions that address many of those areas of ambiguity (U.S. Department of Education, 2016c). However, further clarification will likely be needed—particularly with regard to evidence tier IV.

Table 1. Clarifying ESSA Evidence Tier Ambiguities

	ESSA Ambiguity	Evidence Guidance	Guidance Source
Sample size	Does not refer to sample size	Recommends large, multisite sample	EDGAR, WWC
Context	Does not indicate whether study context matters	Recommends that the sample and setting in the research overlap with that in the site	Not specified
Flawed studies	Requires that experimental and quasi-experimental studies be well designed and well implemented to qualify as tier I or tier II evidence but is silent on how to consider randomized controlled trials and quasi-experimental studies that have some design or implementation flaw	Includes—but downgrades—somewhat flawed randomized controlled trials ^a Does not discuss flawed quasi-experimental designs	WWC
Rationale	The lowest category of evidence (tier IV) under ESSA includes “a rationale based on high-quality research findings or positive evaluation” No clear definition of rationale No clear definition of <i>high-quality research findings</i> or <i>positive evaluation</i>	Defines a rationale as a “well-specified logic model” Does not define <i>high-quality research findings</i>	EDGAR
Ongoing evaluation	Does not specify who should conduct evaluation	Indicates that evaluator could be outside implementing site	Not specified
Relevant outcomes	Does not specify eligible outcomes	Recommends focusing on student outcomes or outcomes associated with program goals	EDGAR
Important findings	Does not mention substantively important findings	Does not mention substantively important findings	EDGAR, WWC use substantively important findings
Body of evidence	Focuses on a single positive finding, rather than preponderance of evidence	Recommends that the favorable findings must not be countered by unfavorable findings	EDGAR, WWC

SOURCES: Public Law No. 114-95, Every Student Succeeds Act, Title VIII, Sec. 8101, Definitions, December 10, 2015; Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, 2014; Evidence Standards; Education Department General Administrative Regulations (EDGAR), Code of Federal Regulations, Title 34, Subtitle A, Chapter 1, Part 77.1, Definitions That Apply to All Department Programs, as amended December 19, 2014; Education Department General Administrative Regulations (EDGAR), Title 34, Subtitle A, Chapter 1, Part 77, Definitions That Apply to Department Regulations, as amended December 19, 2014.

^a Somewhat flawed randomized controlled trials can be considered to meet WWC standards with reservations under some circumstances, putting them on par with well-designed and well-implemented quasi-experimental designs.

Unpacking the Tiers

To conduct this review, we developed functional definitions of the design element of studies associated with each evidence tier (see Table 2). These definitions are consistent with the ESSA evidence tiers and with the Evidence Guidance, with one exception: study size. School leadership–improvement activities, and studies of these activities, tend to be focused on small groups. Requiring sample sizes of 50 or more schools or 350 or more students would be prohibitive and not appropriate for programs serving school leaders. For example, some principal preparation programs—especially those that were tailored to meet regional needs—may serve cohorts that are smaller than 350 participants.¹⁵

Evidence Requirements for Tiers I–III (Strong, Moderate, and Promising Evidence)

The definitions of *strong*, *moderate*, and *promising evidence* in ESSA, like the WWC definitions, prioritize experimental and quasi-experimental study designs. Experimental studies that involve the random assignment of participants to intervention and control groups are potentially tier I studies. Potentially tier II studies are those using a quasi-experimental design. These studies do not use random assignment to sort participants into treatment and control groups. The comparison group may be constructed by (1) assigning participants nonrandomly to groups and then administering the intervention to a group or (2) analyzing existing data, comparing those exposed to the intervention with those not exposed. In either case, analysis must demonstrate that the treatment and comparison groups were equivalent prior to the start of the intervention. Correlational studies with robust controls potentially constitute tier III studies. These studies use existing data to examine the relationship between the intervention and one or more relevant outcomes,

Table 2. Classifying Evidence Against ESSA Evidence Tiers: Study Design

Design	Definition
Potentially Tier I (Strong)	
Experimental study	Random assignment of participants to intervention and control groups
Potentially Tier II (Moderate)	
Quasi-experimental study	Nonrandom assignment of participants to intervention and comparison groups by (1) providing intervention to one group or (2) using existing data, identifying a comparison group of nonparticipants. Must demonstrate that the groups were equivalent before the intervention started ^a
Potentially Tier III (Promising)	
Correlational study with controls	Using existing data, correlations between intervention status and outcomes must control for factors related to selection bias (e.g., participant demographics, prior associated outcomes)
Potentially Tier IV (Research-Based Rationale)	
Rationale	Well-specified logic model that builds on high-quality prior research or a prior positive evaluation

NOTES: The study design only provides part of the requirements for each tier. For tiers I–III, the evidence must have the identified design and must be well designed and implemented. For tier IV, the evidence must have the identified design and included ongoing efforts to examine the effects.

^a Quasi-experimental designs that introduce known pre-intervention differences (i.e., regression discontinuity designs) also qualify.

controlling for factors that might be related to selection bias, such as prior outcome levels or participant background characteristics. According to ESSA, findings must be statistically significant and positive to be considered for tiers I–III.¹⁶

Evidence Requirements for Tier IV (Research-Based Rationale)

While tiers I through III describe levels of evidence, tier IV does not provide direct evidence of impact. Rather, tier IV requires a research-based rationale to believe that the intervention will have the desired impact, coupled with ongoing evaluation of the intervention to build an evidence base on the impact of that intervention. The Evidence Guidance defines *rationale* for tier IV: “*Logic model* (also referred to as theory of action) means a well-specified conceptual framework that identifies key components of the proposed process, product, strategy, or practice (i.e., the active ‘ingredients’ that are hypothesized to be critical to achieving the relevant outcomes) and describes the relationships among the key components and outcomes, theoretically and operationally.”¹⁷

Tier IV was particularly challenging to operationalize in this review. Numerous blogs, commentaries, and articles posted during and since ESSA’s passage have highlighted concerns about the ambiguity in the definition of tier IV evidence (see, e.g., Advanced Education Measurement, 2016; Slavin, 2015; West, 2016). A broad interpretation of the ESSA tier IV language would permit more interventions to be implemented under ESSA, potentially increasing opportunities for states and districts to develop interventions for their own context or to build evidence on popular but underresearched interventions. A narrow interpretation of the ESSA tier IV language would encourage greater use of interventions most likely to be effective, those with strong research-based rationales. We aimed to walk a line between extremes. For this review, we made the following assumptions, based as much as possible on the language of ESSA, the Evidence Guidance, and sources cited in the Evidence Guidance:

- The logic model should be shown graphically (e.g., a series of boxes and arrows). According to the Logic Model Workshop Toolkit (Shakman and Rodriguez, 2015, p. 3), also cited in the Evidence Guidance, a “logic model is a visual representation of a theory of action or program logic guiding the design and implementation of a program or policy.” We did not consider such statements as “X causes Y” to be a logic model.
- The logic model should include—at minimum—key components of the intervention and outcomes,¹⁸ and it may additionally include resources needed to implement the intervention, outputs, and different types of outcomes, such as short-term, intermediate, and long-term outcomes (Shakman and Rodriguez, 2015).
- The research findings or evaluations that support the logic model should show that at least one component of the intervention corresponds to at least one desired outcome.¹⁹

Operationally, we made some decisions to facilitate the review:

- Our primary source of information was the set of documents collected for the evidence review, which mainly included studies but also some descriptive documents.²⁰ There may be interventions that qualify for tier IV but did not appear in the review because they did not have studies.
 - *What does this mean for you?* If your intervention does not appear in the review, it might still have qualified as tier IV. Look for a logic model in descriptive materials (e.g., on the developer’s website, in brochures or pamphlets).

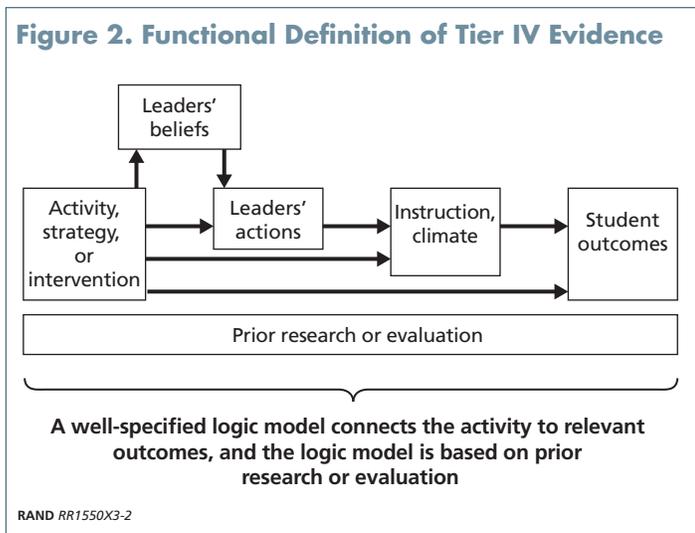
- We relied on an author review of the research and evaluation supporting the logic model, rather than reviewing all of the cited studies.
 - *What does this mean for you?* If you want to have greater confidence in the potential impact of the intervention, you may want to look at the studies cited as support for the intervention’s logic model. Ideally, the supporting research would be strong (tier I) or promising (tier II).
- We did not examine whether the intervention was part of an ongoing evaluation.
 - *What does this mean for you?* If you plan to implement an intervention under tier IV, you should determine whether others are currently studying it, or plan to evaluate it yourself.

Figure 2, a more detailed version of Figure 1, provides a graphical representation of tier IV evidence under ESSA, provided that there is ongoing evaluation of the intervention.

Evidence consistent with this definition would provide valuable—albeit not WWC-level rigorous—information where there is a gap in existing evidence and a practical need to implement reform.

As noted above, we developed and applied operational definitions for the ESSA evidence tiers based on

the legislative language and prior federal initiatives; other researchers and policymakers might legitimately develop alternative definitions. Tier IV evidence is especially open to interpretation. Some interpretations might have a higher standard, and other interpretations might have a lower standard. In operationalizing tier IV, we aimed to balance consideration of newly developed interventions that have not yet established a rigorous evidence base with an expectation that education decisions should be informed with reasonably rigorous evidence.



What Is Not Considered Evidence Under ESSA?

Following the functional guidelines described in Table 2 for this review, there were three common reasons a school leadership study did not qualify as evidence under ESSA. The first is because the study, while related to school leadership, does not examine an activity, strategy, or intervention. Examples of studies that would fail the evidence review for this reason include the following:

- Descriptive analyses of statistical patterns, trends, or relationships, such as a study of the correlation between principal leadership styles and student outcomes: In this example, the study does not provide information on interventions designed to improve principals.
- Case studies that are purposefully selected to identify common patterns or themes: In this situation, the outcomes in the successful cases might relate to one or more interventions, but the study design does not allow one to conclude that a single intervention caused the outcomes.

A second reason that some studies did not qualify as evidence under ESSA was because the intervention examined was not designed to improve principals. For example, an intervention designed to improve teachers' instruction, in which the principal plays a role, is not expressly designed to improve the actions of principals.

The third reason some documents failed this review was because they did not include systematic analyses of evidence. Such studies could include purposefully selected anecdotes about the success of the improvement activity; analysis of untested, irrelevant, or not-validated outcomes (e.g., opinion surveys); and theory presented without any outcome analysis. In our review, these evidence limitations explained why many reviewed documents did not meet the ESSA evidence tiers.

Finally, states and districts faced with the challenge of conducting labor-intensive evidence reviews would benefit from being able to access existing rigorous reviews. Although ESSA does not indicate whether a research review that summarizes findings from a set of studies might itself be considered sufficient to meet standards, the Department of Education's Non-Regulatory Guidance for Title II, Part A, suggests that this might be an option, by referring to an earlier version of the current report: "An additional resource that SEAs [state education agencies] and LEAs [local education agencies] may consider when selecting evidence-based interventions related to school leadership is School Leadership Interventions under the Every Student Succeeds Act from RAND Corporation" (U.S. Department of Education, 2016b, p. 15).

ESSA Ambiguity Regarding Outcomes

To be considered evidence-based according to the ESSA evidence tiers, an improvement activity must demonstrate "a statistically significant effect on improving student outcomes or other relevant outcomes."²¹ Although the legislation does not define *student outcomes* or *other relevant outcomes*, the Evidence Guidance suggests that outcomes should be consistent with Part 77.1 of EDGAR: "[T]he student outcome(s) (or the ultimate outcome if not related to students) the proposed process, product, strategy, or practice is designed to improve; consistent with the specific goals of a program."²² *Other relevant outcomes* might include outcomes not necessarily at the student level. For this study of school leadership–improvement interventions, such outcomes as principal skills, teacher instruction, and school climate also are "relevant outcomes." The Department of Education confirmed this interpretation in response to questions (U.S. Department of Education, 2016d).

School leader–improvement activities might be judged by their impact on teacher outcomes known to improve student outcomes, such as greater use of effective instructional practices or increased retention of highly effective teachers. This interpretation might be very appropriate for activities known to take some time to affect students. Principals' impact on students is mainly filtered through changes to teachers and instruction (Hallinger, 2011; Heck and Hallinger, 2014). An intervention that improves instruction, which then improves student learning, can magnify the breadth of the impact but also may take longer than an intervention that focuses on an individual child. A study of the impact of a principal intervention on instruction may be feasible and informative where a study of the impact of the principal intervention on students is not.

ESSA on Interventions: Branded Versus Nonbranded

ESSA evidence tiers clearly and consistently focus on an “activity, strategy, or intervention.”²³ Research is relevant in as much as it demonstrates that an education activity, strategy, or intervention is likely to produce the desired effect. ESSA does not, however, define what might be considered an activity, strategy, or intervention. Some interventions are created by developers and marketed as “branded” interventions. Others are developed locally and may not have a recognizable brand name. Although either can be supported by tiers I–IV evidence, branded interventions may be more likely to have a robust research base, because the developers are motivated to demonstrate impact to potential customers. This does not, however, mean that only branded interventions may be implemented under ESSA. In fact, a check-the-box approach to adopting only branded interventions named in this report runs counter to the spirit of ESSA, which provides states and districts new flexibilities to develop homegrown interventions most suited to their contexts and approaches.

States and districts may opt to replicate a branded program in their own contexts. If the unbranded program shares all of the components of the branded program and research on the branded program meets other ESSA requirements, then that research can be used to justify the unbranded replication. According to the U.S. Department of Education (2016d), “[t]he label or brand attached to a program or intervention included in a research study is less important than the activities, strategies, and practices that constitute that program or intervention.”

To help educators consider the research-based interventions that might be replicated in their own contexts, in Tables 6–11, we provide brief descriptions of each intervention for which we list findings.

Finally, an unbranded intervention that has tiers I–III evidence of effects or has a well-specified logic model and is subject to ongoing evaluation (tier IV) would meet ESSA evidence requirements.

Outstanding Questions Regarding Evidence Under ESSA

Although the Evidence Guidance addresses many of the ambiguities about ESSA evidence tiers, the following questions on evidence under ESSA remain:

- whether and how to require interventions to demonstrate substantively important findings (findings that have a large effect size)
- how to treat flawed quasi-experimental studies
- whether and how to consider evidence that is relevant to but not clearly about an intervention
- how to differentiate between “good” and “bad” tier IV evidence
- whether and how to use research reviews and syntheses.

We anticipate that federal or state departments of education might provide further suggestions or guidance to help apply the evidence tiers, because ESSA is silent on some points that have been important in past Department of Education evidence standards. Our current review of school leadership–improvement activities casts a broad net to include studies that meet ESSA’s evidence tiers, as specified in the legislation, Evidence Guidance, and in our Table 2. Findings may be subject to change, depending on guidance or information provided by federal or state departments of education.

CHAPTER 4. WHAT IS THE EVIDENCE OF EFFECTS OF ESSA-ELIGIBLE SCHOOL LEADERSHIP-IMPROVEMENT ACTIVITIES?

Because of the opportunities for funding school leadership interventions under ESSA discussed above, RAND conducted a critical literature review of the evidence regarding the effects of school leadership–improvement activities. The goal of this review was both to assess the current state of evidence for school leadership–improvement activities and to provide a model for administrators seeking to grow the evidence base around unproven interventions. In this chapter, we describe the methodology used to conduct our review and then report our key findings.

Methodology for Our Review of the Literature on School Leadership–Improvement Activities

The review of the evidence is framed by ESSA funding streams and evidence requirements. Table 3 shows the relationship graphically. ESSA provides funding for school leadership improvement through Title I; Title II, Part A; and Title II, Part B. Therefore, we review activities that fit the ESSA funding stream definitions. In addition, ESSA requires Title I school improvement activities to be supported by tiers I through III evidence, and Title II activities (when required to be evidence-based) should be supported by tiers I through IV evidence. Table 4 provides an overview of the literature review’s study-inclusion criteria. Again, although we drew on the best available resources to develop the process for applying ESSA evidence tiers, we recognize that reasonable people might take different approaches.

We conducted two waves of literature searches, adding terms and intervention names from the initial review to the second wave. We identified and prescreened more than 3,500 articles based on their titles, conducted a two-stage screening of more than 500 articles based on their abstracts, and fully reviewed 128 articles. For the final stage, two coders reviewed each article, and senior staff reconciled any differences. By the end of this process, studies that are reported here were examined by five researchers.

To help readers effectively process the findings from our literature review, we organized our discussion of evidence around three broad categories of school leadership–improvement activities that, together, include ESSA-allowable school leadership–improvement activities. First, states and districts can monitor

Table 3. School Leadership Supports and Associated ESSA Titles

ESSA Requirement		Activity Eligible for Review (funded by ESSA and relevant to school leadership)
Federal Investment in School Leadership	Evidence Required for Funding	
Title I: School Improvement	Tiers I, II, III	Comprehensive and targeted school reforms with substantial school leadership component
Title II, Part A: Supporting Effective Instruction	Tiers I, II, III, IV	Pipeline activities for principals (certification, evaluation, mentoring, preservice, professional development, recruitment/retention, induction/mentoring, pay)
Title II, Part B: National Activities	Tiers I, II, III, IV	Performance-based human-capital management systems; pipeline activities spanning districts and states; competitive grants

Table 4. School Leadership–Improvement Activities Review: Study-Inclusion Criteria

Parameter	Criterion
Improvement activity	School leadership certification, evaluation, mentoring, preservice, professional development, recruitment/retention, induction/mentoring, or pay; School reform with substantial school leadership component; and other activities considered on a case-by-case basis
Sample and setting	U.S. K–12 public schools (including charter and magnet schools with open admission)
Outcomes	Student achievement, progression, affective outcomes; teacher instruction, affective, impact, and mobility outcomes; school climate; principal leadership behaviors
Recency	Document released from 1995 to 2016
Study design	Tier I: random assignment Tier II: nonrandom assignment Tier III: correlational study with controls Tier IV: research-based rationale
Study implementation (applies to tiers I–III)	Equivalence: (1) baseline similarities between groups on relevant factors (e.g., participant demographics, prior outcomes) or (2) analytic control on relevant factors Confound: no conditions, other than those being studied, that affected one group that did not affect the other(s)

whether principals are meeting performance expectations (i.e., state or district principal evaluation systems). Second, states and districts can take actions to improve the likelihood that school leaders actually meet those expectations through effective management structures, operations, and requirements. This category includes four subcategories: principal preparation programs, strategic staff management, professional learning, and working conditions. Finally, states and districts can improve school leadership through broader school improvement efforts that include leadership enhancements as a key component.

Findings from Our Review of the Evidence

In this section, we present the findings for school leadership–improvement activities that have evidence consistent with ESSA evidence tiers. Across the types of school leadership–improvement activities, we found in this review that several had tiers I through IV evidence. This includes tiers I through III evidence on comprehensive school improvement interventions that feature school leadership as a core component. Such activities would be eligible for funding under Title I School Improvement Funds. Table 5 provides a summary of the findings, and Tables 6–10 provide more detail by type of leadership improvement activity. Tables 6–10 also provide brief descriptions of the elements of each intervention, as of November 2016.²⁴

Table 5. Summary of Tiers I–IV Evidence on the Effects of School Leadership–Improvement Activities

Activity	Evidence Base (number of studies)	Finding
Leader-evaluation system	Tier IV (2)	Promising models with research-based theory of action
Principal preparation programs	Tier II (2), tier III (2)	Student-achievement gains, principal competency gains
	Tier IV (3)	Models with research-based theory of action
Strategic staff management	Tier III (1)	Negative findings for principal change
Professional learning	Tier I (1), tier II (2), tier IV (3)	Positive or no effect on student achievement; reduced staff turnover; promising coaching model with research-based theory of action
Working conditions	Tier II (2), tier IV (3)	Mixed effects of autonomy on achievement; incentive/evaluation system correlates with higher student achievement; school administration manager corresponds to more instructional activity time
School improvement models	Tier I (1), tiers I & II (2), Tier II (5)	Positive effects on student achievement

Table 6. Tiers I–IV Evidence on Leadership Evaluation Programs

Activity	Study	ESSA Tier	Findings
Vanderbilt Assessment of Leadership in Education: 360-degree principal evaluation tool designed to inform evaluation and professional growth	Porter et al., 2006	Tier IV	Prior research supports theory of action: feedback on performance improves leadership behaviors, which improve school performance and student success
Marzano School Leader Evaluation Model: Tool to evaluate school leaders	Carbaugh, Marzano, and Toth, 2014, 2015	Tier IV	Prior research supports the use of key components (see model); the model is hypothesized to improve student achievement

Leader-Evaluation Systems

Leader-evaluation systems are a set of processes, tools, and metrics designed to evaluate principals' strengths and needs—for either accountability or developmental purposes. In theory and policy, these systems should be aligned with rigorous leadership standards (e.g., state standards or the Professional Standards for Educational Leaders; see National Policy Board for Educational Administration, 2015) and draw on multiple perspectives (e.g., the principal's supervisor, teachers, parents) and types of data (e.g., student-achievement data, observations, surveys). Often, the evaluation systems are developed by the state education agency or district and tap into nationally available tools. We found no research that met tiers I through III criteria on the impacts of state or district evaluation systems or evaluation tools on students or other relevant outcomes. However, we did identify two leader-evaluation tools that qualified as having tier IV evidence: the Vanderbilt Assessment of Leadership in Education (Porter et al., 2006) and the Marzano School Leader Evaluation Model (Carbaugh, Marzano, and Toth, 2014). Both of these tools are grounded in rigorous prior research that supports the theory of action.

Principal Preparation Programs

Principal preparation programs, broadly defined, involve a classroom-based program and some type of school-based internship and can lead to an advanced degree or certification. They may be provided by universities, districts, or independent organizations, or some combination of the three. ESSA defines *principal preparation programs* as operated by a public or other nonprofit organization (including or affiliated with an institution of higher education), containing a clinical preparation course (where the student is paired with an effective educator) and instruction in content areas, committed to producing a specified number of effective educators, and requiring demonstrated effectiveness to award a certificate or degree.²⁵ ESSA also defines *school leader residency programs*—a type of preparation program—as school-based, with one year of learning and leading in an authentic school setting, as well as concurrent evidence-based coursework and mentoring from an effective principal.²⁶

There is substantial case-study research identifying components common to expert-identified effective preparation programs but less rigorous research on the effects of preparation programs overall or on specific programs. Table 7a summarizes four studies that provide evidence of effectiveness for principal preparation programs at tiers II and III. Two tier III studies showed positive relationships between characteristics of preparation programs and principal behaviors, teacher staffing, and achievement (Braun, Gable, and Kite, 2008; Fuller, Young, and Baker, 2011). One specific preparation programs—New Leaders—has tier II evidence showing positive outcomes and would be considered evidence-based according to the ESSA definition (Gates, Hamilton, et al., 2014). One preparation program—the Texas Principal Excellence Program—has tier II evidence that shows no statistically significant relationship between student achievement outcomes and program participation after one year but significant improvements on three of nine principal competencies (Fouche, 2011).

An additional three studies provide evidence for principal preparation initiatives or components of those initiatives at the tier IV level, as summarized in Table 7b. These include studies of numerous preservice training programs (Darling-Hammond et al., 2007), a principal residency network (Braun, Billups, and Gable, 2013), and district-university preservice collaborations (Turnbull, Riley, and MacFarlane, 2013).

Table 7a. Tiers I–III Evidence on Principal Preparation Programs

Activity	Study	ESSA Tier	Findings
Texas Principal Excellence Program: Summit meetings, workshops, and webinars; 360-degree assessment; online learning tools; ongoing support from consultants	Fouche, 2012	Tier II	No statistically significant effects on student achievement outcomes for program participants after one year; statistically significant improvement in three of nine competencies according to 360-degree evaluation
New Leaders: Prepares principals to address the achievement gap and related challenges in high-need urban schools. Three core elements: selective recruitment and admissions, residency-based training, and endorsement and support for principals early in their tenures	Gates, Hamilton, et al., 2014	Tier II	Generally larger student-achievement gains in math and reading than in comparable schools, with differing effects across districts
Principal-preparation programs: Usually include classroom-based education, school-based internship, and advanced degree or certification	Fuller, Young, and Baker, 2011	Tier III	Positive association between some characteristics of principal-preparation programs (such as being housed at research or doctoral institutions) and improvements in the qualifications of teachers
Principal-preparation program practices: Emphasis on leadership for instructional improvement and achievement and reflection; included problem-based learning, alignment to standards, key content, individualized development, mentoring, cohort learning, performance assessments, and internships	Braun, Gable, and Kite, 2008	Tier III	Statistically significant correlations between preparation program practices and self-reported leadership practices and student English language arts achievement

Few states currently require principal preparation programs to provide evidence of positive outcomes, such as principal retention rates or impacts on student learning, although some states (e.g., North Carolina, Ohio) are moving toward report cards for preparation programs (Briggs et al., 2013; Yoder, Freed, and Fetters, 2014). Although there are no readily available ratings, there are tools for rating programs. For example, *Quality Measures™ Principal Preparation Program Self-Assessment Toolkit: For Use in Developing, Assessing, and Improving Principal Preparation Programs* (King, 2013) provides rubrics and indicators for programs to self-assess their preparation-program content, pedagogy, clinical practice, recruitment and selection, and graduate performance outcomes.

Table 7b. Tier IV Evidence on Principal Preparation Programs

Activity	Study	ESSA Tier	Findings
Principal Residency Network: Residency with mentor, individualized learning plan, action research project based on data analysis, participation in network events	Braun, Billups, and Gable, 2013	Tier IV	Prior research supports key components of the network
Exemplary preservice and in-service programs Preservice: Bank Street College, Delta State University, University of Connecticut, University of San Diego In-service: Hartford (CT) School District, Jefferson County (KY) Public Schools, Region 1 of New York City, San Diego City Schools	Darling-Hammond et al., 2007	Tier IV	Presents conceptual framework for effective preservice and in-service, supported by evidence
Principal Pipeline Initiative: Sets leader standards; aligns districts' practices to recruit, train, and support new principals with standards, working in collaboration with local universities	Turnbull, Riley, and MacFarlane, 2013; Turnbull, Riley, et al., 2013	Tier IV	Prior research supports theory of action

Strategic Staff Management

Strategic staff management may include activities to improve recruitment and selection processes, placement of principals in schools, and principal replacement. Recruitment and retention interventions may include, for example, communication strategies to broaden the candidate pool or specialized processes and tools to screen and evaluate candidates (e.g., performance-based interview tasks).

Some researchers and policymakers have argued that replacing a principal is a necessary step to improving persistently low-performing schools, both to improve the quality of leadership and to create a disruption in dysfunctional processes that hinder school-wide reform (Hassel and Hassel, 2009; Le Floch et al., 2014). However, studies also have indicated that principal effectiveness increases with experience, suggesting that limiting turnover could improve outcomes (Clark, Martorell, and Rockoff, 2009). We identified only one tier III study examining the implications of principal turnover for student and other school-level outcomes. Table 8 summarizes the findings from the one tier III study: Changing principals does not correspond to achievement gains. This is consistent with findings from the broader literature relating principal turnover to student achievement, which finds either no relationship or a negative relationship between turnover and outcomes (Hochbein and Cunningham, 2013; Béteille, Kalogrides, and Loeb, 2012; Miller, 2013). Based on this review, principal replacement would not be considered evidence-based according to ESSA at this time.

Table 8. Tiers I–IV Evidence on Strategic Staff Management Interventions

Activity	Study	ESSA Tier	Findings
Principal replacement: Removing the sitting principal and installing a new principal	Dhuey and Smith, 2014	Tier III	Installing a new principal correlates with achievement losses; study does not provide support for principal replacement

Professional Learning

Professional learning generally involves a variety of learning experiences for sitting school principals, such as professional development through workshops (single sessions or a series) and coaching or mentoring. These opportunities may be available throughout the principal’s career, although they often are most intensive early in his or her career or placement at a school. Principals have other learning experiences, such as attending conferences, which we do not include here because they are neither intensive enough to mobilize improvement nor discrete enough to evaluate.

As presented in Table 9, mixed outcomes were reported for two professional-development activities that had tier I or tier II evidence. Two studies showed positive effects on student achievement, and another showed greater staff stability in treatment schools but no effect on student achievement or instructional climate. Based on this review, the National Institute for School Leadership Executive Development Program would be considered evidence-based according to ESSA standards. McREL’s Balanced Leadership Program could be considered evidence-based because the one tier I study found reduced teacher turnover; however, the study also found no impact on student achievement (Jacob et al., 2015). There is also tier IV evidence supporting the Metropolitan ISD Principal Coaching Initiative, which provides district coaching for novice and experienced principals (Lee, 2010), and the Arkansas Leadership Academy’s Master Principal Program, which trains exemplary principals to be master principals (Peer, 2012), as well as Socratic Coaching (Lindle et al., 2015).

Table 9. Tiers I–IV Evidence on Professional Learning for Principals

Activity	Study	ESSA Tier	Findings
McREL Balanced Leadership Program: Professional development, focus on 21 leadership responsibilities, case study approach, continuous feedback from facilitators, peer-to-peer interactions; ten two-day cohort-based workshops	Jacob et al., 2015	Tier I	No impact on student achievement or teacher-reported instructional climate; lower staff turnover in treatment schools
National Institute for School Leadership Executive Development Program: Professional development over 1 to 1.5 years, using group discussions, role-playing, video case studies, technology-assisted simulations, online learning, action learning projects; professional learning community	Nunnery et al., 2011	Tier II	Positive effects on reading and math achievement
	Nunnery, Ross, and Yen, 2010	Tier II	Statistically significantly higher achievement gains in reading and math

Table 9—Continued

Activity	Study	ESSA Tier	Findings
Metropolitan ISD Principal Coaching Initiative: District coaching for novice and experienced principals, curriculum-based professional development, networking, visits to successful schools	Lee, 2010	Tier IV	Principals were more learner-centered following coaching; conceptual framework based on research
Coaching: Model for training districts staff to coach principals across rural districts on Socratic questioning and reflective listening	Lindle et al., 2015	Tier IV	Logic model based on research findings; pilot test found that training for coaches should include recognition of the emotions brought to the coaching relationship
Arkansas Leadership Academy’s Master Principal Program: Develop master principals; training on mission, leading change, knowledge of teaching and learning, collaborative relationships, and accountability systems; participants must qualify for each of three phases	Peer, 2012	Tier IV	Logic model based on research; positive evaluation findings, including improved leadership practices, school culture change, and improved achievement (self-reported)

Working Conditions

Working conditions can include opportunities and incentives to improve teaching and learning. For this report, we focus on working conditions designed specifically to improve the effectiveness of school leaders, such as school autonomy and performance incentives or targeted support initiatives aimed to improve a principal’s efficiency. There are many other working conditions (e.g., school climate) that likely mediate or moderate leaders’ effectiveness but are not the focus here.

Principal-autonomy initiatives typically devolve decisions—such as hiring and removing teachers, budget, and school schedule—from district staff to school leaders. Autonomy initiatives focus on teaching and learning and building school capacity and may involve district offices to help support implementation (Honig and Rainey, 2012).

Two tier II studies showed mixed results of *principal autonomy* (see Table 10). Based on this review, principal autonomy might meet ESSA evidence standards, which currently only require one positive finding. There is substantial theory and qualitative evidence suggesting that school autonomy might be more effective if implemented in a way that overcomes known challenges (e.g., principals having little knowledge or experience to use their new flexibilities). Schools and their districts have struggled to implement autonomy (Hansen and Roza, 2005; Honig and Rainey, 2012). Yet there has been very little sustained research to help districts and schools overcome substantial barriers, such as costs, inefficiencies of decentralized authority, and union or legal constraints. Ultimately, theory and some empirical evidence suggest that school-level autonomy can improve school functioning and student outcomes, but implementation challenges have consistently plagued efforts.

The effect of *financial incentives* for principal performance is not yet demonstrated through tiers I through III evidence, but there is tier IV evidence supporting this strategy (Hamilton et al., 2012).

Table 10. Tiers I–IV Evidence on Principals’ Working Conditions

Activity	Study	ESSA Tier	Findings
Principal autonomy: School-based decisionmaking on budget, staffing, curriculum, staffing, or other decisions	Abdulkadiroglu et al., 2011	Tier II	Large, significant score gains for students attending charter schools, and no significant effects for those attending pilot schools (more autonomous than traditional schools, less so than charter schools)
	Steinberg, 2014	Tier II	Autonomy did not affect reading or math achievement but did improve reading proficiency rates
School Administration Manager: Increased principal time on instructional activities; baseline task analysis, daily meetings with School Administration Manager, time change coach, follow-up data analysis, management software	Goldring et al., 2015	Tier IV	Well-specified theory of action based on evaluation
	Turnbull, Haslam, et al., 2009	Tier IV	Positive evaluation
Pittsburgh Principal Incentive Program: Performance-based evaluation; coaching, feedback, and professional development; teaching and learning teams support, and compensation	Hamilton et al., 2012	Tier IV	Prior research supports theory of action; good evaluation systems can promote positive principal behaviors; analysis correlates participation in program with greater student achievement growth, compared with the state

Our review also found a well-specified theory of action based on evaluation in one document (Goldring et al., 2015), and a second document showed positive evaluation results for a targeted effort to support a principal’s time management through the School Administration Manager program (Turnbull, Haslam, et al., 2009).

Comprehensive School Improvement Models

Comprehensive school improvement models are multidimensional activities (e.g., changes in curriculum, instruction, staffing, management) focused on improving low-performing schools. Under ESSA, activities falling under this category can be supported by Title I School Improvement Funds, provided there is tiers I through III evidence to support the activities. Federally supported school improvement efforts have, over the past 14 or more years, embraced comprehensive approaches to school improvement. The Comprehensive School Reform Program, Title I under NCLB, and School Improvement Grants represent billions of dollars in funding for schools. Many of the models promoted by these programs involve school leadership components, such as replacing the principal. The School Improvement Grants, for example, required the use of one of four models, all of which directly or indirectly involved leadership change. Certain school improvement models are also highly centered on school leadership. For this report, we included school

improvement models in our review if school leadership was explicitly identified as one of a small number (five or fewer) of core components.

Our review of evidence uncovered two such school reform models—the KIPP model and the School Turnaround Specialist Model—with tier I, II, or III evidence. KIPP is a public charter school network that emphasizes leadership—including leadership autonomy and visionary leadership—at the heart of the model (KIPP, undated). Seven tier I or II studies found substantial and statistically significant improvements in student achievement (see Table 11); KIPP could be supported, under ESSA Title I, as evidence-

Table 11. Tiers I–IV Evidence on the Effects of School Leadership–Focused School Improvement Models

Activity	Study	ESSA Tier	Findings
Knowledge Is Power Program (KIPP): A public charter school network; “power to lead” is one of the five pillars, or operating principles (high expectations, choice and commitment, more time, power to lead, focus on results)	Angrist et al., 2012	Tier I	Substantial achievement gains, especially among limited-English-proficiency and special education students, and those with low baseline scores had achievement gains each year
	Gleason et al., 2014	Tier II	Positive, statistically significant impacts on student achievement (math and reading), persisting over four years
	Gallager, Sparrin, and Ross, 2005	Tier II	Positive impacts across for fifth- and sixth-grade English language arts, reading, and math
	Tuttle, Teh, et al., 2010	Tier II	Significant positive impacts on reading and math test scores, when comparing student achievement in 22 KIPP middle schools with students in similar public middle schools
	Woodworth et al., 2008	Tier II	Positive effects on math and English language arts tests in middle school
	Tuttle, Gill, et al., 2013	Tiers I, II	Positive impacts across four academic subjects and in both low-stakes and high-stakes tests
	Tuttle, Gleason, et al., 2015	Tiers I, II	Positive, statistically significant impacts on student achievement, especially in elementary and middle schools
University of Virginia School Turnaround Specialist Program: Involves a planning year with the district, school leadership–selection support, and executive development for school leaders and turnaround teams in residential programs and on-site coaching	Player and Katz, 2016	Tier II	On average, participating schools experienced statistically significant improvements in student achievement after completing the program

NOTE: These models are eligible for support under Title I School Improvement Funds.

based. The University of Virginia School Turnaround Specialist Model is a two-year initiative that emphasizes the central role of school leadership in driving school turnaround. One tier II study found positive effects of the program on student achievement after two years that persisted for two years after the intervention (Player and Katz, 2016).

Evidence on Potentially Effective School Leadership Actions

Our literature review also uncovered evidence about school leaders' effective actions and characteristics. This research is not focused on interventions per se. For this reason, research on effective principal actions and characteristics was not included in our review of the evidence regarding interventions that could be supported under ESSA. However,

this research base could help point states and districts toward activities or strategies that have the potential to improve the quality of school principals. As discussed earlier, tier IV evidence might include studies that connect an intervention to a principal action that was demonstrated in prior research to influence teacher, school, and student outcomes. This section shares that prior research. For example, research identifies conditions that can be influenced by principals and are associated with student success: developing and communicating a vision; establishing a culture of high expectations for students and staff; monitoring and supporting instruction; evaluating teachers; hiring, developing, and retaining school staff; maintaining student discipline; managing the school budget; and engaging with the community (Bryk et al., 2010; Seashore Louis et al., 2010). Several meta-analyses identified leadership actions associated with improved student achievement,²⁷ including supporting the development and use of curriculum, instruction, and assessments; building a shared culture of achievement; establishing goals and expectations; resourcing strategically; planning, coordinating, and evaluating teaching and curricula; promoting and participating in teacher learning and development; and cultivating an orderly and supportive environment (Copeland and Neeley, 2013; Leithwood et al., 2004; Marzano, Waters, and McNulty, 2005; Robinson, Lloyd, and Rowe, 2008; The Wallace Foundation, 2013; see also Murphy, 1988; Grissom and Loeb, 2011).

There is qualitative and quantitative empirical evidence linking specific actions, competencies, or leadership styles of principals to student or other school outcomes. This research finds, for example, that principal training, experience as a teacher in the same school, experience as an assistant principal, and experience as a principal all are related to school proficiency growth (Bowers and White, 2014). Principals' organizational-management skills relate to student outcomes (Grissom and Loeb, 2011). How principals spend their time might also matter. When principals spend time coaching and evaluating teachers, developing the education program, and focusing on organizational-management activities, school outcomes appear to be better (Grissom, Loeb, and Master, 2013; Horng, Klasik, and Loeb, 2010).

ESSA Evidence Tiers and School Leadership Activities

ESSA advocates the use of evidence-based activities, strategies, and interventions to improve school leadership; however, the legislation is unclear about the school leadership-improvement activities that might qualify as evidence-based. Guidance on applying the evidence tiers to ESSA-relevant school leadership activities could help inform the use of federal funds to support school leadership-improvement initiatives at the state and district levels.

Research has also explored whether a specific combination of skills, knowledge, and characteristics can manifest in an overall style of leadership that is more effective than others (Heck and Hallinger, 2014; Robinson, Lloyd, and Rowe, 2008; James-Ward and Abuyen, 2015). Instructional leadership, which focuses on improving classroom instruction, may be three to four times more effective in improving academic and some engagement outcomes than transformational leadership, which relies primarily on a charismatic leader energizing staff (Leithwood and Jantzi, 2005; Robinson, Lloyd, and Rowe, 2008). Leadership in which staff share leadership roles appears to improve student achievement more than leadership in which the principal alone makes most school-level decisions (Seashore Louis et al., 2010, p. 21).

Although these studies do not constitute tier IV evidence in their own right, because they are not linked to an initiative or intervention, they could be leveraged by state and district officials or educators to support new leadership interventions with a theory of action grounded in this evidence.

CHAPTER 5. RECOMMENDATIONS FOR USING THIS REVIEW

School leadership matters for student and teacher outcomes. Further, activities designed to improve school leadership demonstrate positive impact on student and teacher outcomes. In this report, we have laid out the evidence indicating that school leadership can be a powerful driver of improved education outcomes and summarized the evidence on activities designed to improve the effectiveness of school leaders.

We set this review in the context of the types of school leadership activities supported by ESSA and the types of evidence considered sufficient to invest in leadership-improvement activities. We hope that we have laid out some of the areas in which further discussion and clarification can help states and districts that are implementing the school leadership provisions in ESSA. Further support in understanding the evidence tiers and examining existing evidence may provide states and districts with important tools to better select and implement activities likely to improve school leadership.

Recommendations for Administrators

For administrators at the state and local levels who are considering school leadership as a lever to promote school improvement, our review implies that ESSA provides increased opportunities for states and districts to use federal funding for initiatives that strive to improve the quality of school leaders. We note that, although our review did identify specific school leadership initiatives that can and do meet the evidence standards required by the legislation, we discourage educators from focusing only on the interventions listed in this report. There may be principal improvement interventions that do not appear in this review; perhaps they were too new to have a strong evidence base or their research was not publicly available. States and districts may opt to replicate a branded program for their own contexts, using the evidence from the latter to justify the use of the former. The inclusion of tier IV, which presents a substantial change from previous legislation on evidence requirements, offers administrators the opportunity to receive funding for implementing new and innovative school leadership interventions while building the evidence base for the interventions.

Recommendations for Educators

Educators may wish to seek guidance in adapting evidence-based interventions to local context. In view of outstanding ambiguities with regard to tier IV evidence requirements, we recommend that state and local decisionmakers interpret the definition of tier IV evidence conservatively and support initiatives that have a theory of action grounded solidly in research and that have the potential for more-rigorous validation.

Recommendations for Policymakers

This report aims to provide policymakers and thought leaders at every level food for thought on the current definitions of evidence tiers and ways in which they can be honed to better support the use of evidence for improving school leadership. More specifically, to support practitioners who would benefit from guidance

on evidence for school leadership–improvement activities, we recommend that policymakers address the following:

- Further clarify the types of evidence that qualify for tier IV, such as minimal requirements for a “well-specified logic model” and the quality of the research or evaluation that informs the logic model.
- Share information about school leader behaviors that are associated with positive outcomes, which will better guide the selection or development of interventions that aim to improve these behaviors.
- Provide technical assistance to states to determine the evidence on activities under consideration.

Looking Ahead: Building the Evidence Base

Our review identified categories of school leadership–improvement activities that had studies meeting ESSA evidence standards and, importantly, identified evidence at all levels of rigor (tiers I–IV) that showed that interventions can improve principal impact. By doing so, the review establishes that schools and districts have the opportunity to take advantage of ESSA funding to improve school leadership and support student achievement. Taking advantage of these funds depends strongly on a school or district’s particular context. With this in mind, we encourage educators to consider the broader evidence for interventions, rather than focusing only on the interventions listed in this report. Policymakers, administrators, and educators at the state and district levels who implement initiatives based on tier IV evidence will need to engage in ongoing evaluation that will contribute to the evidence base summarized here.

APPENDIX A. STATE EXEMPTIONS TO ESSA EVIDENCE REQUIREMENTS

ESSA allows states to waive evidence requirements in some cases. The cases relevant to school leadership–improvement activities are listed below.

- Title II, coursework for school leader residency programs (ESSA 2015, II U.S.C. § 2002(1)(B)(i), p. 101)
 - . . . participates in evidence-based coursework, to the extent the State (in consultation with local educational agencies in the State) determines that such evidence is reasonably available, that is integrated with the clinical residency experience; . . .
- Title II, Part A, supporting effective instruction, state use of funds new teacher/principal/leader induction and mentoring programs (ESSA 2015, II U.S.C. § 2101 (c)(4)(B)(vii)(III), p. 120)
 - . . . new teacher, principal, or other school leader induction and mentoring programs that are, to the extent the State determines that such evidence is reasonably available, evidence-based, and designed to—
- Title II, Part A, supporting effective instruction, state use of funds, other activities (ESSA 2015, II U.S.C. § 2101 (c)(4)(B)(c) (xxi), p. 122)
 - (xxi) Supporting other activities identified by the State that are, to the extent the State determines that such evidence is reasonably available, evidence based and that meet the purpose of this title.
- Title II, Part A, supporting effective instruction, local use of funds (ESSA 2015, II U.S.C. § 2103 (b) (3)(E), p. 127)
 - (E) providing high-quality, personalized professional development that is evidence-based, to the extent the State (in consultation with local educational agencies in the State) determines that such evidence is reasonably available, for teachers, instructional leadership teams, principals, or other school leaders, that is focused on improving teaching and student learning and achievement, including supporting efforts to train teachers, principals, or other school leaders to—
- Title II, Part A, supporting effective instruction, local use of funds (ESSA 2015, II U.S.C. § 2103 (b) (3)(P), p. 129)
 - (P) carrying out other activities that are evidence based, to the extent the State (in consultation with local educational agencies in the State) determines that such evidence is reasonably available, and identified by the local educational agency that meet the purpose of this title.

APPENDIX B. EVIDENCE REQUIREMENTS ACROSS FEDERAL LEGISLATION AND POLICY

Since the early 2000s, federal education policy has promoted the development and use of rigorous impact evidence when selecting school improvement activities, to improve the likelihood that education investments will yield the hoped-for outcomes. Like NCLB, which was the prior version of the Elementary and Secondary Education Act (ESEA), ESSA includes a focus on encouraging education decisionmakers to use evidence to select programs. However, in response to concerns about earlier policies, ESSA's statutory provisions may practically have the effect of providing more flexibility to states leaders and other policymakers to use more types of evidence and even—when the research base is weak—to waive evidence requirements. Because the requirements in ESSA and NCLB are very different, we conducted a careful comparison of the language in NCLB and ESSA to determine whether and how the evidence requirements for ESSA are more or less prescriptive than those in NCLB (see Table 12). This analysis may help policymakers and educators with a history of using federal resources for school leadership initiatives understand allowable interventions under ESSA vis-à-vis NCLB.

Table 12. NCLB and ESSA Evidence Requirements

No Child Left Behind	Every Student Succeeds Act
Evidence Requirements for Title I, Part A	
<p>Sec. 1116. Academic Assessment and Local Educational Agency and School Improvement.</p> <p>(b) School Improvement</p> <p>(3) School Plan</p> <p>“(A) REVISED PLAN.—After the resolution of a review under paragraph (2), each school identified under paragraph (1) for school improvement shall, not later than 3 months after being so identified, develop or revise a school plan, in consultation with parents, school staff, the local educational agency serving the school, and outside experts, for approval by such local educational agency. The school plan shall cover a 2-year period and—</p> <p>“(i) incorporate strategies based on scientifically based research that will strengthen the core academic subjects in the school and address the specific academic issues that caused the school to be identified for school improvement, and may include a strategy for the implementation of a comprehensive school reform model that includes each of the components described in part F”</p> <p>“A schoolwide program shall include the following components: schoolwide reform strategies that use effective methods and instructional strategies that are based on scientifically based research.”</p>	<p>Title I</p> <p>Sec. 1111: “District must have comprehensive support and development plan for each school identified for school support and improvement, interventions named in plan must include at least one that is evidence based.” 1 U.S.C. § 1111 (d) p37-40, (d)(1) (B)(i)</p> <p>Same for targeted support and improvement (2)(B)(ii)</p>

Table 12—Continued

No Child Left Behind	Every Student Succeeds Act
Definition of <i>Strong Evidence</i>	
<p>Title IX, Part A, Sec. 9101, Definitions, p. 532(1956)</p> <p>“Except as otherwise provided, in this Act:</p> <p>“(37) SCIENTIFICALLY BASED RESEARCH.—The term ‘scientifically based research’—</p> <p>“(A) means research that involves the application of rigorous, systematic, and objective procedures to obtain reliable and valid knowledge relevant to education activities and programs; and</p> <p>“(B) includes research that—</p> <p>“(i) employs systematic, empirical methods that draw on observation or experiment;</p> <p>“(ii) involves rigorous data analyses that are adequate to test the stated hypotheses and justify the general conclusions drawn;</p> <p>“(iii) relies on measurements or observational methods that provide reliable and valid data across evaluators and observers, across multiple measurements and observations, and across studies by the same or different investigators;</p> <p>“(iv) is evaluated using experimental or quasi-experimental designs in which individuals, entities, programs, or activities are assigned to different conditions and with appropriate controls to evaluate the effects of the condition of interest, with a preference for random-assignment experiments, or other designs to the extent that those designs contain within-condition or across-condition controls;</p> <p>“(v) ensures that experimental studies are presented in sufficient detail and clarity to allow for replication or, at a minimum, offer the opportunity to build systematically on their findings; and</p> <p>“(vi) has been accepted by a peer-reviewed journal or approved by a panel of independent experts through a comparably rigorous, objective, and scientific review.</p>	<p>Title VIII, Sec. 8101,</p> <p>“(21) EVIDENCE-BASED.—</p> <p>“(A) IN GENERAL.—Except as provided in subparagraph (B), the term ‘evidence-based,’ when used with respect to a State, local educational agency, or school activity, means an activity, strategy, or intervention that—</p> <p>“(i) demonstrates a statistically significant effect on improving student outcomes or other relevant outcomes based on—</p> <p>“(I) strong evidence from at least 1 well-designed and well-implemented experimental study;</p> <p>“(II) moderate evidence from at least 1 well-designed and well-implemented quasi-experimental study; or</p> <p>“(III) promising evidence from at least 1 well-designed and well-implemented correlational study with statistical controls for selection bias; or</p> <p>“(ii)(I) demonstrates a rationale based on high-quality research findings or positive evaluation that such activity, strategy, or intervention is likely to improve student outcomes or other relevant outcomes; and</p> <p>“(II) includes ongoing efforts to examine the effects of such activity, strategy, or intervention.’</p> <p>“(B) DEFINITION FOR SPECIFIC ACTIVITIES FUNDED UNDER THIS ACT.—When used with respect to interventions or improvement activities or strategies funded under section 1003, the term ‘evidence-based’ means a State, local educational agency, or school activity, strategy, or intervention that meets the requirements of subclause (I), (II), or (III) of subparagraph (A)(i).</p>

Defining Evidence Requirements

Both iterations of ESEA promote the use of evidence in decisionmaking. The term *scientifically based research*, which appears 69 times in NCLB, is defined as having rigorous methods, analysis, data collection, design (experimental or quasi-experimental), and reporting and has been independently reviewed. The term *evidence-based*, which appears 63 times in ESSA, also emphasizes design and implementation (which could be interpreted to include methods and data analysis). Both prioritize experimental studies and, secondarily, quasi-experimental studies as the strongest designs for judging the impact of interventions. There are also differences between the two laws, some trivial and some profound. For example, while ESSA requires statistically significant findings for three of the four evidence tiers, NCLB, as implemented by the Institute

of Education Sciences and the WWC (but not in the letter of the law), prioritizes statistically significant and substantively important outcomes. As another example, NCLB requires independent review, and ESSA does not. At a more basic level, ESSA allows tier III evidence (correlational analysis) and tier IV evidence (a rationale based on prior evidence that the intervention is likely to be effective) that do not meet the minimum requirements of NCLB.

Overall, there are components of NCLB legislation that have more-rigorous demands for the types of research used (e.g., peer review, no theoretical work without empirical investigation) than ESSA does. At the same time, ESSA lays out a priority structure for the types of research evidence that makes clear that the preferred evidence comes from the most-rigorous research designs.

Applying Evidence Requirements to Support Principal Improvement

Both NCLB and ESSA provide multiple opportunities for supporting principal improvement—ESSA more so than NCLB. The evidence requirements for these principal-support activities are not more stringent under ESSA than under NCLB. In fact, in many instances, ESSA provides more flexibility regarding evidence.

Under Title I, both iterations of ESEA provide resources for comprehensive school support and improvement; comprehensive school support and improvement can involve whole-school initiatives that focus on principals. NCLB specifies that all activities, strategies, interventions, or plans identified for the purposes of corrective action, targeted assistance, or school improvement rely on scientifically based evidence. For example, schools implementing school-wide reform strategies had to use “effective methods and instructional strategies that are based on scientifically based research.”²⁸ NCLB set the same expectation for schools implementing targeted assistance programs. Title I, Sec. 1116(b)(4)(C), establishes that any and all technical assistance given to schools, by either a local education agency or external provider, must be based on scientifically based research.

In ESSA, the language and expectations are similar. Comprehensive and targeted support and improvement plans for the lowest performing schools must include evidence-based interventions (Title I, Part A, Sec. 1111(d)(1)(B)(ii) and Title I, Part A, Sec. 1111(d)(2)(B)(ii)). There is some ambiguity in the exact requirements. Legal analysis suggests that the use of the term *include* means that an intervention that has one or more components demonstrated effective by eligible evidence (tiers I through III for Title I School Improvement Funds) would qualify for funding.

Title II may be somewhat more ambiguous regarding evidence requirements. Unlike for Title I school improvement activities, most initiatives funded under Title II can be supported by evidence from any of the four tiers. Several new components in ESSA Title II suggest greater flexibility about whether evidence is required. The 3 percent set aside for principal pipeline activities (ESSA 2015, Title II, Part A, U.S.C. Sec. 2101(c)(4), pp. 118–122) lists 20 potentially fundable types of activities. The last item in the list, “[s]upporting other activities identified by the State that are, to the extent the State determines that such evidence is reasonably available, evidence based,” could suggest but does not require that the preceding items be evidence-based, depending on interpretation of the law.

Finally, the two competitive grants under Title II that can support principal improvement activities give a competitive priority to grant applications based on tiers I–III evidence: “(e) PRIORITY.—In awarding grants under this section, the Secretary shall give priority to an eligible entity that will implement evidence-based activities, defined for the purpose of this subsection as activities meeting the requirements of section 8101(21)(A)(i)” (ESSA 2015, IIA4 U.S.C. Sec. 2242, pp. 147–148).

APPENDIX C. SUMMARY OF UPDATES TO EVIDENCE REPORT IN DECEMBER 2016 RELEASE

We began work on School Leadership Interventions Under the Every Student Succeeds Act: Evidence Review just a few months after ESSA became law. At that time, the language of the law stood alone. To understand the ESSA evidence tiers and apply them to research on school leadership interventions, RAND analyzed the ESSA and NCLB legislative language, as well as existing federal policy tools, such as the WWC standards. Based on the information available in early 2016, we developed an approach for the preliminary evidence review that was published in April 2016. The April 2016 version of our report cautioned, “We anticipate that federal or state departments of education might provide further suggestions or guidance to help apply the evidence tiers, because ESSA is silent on many points that have been important in past Institute of Education Science evidence standards. Our current review of school-leadership-improvement activities casts a broad net to include studies that meet ESSA’s evidence tiers, as specified in the legislation. Findings may be subject to change, depending on guidance or information provided by federal or state departments of education” (Herman, Gates, et al., 2016, p. 9).

To take advantage of new information and additional ESSA analysis, some changes were made to the report between the April 2016 release and the December 2016 updated release. This appendix describes the following changes.

- Evidence Guidance: The December 2016 updated report incorporates guidance provided by the U.S. Department of Education on the ESSA evidence tiers and Title II; incorporating this guidance led to a re-review of most of the studies in the original document and a few changes to study dispositions.
- Level of evidence reviewed: By design, the April 2016 report focuses on tiers I through III evidence. The December 2016 updated report also examines tier IV evidence.
- Additional research identified: Between April and December 2016, we expanded the literature search. Thus, additional studies were added to the review.

Evidence Guidance

On September 16, 2016, the U.S. Department of Education released the Non-Regulatory Guidance: Using Evidence to Strengthen Education Investments (2016c). As anticipated, it provided clarity on many of the questions raised in the April version of the report, addressing all four evidence tiers. Table 13 provides a summary of the main points of the guidance as relates to this review (see last column).

We revised some evidence requirements based on this guidance and then re-reviewed studies that were categorized by any of our reviewers, in any stage of the process, as possible tier IV, as well as a large number of tiers I–III studies. This resulted in reclassification of a small number studies. Our decisions not to include in this report some of the studies discussed in the April report were made based on our analysis of the criteria in the Evidence Guidance and our own analysis of the studies and should not be interpreted as a judgment of the effectiveness of the leadership interventions discussed in those studies. As is the case for any of interventions, lack of strong evidence does not necessarily mean lack of effectiveness. This report assesses studies, not interventions, in accordance with ESSA’s evidence provisions.

Table 13. Clarifying ESSA Evidence Tier Ambiguities

	ESSA Ambiguity	Evidence Guidance	Changes to Report
Sample size	Does not refer to sample size	Recommends large, multisite sample	No change; large sample sizes would be challenging for a program serving school leaders
Context	Does not indicate whether study context matters	Recommends that the sample and setting in the research overlap with that in the site	No change; information about the context depends on the end user
Flawed studies	Requires that experimental and quasi-experimental studies be well designed and well implemented to qualify as tier I or tier II evidence but is silent on how to consider randomized controlled trials and quasi-experimental studies that have some design or implementation flaws	Includes—but downgrades—somewhat-flawed randomized controlled trials ^a <i>Does not discuss flawed quasi-experimental designs</i>	Downgraded flawed tier I to tier II and flawed tier II to tier III, if the study met the lower tier’s criteria, rather than rejecting studies
Rationale	The lowest category of evidence (tier IV) under ESSA includes “a rationale based on high-quality research findings or positive evaluation” No clear definition of <i>rationale</i> No clear definition of <i>high-quality research findings or positive evaluation</i>	Defines a <i>rationale</i> as a “well-specified logic model” <i>Does not define research findings</i>	Established tier IV standards to require visual logic model consistent with EDGAR definition and required the document to cite evidence supporting logic model
Ongoing evaluation	Does not specify who should conduct the evaluation	Indicates that the evaluator could be an outside implementing site	No change; demonstrating ongoing evaluation is the role of the end user
Relevant outcomes	Does not specify eligible outcomes	Recommends focusing on student outcomes or outcomes associated with program goals	Based on additional clarification from the Department of Education, included student, teacher, and school leader outcomes
Important findings	Does not mention substantively important findings	<i>Does not mention substantively important findings</i>	No change
Body of evidence	Focuses on a single positive finding, rather than preponderance of evidence	Recommends that the favorable findings must not be countered by unfavorable findings	No change

SOURCE: Public Law No. 114-95, Every Student Succeeds Act, Title VIII, Sec. 8101, Definitions, December 10, 2015.

^a Somewhat flawed randomized controlled trials can be considered to meet WWC standards with reservations under some circumstances, putting them on par with well-designed and well-implemented quasi-experimental designs.

Level of Evidence Reviewed

Because of the quick turnaround of the first report, the project's prioritization of more-rigorous evidence, and better existing methodological guidance for tiers I through III, the April report reviewed only tiers I through III evidence. The April report did offer a strategy for thinking about tier IV and noted the potential for tier IV evidence but did not systematically report findings based on tier IV evidence. With the longer review window and clarification in the Evidence Guidance, it was possible to expand the review to include tier IV, as presented in the December 2016 updated report.

Additional Research Identified

For the April report, RAND librarians searched the following sources for relevant articles:

- Databases:
 - Academic Search Premier
 - SocINDEX
 - ProQuest
 - Dissertation Abstracts
 - EJS E-Journals
 - Campbell Collaboration
 - Scopus
 - ERIC
 - WorldCat
 - Education Research Complete
- Websites:
 - National Association of Elementary School Principals
 - National Association of Secondary School Principals
 - Education Next
 - ASCD
 - Wallace Foundation
 - IES SEED and I3 grantees.

We aimed to conduct a broad search, using terms relevant to the sample (e.g., *public education*, *public school*), research (e.g., *impact*, *RCT* [randomized controlled trial]), and substantive focus (e.g., *principal*, *administrator*)—individually and together.

For the December updated report, we expanded the search to include articles released since April 2016 and to use intervention names, citations, and search terms that emerged in the initial search. Ultimately, we identified and prescreened more than 3,500 articles based on their titles, conducted a two-stage screening of more than 500 articles based on their abstracts, and fully reviewed 128 articles.

APPENDIX D. DESCRIPTIVE SUMMARIES OF EVIDENCE-BASED SCHOOL LEADERSHIP INTERVENTIONS

This appendix describes key features of the evidence-based interventions aiming to strengthen K–12 school leadership included in this report. District officials, states education leaders, and intervention developers may use these descriptions to help craft, refine, or select evidence-based interventions to meet their own needs.

In some cases, the evidence is based on evaluations of branded programs. As noted, research on branded programs can justify using interventions that share key components of the branded programs, even if the selected interventions are not implemented by the intervention developer. This is important because the studied interventions may evolve over time or even cease to be offered by the developer. The evidence of outcomes for the intervention, as studied, remains valid.

Each intervention summary includes a short description of each of the following elements:

- **Purpose:** stated primary goals or objectives of the intervention (all interventions are designed to improve school leader performance, but many also have a targeted leadership capability or school demographic that they aim to improve)
- **Intervention type:** leader-evaluation system, principal preparation program, professional learning, working conditions, and leader-focused school improvement models
- **Intervention target:** type of school leader being targeted (such as aspiring or current principals)
- **Intervention components:** main elements or types of activities that constitute the intervention (such as professional development, training, or coaching)
- **Duration:** reported length of time or frequency with which the intervention is conducted
- **Intervention support:** special resources or activities that are needed to support the implementation of the intervention, including materials, staff, and informational resources (such as manuals)
- **Intervention implementers:** people or organizations that deliver or support the intervention
- **Intervention developers:** people or organizations that developed or authored the intervention; web-sites are provided when available
- **Cost:** reported cost or cost factors in implementing the intervention; this information is seldom available
- **Summary of evidence:** number of studies assessing the impact of the intervention (per ESSA tiers) and their short reference lists; in the case of tier I through tier III studies, a short description of the positive findings and of the context of the empirical studies is provided, and in the case of tier IV, there was no empirical evidence, so we did not have such information to include.

To develop each intervention summary, a team of RAND researchers examined the descriptions of the interventions as available in published research and in other public sources of information, such as intervention or developer web pages and marketing materials. Draft versions of each summary description were sent to the respective intervention developers (if the intervention has an identified developer) or to the authors of the reviewed studies (if the intervention does not have a named developer) to give them an opportunity to provide feedback and fact-checking. Summary descriptions, which focus on the currently available version of the intervention, were enriched with this feedback and reviewed by RAND principal investigators. It is important to acknowledge that, depending on the quality and accuracy of available documentation and the

feedback, the resulting descriptions might differ from how the interventions were implemented at the time of the studies or from how they are currently implemented. In the summary of evidence sections, we note whether the intervention as studied differed from the intervention description. Table 14 lists the interventions described in this appendix by intervention type.

Table 14. Interventions and Levels of Evidence, by Intervention Type

Intervention Type	Intervention Name	Highest Level of Evidence
Leader-evaluation systems	Marzano School Leader Evaluation Model	Tier IV
	Vanderbilt Assessment of Leadership in Education	Tier IV
Principal preparation programs	Coaching Rural Leaders	Tier IV
	New Leaders Aspiring Principals Program	Tier II
	Principal Pipeline Initiative	Tier IV
	Principal preparation programs	Tier III
	Principal Residency Network	Tier IV
	Texas Principal Excellence Program	Tier II
Professional learning	Arkansas Leadership Academy’s Master Principal Program	Tier IV
	McREL Balanced Leadership Program	Tier I
	Metropolitan Independent School District Principal Coaching Initiative	Tier IV
	National Institute for School Leadership Executive Development Program	Tier II
Working conditions	Pittsburgh Principal Incentive Program	Tier IV
	Principal autonomy	Tier II
	School Administration Manager	Tier IV
School improvement models	Knowledge Is Power Program (KIPP)	Tier I
	University of Virginia School Turnaround Program	Tier II

Arkansas Leadership Academy's Master Principal Program

- **Purpose:** Develop knowledge and skills of practicing principals through residential leadership academies.
- **Intervention type:** Professional learning.
- **Intervention target:** Practicing public school principals.
- **Intervention components:**
 - Training: There are a total of three training phases over approximately three years. Phase I focuses on knowledge of leadership standards and practices (such as setting clear and compelling direction, shaping culture for learning, leading and managing change, transforming teaching and learning, and managing accountability systems) and the use of collaborative tools. Phase II focuses on the implementation and application of knowledge. Phase III focuses on extending leadership beyond the school building. For each phase, school principals attend a series of three to four residential training sessions, each of which occurs over three to four days.
 - Work assignments: Between training sessions, participants work on applied assignments in their respective schools and submit evidence of implementation to proceed to the next program phase.
 - Assessment and designation of Master Principals: Principals must apply for each phase of the program. Participants who complete phase III submit school results and undergo a rigorous assessment, allowing them to earn the designation of Master Principals.
 - Bonuses: The Arkansas Department of Education provides incentives: \$9,000 annually for five years to Master Principals serving as full-time principals in Arkansas public schools and \$25,000 annually for five years to Master Principals who are selected and agree to serve in high-need schools.
- **Duration:** Approximately three years, although completion of the program may take up to six years.
- **Intervention support:** Arkansas Leadership Academy offers professional development services to support system change.
- **Intervention implementers:** Arkansas Leadership Academy staff implement the trainings, follow up with participants, and assess their performance. The Arkansas Department of Education and the Arkansas Leadership Academy jointly determine the criteria for selection of candidates, review the areas of performance, and develop assessments.
- **Intervention developers:** Arkansas Leadership Academy (www.arkansasleadershipacademy.org).
- **Cost:** The annual budget for the Master Principal Program is \$500,000, funded through the Arkansas legislature. This includes staffing, materials, participant support (lodging, meals, conference facilities, etc.) for approximately 120 principals each year; application scoring; the designation process; and all other expenses, except bonuses. The Arkansas Department of Education provides funds for the bonuses paid to the designated Master Principals.
- **Summary of evidence:** One tier IV study (Peer, 2012) examined the program as described above and found that the program may improve leadership practices, school culture, and achievement.

Sources: Arkansas Leadership Academy's web page is www.arkansasleadershipacademy.org/programs/master-principal; see Peer, 2012.

Coaching Rural Leaders

- **Purpose:** Develop rural school leaders through cross-district coaching by experienced district- and school-level leaders.
- **Intervention type:** Professional learning.
- **Intervention target:** Practicing rural principals.
- **Intervention components:**
 - Direct group instruction: Participating principals and coaches receive direct group instruction on emotional and cognitive aspects of leadership; learn models of school improvement, with a focus on monitoring progress indicators; and receive training on dealing with coach-principal and principal-teacher relationships.
 - Assessments: Principals undergo a series of assessments on leadership and instructional practices.
 - Coaching and reflection: Coaches guide principals one-on-one, using Socratic questioning (seeking and receiving feedback from many diverse perspectives) and reflective listening (“What?” “So what?” “What now?”). Coaches and principals interact by diverse means, including face-to-face, email, and telephone.
- **Duration:** There are 11 sessions of direct group instruction for coaches and principals over the course of ten months, with follow-up visits to schools between sessions and over the next school year. Interactions between coaches and principals total around 30 hours during a ten-month period.
- **Intervention support:** During the early sessions, participants receive nine books about leadership for school improvement.
- **Intervention implementer:** A consortium of ten rural school districts and Clemson University.
- **Intervention developer:** A consortium of ten rural school districts and Clemson University.
- **Cost:** Not applicable.
- **Summary of evidence:** One tier IV logic model of the coaching model, as described above, informed by results from a pilot test, suggested that training for coaches should include recognition of the emotions brought to the coaching relationship (Lindle et al., 2015).

Source: See Lindle et al., 2015.

Knowledge Is Power Program (KIPP)

- **Purpose:** KIPP schools are part of a national network of charter schools that aim to help students from educationally underserved communities to succeed in college and beyond. Regarding school leadership as central to its model, the KIPP Foundation seeks to empower educators to lead school teams and invest in their professional development.
- **Intervention type:** Leadership-focused school improvement model.
- **Intervention target:** KIPP school leaders, assistant principals, teacher leaders, and regional staff.
- **Intervention components (as currently available):**
 - School leadership development: The KIPP Foundation oversees the selection of founding principals who will open new schools, while regional leaders or school boards oversee the selection of successor principals who will lead existing schools. The KIPP Foundation offers a host of training, professional development, and coaching opportunities for all school leaders.
 - Autonomy: KIPP school leaders are given what the program calls the “power to lead,” having substantial control over school budget, personnel, and other decisions to maximize effectiveness in helping students learn.
 - Accountability: School leaders are held accountable for student results. KIPP uses a framework called Healthy Schools and Regions for measuring and monitoring six key outcomes: serving students in need, retaining students, promoting student progress and academic achievement, promoting college access and success, building a sustainable “people model” by investing in continuous staff education, and building a sustainable financial model. Nationally, the KIPP Foundation collects data to monitor these outcomes in KIPP’s schools, regions, and network.
- **Duration:** Ongoing.
- **Intervention support:** KIPP Share, an internal sharing site, is available for teachers and leaders to communicate with each other and share best practices.
- **Intervention implementers:** KIPP schools—which are locally operated, tuition-free, public charter schools open to all students—are part of a national network of schools supported by the KIPP Foundation. The KIPP Foundation trains and develops outstanding educators to lead KIPP schools.
- **Intervention developer:** KIPP Foundation (www.kipp.org).
- **Cost:** Costs associated with this intervention are part of the ongoing operation cost of KIPP schools.
- **Summary of evidence:** Three tier I studies (Angrist et al., 2012; Tuttle, Gill, et al., 2013; Tuttle, Gleason, et al., 2015) and four tier II studies (Gleason et al., 2014; Gallagher and Ross, 2005; Tuttle, Teh, et al., 2010; Woodworth et al., 2008) have found positive impacts of attending KIPP schools on student achievement, in multiple states and cities across the United States. Most of the components described above were part of the model implemented in the studies. It is not clear whether Healthy Schools and Regions and KIPP Share were part of the studied model. Note that these studies assess the impact of the KIPP model as a whole, not the specific elements focused on developing or selecting school leaders.

Sources: The KIPP Foundation’s website is www.kipp.org; see Angrist et al., 2012; Knechtel et al., 2015; Tuttle, Gill, et al., 2013; Tuttle, Gleason, et al., 2015; Gleason et al., 2014; Gallagher and Ross, 2005; Tuttle, Teh, et al., 2010; Woodworth et al., 2008.

Marzano School Leader Evaluation Model

- **Purpose:** Provide clear, objective measurement of whether school leaders achieve desired outcomes in support of student achievement.
- **Intervention type:** Leadership evaluation program.
- **Intervention target:** School principals, assistant principals.
- **Intervention components (as currently implemented):**
 - Formative conferencing and evidence collection: Implementation of the Marzano School Leader Evaluation Model entails ongoing formative conferencing between school leaders and their evaluators, who collect evidence of leader performance at each level of the performance scale. This process is guided by a protocol for each element in the model and includes performance scales and sample evidences.
 - Summative scoring: Application of the model is ongoing until the final scoring at the end of the school year, summarizing the performance of school leaders.
 - Continuous improvement: Once scoring is complete, the evaluator and school leader discuss results, plan actions, and set goals for the next evaluation cycle. The process of continuous improvement begins with goal setting and ends with reflection and the next cycle of goals.
- **Duration:** The evaluation cycle is annual.
- **Intervention support:** A comprehensive handbook for the model, *School Leadership for Results: Shifting the Focus of Leadership Evaluation* (Carbaugh, Marzano, and Toth, 2015), is available from Learning Sciences International. The Learning Sciences Marzano Center website provides several resources to support implementation of the model. For instance, the website includes a link to a 2014 report, which provides an overview of the model, domains, scales, and sample evidences; a document describing the research basis for the model; and a learning map diagram of the domains and elements. The Marzano Center also offers three types of training, including a two- or three-day training on domains 1–5 for principals, assistant principals, and evaluators of principals and Monitoring the Progress and End of Year Progress trainings, which are one day each, for evaluators of principals.
- **Intervention implementers:** School district administrators utilize the School Leader Evaluation Model to assess school leaders. Members of the Marzano Center’s support staff deliver trainings on the model.
- **Intervention developers:** Robert Marzano and Beverly Carbaugh, in partnership with Learning Sciences International, developed the Learning Sciences Marzano Center.
- **Cost:** Cost is dependent on type and duration of training. Training packages are customized according to district or school needs and requirements.
- **Summary of evidence:** Two tier IV studies (Carbaugh, Marzano, and Toth, 2014; Carbaugh, Marzano, and Toth, 2015) indicate that prior research supports the key components of the model, as described above.

Sources: *The Learning Sciences Marzano Center’s website is www.marzanocenter.com; see Carbaugh, Marzano, and Toth, 2014; Carbaugh, Marzano, and Toth, 2015.*

McREL's Balanced Leadership Program

- **Purpose:** Provide guidance to school principals in choosing the right focus for school improvement efforts, effectively leading changes, and transforming school culture by adopting leadership responsibilities and practices that are associated with improved student achievement.
- **Intervention type:** Professional learning.
- **Intervention target:** Current school principals.
- **Intervention components (as currently implemented):**
 - Professional development training: The cohort-based principal training program focuses on developing responsibilities and practices in three leadership areas: creating purposeful communities, implementing research-based practices, and assessing the changes needed to attain desired school outcomes. Participants work in groups on case studies of different challenges faced by school principals—deriving applications for their own schools and receiving feedback from program facilitators and other participating principals.
 - On-site support: Executive coaching and technical assistance are provided to school principals for ongoing on-site support, guidance, and feedback.
- **Duration:** Currently, Balanced Leadership is typically delivered over the course of four months and conducted in either four one-day sessions or in a full consortium, which consists of a combination of one one-day and three two-day sessions. These configurations can be further customized depending on specific needs.
- **Intervention support:** McREL International conducts training of trainers and trains Balanced Leadership consortia facilitators. McREL offers a variety of other products and services for school leadership development based on McREL's Leadership Framework, including the book *Balanced Leadership for Powerful Learning: Tools for Achieving Success in Your School* (Goodwin, Cameron, and Hein, 2016).
- **Intervention implementers:** Program facilitators are trained by experienced McREL trainers and undergo a quality assurance process to become certified providers.
- **Intervention developer:** McREL International.
- **Cost:** Typically, the four-day Balanced Leadership workshop for up to 40 participants is \$32,500, plus materials and consultant travel expenses; the full seven-session Balanced Leadership consortium is priced at \$43,500, plus materials and consultant travel expenses. The executive coaching and technical assistance components are customized according to specific needs, and pricing varies.
- **Summary of evidence:** One tier I study (Jacob et al., 2015) in rural schools in Michigan looked at the impact of Balanced Leadership training, delivered in ten two-day, cohort-based sessions. That study found positive impacts in principals' self-efficacy, lower staff turnover, and improved instructional climate as reported by principals, but not as reported by teachers.

Sources: McREL International's website is www.mcrel.org; see Jacob et al., 2015; Bailey, Cameron, and Cortez-Ford, 2004.

Metropolitan Independent School District Principal Coaching Initiative (MPCI)

- **Purpose:** Provide professional development to prepare urban principals to become effective instructional leaders and enhance their knowledge of leadership practices that lead to higher student achievement.
- **Intervention type:** Professional learning.
- **Intervention target:** Urban-school principals.
- **Intervention components:**
 - Group training: Principals and coaches participated in professional development focused on data analysis, goal setting related to academic achievement, leadership practice, and establishing systems and structures to support improved teacher practice and student learning. Training was based on the district's standards-based leadership curriculum, including principles of learning, learning walks, nested professional learning communities, and disciplinary literacy.
 - Individual leadership coaching: Coaching was provided to both novice and experienced principals to support their implementation of district-wide improvement initiatives. Each coach was assigned one or two principals.
- **Duration:** Not applicable.
- **Intervention support:** The Meadows Foundation funded the program; MPCI collaborated with Institute for Learning at the University of Pittsburgh to provide necessary professional development.
- **Intervention implementers:** MPCI and Institute for Learning provided the professional development using part-time district or Region 10 Education Service Center employees as coaches.
- **Intervention developers:** MPCI and Institute for Learning; the program is not ongoing.
- **Cost:** Not applicable.
- **Summary of evidence:** One tier IV study (Lee, 2010), which looked at the intervention as described above, suggested that principals may be more learner-centered following coaching.

Source: See Lee, 2010.

The National Institute for School Leadership (NISL) Executive Development Program (EDP)

- **Purpose:** Provide professional development to ensure that the participating school leaders have the knowledge, skills, and tools to effectively set direction for teachers, support their staff in improving instructional practices, and design a high-performing school organization that is rooted in professional learning.
- **Intervention type:** Professional learning.
- **Intervention target:** Aspiring and current school principals.
- **Intervention components (as currently implemented):** NISL's currently available EDP provides principal leadership training organized in three main courses (World-Class Schooling: Visions and Goals, Focusing on Teaching and Learning, and Sustaining Transformation Through Capacity and Commitment), taught face-to-face in a series of 12 two-day units. Sessions are designed to be interactive and include the use of simulations. The units include a focus on building coaching skills to help principals support their teachers and staff.
- **Duration:** Twenty-four days of face-to-face training, delivered over 12–15 months.
- **Intervention support:** Participants receive materials and online resources for each of three courses of study; a set of professional books and research reports with research and perspectives on high-performing educational systems and leadership practices; and a cloud-based application with access to agendas, presentations, videos, case studies, interactive diagnostic instruments, and project tools to assess participants' leadership skills and their schools. NISL project managers work with states and districts to tailor the EDP to meet local needs.
- **Intervention implementers:** NISL Master Faculty and NISL-certified trainers, with experience as principals, superintendents or state education leaders. Alternatively, NISL can train district or other staff to deliver the intervention; staff go through the full EDP and then receive extra guidance on facilitation, with opportunities to lead portions of training and receive feedback during a six-day facilitation unit. NISL Master Faculty monitor quality for these leaders as they begin delivering the EDP to other school leaders.
- **Intervention developer:** NISL.
- **Cost:** There is a \$5,250 materials fee per principal, if the district staff teaches the course without facilitation of the NISL trainer. If the course is co-taught by the district staff with an NISL facilitator, the materials fee (\$5,250) is supplemented by additional costs—\$33,000–\$55,000 per course for a group of up to 32 participants. The cost for each successive course increases by \$11,000, because each successive course adds one more unit. Direct training of school leaders by NISL is \$12,600 per principal.
- **Summary of evidence:** Two tier II studies (Nunnery, Ross, and Yen, 2010; Nunnery et al., 2011) looked at a slightly earlier version of EDP, which included the three courses named above and a fourth course on driving for results. These studies found significant impacts on student achievement in schools in Massachusetts (38 NISL elementary and middle schools, compared with 977 matched schools) and Pennsylvania (101 NISL elementary, middle, and high schools, compared with 101 matched schools).

Sources: The NISL EDP's web page is www.nisl.org/executive-development-program/; see Nunnery, Ross, and Yen, 2010; Nunnery et al., 2011.

New Leaders Aspiring Principals Program

- **Purpose:** Promote student achievement by developing outstanding school leaders for urban schools.
- **Intervention type:** Principal preparation program.
- **Intervention target:** Aspiring principals (with ongoing support after placement).
- **Intervention components (as currently implemented):**
 - Selective recruitment and admissions: Participants are admitted through a national recruitment and selection process to identify high-quality candidates.
 - Training and residency: Each cohort of aspiring school principals undergoes competency-based training, including the Summer Foundations course, which combines academic coursework with hands-on learning opportunities; in-person group training; and web tutorials. Aspiring principals are placed into a yearlong structured residency in partner districts throughout the country, during which they work as district employees, usually in the capacity of an assistant principal.
 - Endorsement and placement: Performance assessments aligned to competencies of aspiring principals during trainings and residency are used by New Leaders to make endorsement decisions. The residents may then seek a principal placement in a partner district or charter management organization. Districts make hiring and placement decisions, while New Leaders works with the districts and candidates to facilitate the matching process.
 - Support for new principals: Newly placed principals receive ongoing support from New Leaders through coaching during the first year or two of the placement. The majority of novice principals meet with their coaches once a week for at least two hours.
- **Duration:** The Aspiring Principals program operates on an annual cycle. Training and residency usually last one year. After placement, principals receive ongoing support from New Leaders for two years.
- **Intervention support:** New Leaders also offers adviser training to prepare local leaders to provide principal training in-house.
- **Intervention implementers:** The program is executed by New Leaders teams in collaboration with local partners. Each New Leaders partner district is associated with a New Leaders city executive team.
- **Intervention developer:** New Leaders.
- **Cost:** The program is provided without a fee to aspiring principals who work during residency as employees of school districts and receive salaries and benefits commensurate with their roles. New Leaders receives payment from partner districts, as well as grants and philanthropic support.
- **Summary of evidence:** One tier II study (Gates, Hamilton, et al., 2014) found positive impacts on student achievement in ten urban districts across the country. Information was drawn from this study and from the New Leaders website (www.newleaders.org).

Sources: The New Leaders Aspiring Principals web page is www.newleaders.org/programs/aspiring-principals/; see Gates, Hamilton, et al., 2014; Hart et al., 2006.

The Pittsburgh Principal Incentive Program (PPIP)

- **Purpose:** Increase the capacity of principals to serve as instructional leaders, and improve school leadership practices and student achievement by providing performance-based compensation to public school principals. The PPIP was a component of a broader school leadership initiative in the district, the Pittsburgh Urban Leadership System for Excellence (PULSE).
- **Intervention type:** Working conditions.
- **Intervention target:** Current school principals.
- **Intervention components:**
 - Financial incentives for good performance: A salary increase of up to \$2,000 was provided, based on the principal’s performance, and there was an achievement bonus of up to \$10,000 annually, calculated primarily using student achievement measures.
 - Evaluation and feedback: Principals were evaluated by assistant superintendents using a standards-based rubric. Assistant superintendents provided coaching and feedback to principals based on those evaluations to improve instructional leadership practices. Teams of education and assessment experts also visited the schools and provided feedback.
 - Professional development: Activities varied over the years: intensive training programs, support for novice principals, professional development sessions, grade-specific and targeted professional development, and participation in directed professional growth projects that allowed principals to choose an area in which to work to improve their own skills.
- **Duration:** Salary increments were retained indefinitely; achievement bonuses were provided annually.
- **Intervention support:** The project was originally funded by the U.S. Department of Education Teacher Incentive Fund, and the district progressively allocated a growing share of its operating budget to cover the cost of principal performance incentives. RAND partnered with the district to provide advice about the design of the principal performance measures and to assess implementation. District staff were trained to implement the intervention, and systems and materials were developed.
- **Intervention implementer:** Pittsburgh Public Schools.
- **Intervention developers:** Pittsburgh Public Schools, with support from RAND and the Department of Education’s Teacher Incentive Fund program. The program is not ongoing.
- **Cost:** The main cost factor was the number of principals eligible for pay increases and bonuses.
- **Summary of evidence:** One tier IV study (Hamilton et al., 2012) of the program, implemented as described above, suggested that participation in an incentive program correlates with student achievement growth.

Sources: See Center for Education Compensation Reform, undated; Hamilton et al., 2012.

Principal Autonomy

- **Purpose:** Grant public school principals the ability to make key organizational and instructional decisions to improve school performance.
- **Intervention type:** Working conditions.
- **Intervention target:** Public school principals.
- **Intervention components:** Principals can be given autonomy in different domains of school policy, including over a school's budget, staffing, curriculum, instructional methods and practices, assessment, schedule, and professional development. Different institutional arrangements and regulations grant public school principals varying degrees of autonomy, with principals in charter schools generally having the greatest autonomy over a number of domains. For example, because most charter schools are not unionized, they are able to hire and fire personnel without the constraints faced by many regular public schools and can offer tutoring or additional activities without limits on uncompensated overtime.
- **Duration:** Varies.
- **Intervention support:** The ability of principals to make autonomous decisions on school policy depends on the regulations and policies in place in different states and school districts, as well as on principals' access to resources that allow them to make and execute autonomous decisions, such as funding, qualified personnel, instructional materials, among others.
- **Intervention implementers:** State and local education agencies, charter management organizations.
- **Intervention developers:** Legislators and policymakers who have developed regulatory frameworks for public schools, allowing for principal autonomy.
- **Cost:** Not applicable.
- **Summary of evidence:** Two tier II studies (Abdulkadiroglu et al., 2011; Steinberg, 2014) found positive impacts on student achievement and reading proficiency for children attending Boston charter schools, which had more autonomy around teacher working conditions than regular public schools did, and Chicago's Autonomous Management and Performance Schools, in which principals had greater academic, programmatic, and operational freedoms.

Sources: See Abdulkadiroglu et al., 2011; Steinberg, 2014.

Principal Pipeline Initiative

- **Purpose:** Develop a corps of effective principals to staff public schools through evidence-based school leadership standards, pre-service training, selective hiring, and on-the-job evaluation and support.
- **Intervention type:** Principal preparation program.
- **Intervention target:** Aspiring and newly placed principals.
- **Intervention components:**
 - Evidence-based school leadership standards: Developed and adopted by districts to articulate clear expectations regarding the principal’s role. Districts then align the other three components (pre-service training, selective hiring, and evaluation and support) to those standards.
 - Pre-service training of aspiring principals: Includes selective admissions, research-based content, a cohort model, clinical practice experience, and continuous feedback.
 - Selective hiring of aspiring principals: Graduates of strong preservice programs preferred; placement matches best candidates to schools.
 - On-the-job evaluation and support for newly placed principals: Assesses the ability of newly placed principals to improve teaching and learning and to target professional support focusing on instructional leadership.
- **Duration:** This initiative is designed to change district practices related to the management and support of principals; in that sense, the intervention is ongoing. For aspiring principals, pre-service generally takes one to two years; for newly placed principals, on-the-job support may be provided for one to five years, depending on the district.
- **Intervention support:** The Wallace Foundation has provided support to districts it selected to be in the initiative; support includes funding, technical assistance, structured interaction between participating districts, and ongoing evaluation and support.
- **Intervention implementers:** School districts in conjunction with pre-service principal preparation programs and partner programs offering principal support.
- **Intervention developers:** Selected school districts with support from The Wallace Foundation.
- **Cost:** For each of the six Principal Pipeline Initiative districts, The Wallace Foundation provided \$7.5 million to \$12.5 million over more than five years. Districts spent about \$5.6 million each year, on average, on principal pipelines, roughly \$31,000 per principal or \$42 per pupil per year (2011–2016; see Kaufman et al., 2017).
- **Summary of evidence:** There are two tier IV (Turnbull et al., 2013; Turnbull, Riley, and McFarlane, 2013) studies. An impact evaluation of the initiative is ongoing in large urban districts across the country.

Sources: See Turnbull et al., 2013; Turnbull, Riley, and McFarlane, 2013; Kaufman et al., 2017.

Principal Preparation Programs

- **Purpose:** Prepare candidates for the responsibilities and challenges associated with school leadership.
- **Intervention type:** Principal preparation program.
- **Intervention target:** Aspiring principals.
- **Intervention components:** Common elements of effective principal preparation programs include
 - Recruitment and selection of participants: Recruit and select participants who are likely to be successful in the principal preparation program and upon graduation, while also targeting participants from underrepresented populations.
 - Program content and delivery: Curricula are aligned with state and professional standards, which emphasize instructional leadership and school improvement, and include such instructional strategies as problem-based learning, feedback, and assessment. Interaction with participants develops cohorts, which can provide future professional networks for principals. Programs often provide opportunities for field experience or internships, as well as mentoring or coaching to cohorts for professional and personal support.
 - Partnerships: Partnerships between preparation programs and districts are designed to provide opportunities for field experience and internships, develop professional networks for participants, provide funding or tuition waivers to aspiring principals, and enrich the content and delivery of preparation programs.
 - Financial assistance: Financial assistance allows programs to recruit more selectively, target underrepresented populations, and recruit teachers who otherwise would not be able to take time away to participate in the program.
- **Duration:** Varies by program—typically one to two years.
- **Intervention support:** Varies by program.
- **Intervention implementers:** Various university programs, university-district providers, and alternative programs.
- **Intervention developers:** Various university programs, university-district providers, and alternative programs.
- **Cost:** Varies by program.
- **Summary of evidence:** Two tier III studies (Braun, Gable, and Kite, 2008; Fuller, Young, and Baker, 2011) found positive correlations between participation in principal preparation programs and student achievement, teacher qualifications, and school culture; one tier IV logic model supported this finding (Darling-Hammond et al., 2007).

Sources: This summary describes recurring elements of principal preparation programs and not necessarily a specific program; see Darling-Hammond et al., 2007; Braun, Gable, and Kite, 2008; Fuller, Young, and Baker, 2011.

Principal Residency Network (PRN)

- **Purpose:** Prepare aspiring principals for educational leadership.
- **Intervention type:** Principal preparation program.
- **Intervention target:** Aspiring and newly placed principals.
- **Intervention components (as currently implemented):** There are three PRN pathways: Classic, Leader of Record (LOR), and Extended Time. The curriculum and core components of the program are similar in all pathways, but their structures and workloads (full time versus part time) are different. The components of the program are the following:
 - Recruitment and selection: Candidates are assessed to enter the program for all pathways. By the end of the first year in the LOR pathway, recommended participants are eligible to apply to a school leadership position. If they are hired, they continue to the second year of the LOR program as an acting principal; if they are not hired, they can finish the next year in the Extended Time pathway, where they continue with the residency and other learning activities.
 - Learning plan: The aspiring principal creates an individualized learning plan and revises it regularly. Learning experiences and requirements are focused on leading for equity. An action research project, in particular, requires aspiring principals to lead the work to close achievement gaps in their schools. Participants develop electronic portfolios documenting their reflections and their completed work.
 - Intensive residency: The residency is the main component of the program, through which aspiring principals learn from shadowing a mentor principal and other principals, as well as shadowing a student for one week. Throughout the residency, mentors and aspiring principals engage in continuous communication to guide a gradual, full release from mentoring, practicing all aspects of school leadership. Additional activities include readings, school visits, papers, and participation in professional networks.
 - Assessment and certification: Participants' performance is assessed regularly, and they receive feedback from different sources, including their peers and mentors. Approval of mid-year and end-of-year assessments is required. Participants in all three pathways who complete the program and meet the final assessment criteria are recommended for licensure.
- **Duration:** One year for the Classic pathway, and two years for LOR and Extended Time pathways.
- **Intervention support:** Partnerships with districts and schools for intensive residency arrangements.
- **Intervention implementers:** Center for Leadership and Educational Equity, in collaboration with partner districts and schools
- **Intervention developer:** Center for Leadership and Educational Equity.
- **Cost:** Tuition for participants in all three PRN pathways is \$9,400 in the first year. Those in Extended Time pay \$2,500 for the second year, while those in LOR pay \$2,500–\$6,000 for the second year, depending on the mentor and residency.
- **Summary of evidence:** One tier IV logic model is supported by positive findings in an evaluation of sites across the United States (Braun, Billups, and Gable, 2013). Information was drawn from this study and from the Center for Leadership and Educational Equity website.

Sources: The Center for Leadership and Educational Equity's website is www.leadershipandequity.org; see Braun, Billups, and Gable, 2013.

School Administration Manager (SAM) Project

- **Purpose:** Help school leaders devote more time to instructional leadership and increase their impact.
- **Intervention type:** Working conditions.
- **Intervention target:** Current school principals and district leaders.
- **Intervention components:**
 - SAMs are identified and appointed: A SAM is usually an existing school staff member, secretary, assistant principal, counselor, or teacher leader who meets with the principal for 20 minutes each day to schedule time and use time-tracking tools to help the principal reflect on his or her impact on teaching practice. The SAM and principal create a “first responder” structure within the school so that the principal is not the first person expected to address managerial tasks.
 - Training for principals and SAM team members: Training focuses on delegating and optimizing use of principal time, implementing time-tracking tools, holding daily meetings for planning and monitoring, reflecting on impact, and working with first responders.
 - Monitoring and analysis of use of principal time: This analysis focuses on how principals use their time, across managerial, instructional, and other tasks. Baseline and follow-up measures are taken to assess change in the use of time by principals. Principals and SAM team members hold regular meetings to analyze how time is being used and to shift managerial duties when appropriate.
 - External coaching: The principal and SAM meet monthly with a “time change coach,” who is trained to discuss progress and challenges and to identify training needs.
- **Duration:** Ongoing.
- **Intervention support:** The National SAM Innovation Project (NSIP), a nonprofit organization, provides SAM implementation and support services on a fee-for-service basis. A cloud-based tool is used to track the use of principal time and produces charts and records that are used in daily meetings with the principal and SAM team for monitoring and planning.
- **Intervention implementers:** Staff of NSIP, in collaboration with school principals, district leaders, and appointed SAMs.
- **Intervention developer:** NSIP.
- **Cost:** The first year of the intervention fee for a school is \$12,900, which includes services for the principal, assistant principals, and SAM team members. This fee decreases by 30 percent each year as capacity is developed at the school and district levels. This does not cover wages and time of participating personnel. The annual service covers all expenses for the SAM team, except airfare, to attend NSIP’s annual conference.
- **Summary of evidence:** The tier IV logic model, supported by results from a multistate evaluation (Goldring et al., 2015), suggests that using a time manager, as described above, helps principals better allocate their time.

Sources: The NSIP website is www.samsconnect.com; see Turnbull, Haslam, et al., 2009; Goldring et al., 2015.

Texas Principal Excellence Program (TxPEP)

- **Purpose:** Improve student academic achievement, graduation rates, and teacher retention by improving principals' leadership skills.
- **Intervention type:** Principal preparation program.
- **Intervention target:** Current and aspiring principals.
- **Intervention components:**
 - Seminars and workshops: Participants attend two summit meetings, three workshops, and a set of required and optional webinars addressing specific leadership competencies and topics, such as goal setting and ethical leadership.
 - Feedback and guidance: Participants complete leadership assessments and receive feedback on their leadership strengths and weaknesses, and participants sustain communication with program consultants (who are current or recently retired experienced principals) through group conference calls, individual phone calls, email, and online discussion boards. Participants are also given access to a free online tool that suggests approaches for implementing systemic change in schools.
- **Duration:** Self-paced, but occurring during an academic year.
- **Intervention support:** There are coordinators for summit meetings, workshops, and webinars. Participants complete assessments at the beginning and end of the program, requiring proctors and examiners to administrate and correct assessments.
- **Intervention implementers:** Five area-learning coordinators were appointed to oversee the activities of participants in five areas in Texas and help individualized learning for each participant. Consultants were assigned to cohorts of five to ten principals to provide support and guidance to participants.
- **Intervention developers:** The Texas Education Agency, in collaboration with American Productivity and Quality Center and the University of Houston–Victoria School of Business Administration (see Hoogstra et al., 2008).
- **Cost:** Not applicable.
- **Summary of evidence:** One tier II study (Fouche, 2011) found significant improvements in self- and peer-reported leadership competencies among participants in the state of Texas.

Sources: Hoogstra et al., 2008; Fouche, 2011.

University of Virginia School Turnaround Program (UVA-STP)

- **Purpose:** Develop school and district leadership capacity toward achieving sustainable school turnaround and striving toward improving district conditions for all schools.
- **Intervention type:** Leadership-focused school improvement model.
- **Intervention target:** District leaders, school leadership teams, current school principals.
- **Intervention components (as currently implemented):**
 - Assessment and planning (“rethink” phase): During the first year, UVA-STP staff work with district leaders to assess current capacity and practice and develop a plan to turn around low-performing schools. District and school leaders are recruited and selected to lead the turnaround initiative, and participate in a turnaround leadership boot camp to work on their turnaround plans.
 - Executive development training programs (“reignite” phase): During the second and third years, school leaders and district turnaround teams attend short-term residential executive development programs at UVA’s Darden School of Business and in their districts, addressing such topics as the root causes of low performance, using data for decisionmaking and instructional support, planning for change, and motivating organizations to reinvigorate change processes.
 - Ongoing monitoring and support (“redesign” and “transform” phases): UVA-STP staff provide ongoing customized support to district and school leaders in implementing and sustaining school change, including developing and implementing 90-day plans aiming to equip teachers to improve student performance and brainstorming with leaders in person about how to overcome systemic and local barriers to achieve 90-day plan goals.
- **Duration:** Three-year program.
- **Intervention support:** UVA-STP periodically visits participating districts and schools to improve reform efforts. UVA-STP staff and independent consultants provide tailored support throughout the program to address specific needs.
- **Intervention implementers:** UVA-STP staff, in collaboration with participating district and school leaders.
- **Intervention developers:** The Darden/Curry Partnership for Leaders in Education, UVA’s Darden School of Business.
- **Cost:** The cost of approximately \$90,000 per school across three years (\$18,000 in year 1, \$42,000 in year 2, and \$30,000 in year 3) includes all costs for room, board, materials, and on-site support. Pricing may change if intervention support services are customized for context or if district requests additional strategic support for cabinet leadership.
- **Summary of evidence:** One tier II study (Player and Katz, 2016) found significant improvements in student achievement, one to four years after implementation, in high-poverty and high-minority urban schools in Ohio. The program as implemented for the study differed somewhat from the currently available program, although the basic approach was the same. The studied program was implemented over two years, rather than three, and so activities were compressed. Year 1 of the studied program included a six-day executive training event to begin planning, two 90-day action plans, a visit from program staff, and a two-and-a-half-day education event designed to meet identified needs. Year 2 involved a three-day training event on building school culture and using data, development of two additional 90-day plans, and another visit from program staff with follow-up education.

Sources: Darden’s School Turnaround web pages are <http://www.darden.virginia.edu/darden-curry-ple/turn-around/approach/> and www.darden.virginia.edu/darden-curry-ple/turnaround/; see Player and Katz, 2016.

Vanderbilt Assessment of Leadership in Education (VAL-ED)

- **Purpose:** The VAL-ED is a tool designed to evaluate the leadership behaviors of a school's principal using input from teachers, other principals, and supervisors of principals for diagnostic analyses, performance feedback, progress monitoring, professional development planning, and summative evaluation.
- **Intervention type:** Leadership evaluation program.
- **Intervention target:** Current school principals.
- **Intervention components:**
 - Online assessment of leadership behaviors: Supervisors, teachers, and the principal access the assessment form through the VAL-ED website and submit their responses rating the principal's performance relative to six core components (high standards, rigorous curriculum, quality instruction, culture of learning, external communities, and performance accountability) and six key processes (planning, implementing, supporting, advocating, communicating, and monitoring).
 - Results report: Using the responses to the assessment, the VAL-ED produces the Principal Report summarizing the results, including how effective the principal is compared with VAL-ED proficiency standards and a national sample of principals, as well as a summary of strengths and areas for improvement.
- **Duration:** The assessment questionnaires are intended to be completed in 30 to 45 minutes in a single sitting by each respondent.
- **Intervention support:** Several resources are provided on the VAL-ED website, including rubrics to understand the dimensions of leadership that are evaluated and a handbook with information about how to use and interpret the results of the VAL-ED. The product, which can be purchased from IO Education, includes scoring and reports. The VAL-ED recommends appointing a neutral person to manage the assessment process and to respond to questions or technical problems that might arise.
- **Intervention implementers:** The tool can be implemented by schools or districts, which should designate a person to coordinate the process. Respondents complete the assessment by themselves, using the VAL-ED website.
- **Intervention developers:** Vanderbilt University, in collaboration with IO Education.
- **Cost:** The VAL-ED tool is available to schools at \$360 per year for each leader evaluated. Two parallel forms are available with the annual license.
- **Summary of evidence:** One tier IV report (Porter et al., 2008) indicated that prior research supports the theory of action: Feedback on performance improves leadership behaviors, which improve school performance and student success.

Sources: IO Education's VAL-ED website is <http://val.ed.ioeducation.com/> and the product page is www.ioeducation.com/product/val-ed/; see Porter et al., 2008; personal communication with IO Education, June 29, 2017.

Notes

¹ ESSA, signed into law on December 10, 2015, is the current iteration of the Elementary and Secondary Education Act.

² ESSA refers to a state or local education agency or school activity as an “activity, strategy, or intervention” (Public Law No. 114-95, 2015). The What Works Clearinghouse (WWC) and other prior Department of Education documentation use a different general term, interventions, which includes “programs, policies, practices, and products.” We consider these terms to be equivalent. We use the terms activity and intervention interchangeably in this report, although we recognize that they might be interpreted as fundamentally different.

³ The reports cited in this paragraph were not reviewed against the ESSA evidence tiers.

⁴ Public Law No. 114-95, Every Student Succeeds Act, Title I, Part A, Sec. 1003, School Improvement, December 10, 2015, pp. 14–16.

⁵ Public Law No. 114-95, Every Student Succeeds Act, Title I, Part A, Sec. 1003, School Improvement, December 10, 2015.

⁶ “[T]he ESEA [Elementary and Secondary Education Act] considers those [local education agency] staff, such as the principals’ supervisors, who actively mentor and support principals and by doing so are themselves’ responsible for the school’s daily instructional leadership and managerial operations,’ to also be eligible for Title II, Part A funded support. (ESEA section 8101(44))” (U.S. Department of Education, 2016b, p. 17). The Evidence Guidance also indicates that “[u]nder ESEA sections 2101(c)(4)(B)(vii) and 2103(b)(3)(B), Title II, Part A funds can be used to support those principal supervisors that actively and frequently take responsibility for helping principals with instructional leadership and the school’s managerial operations” (U.S. Department of Education, 2016b, p. 17).

⁷ Public Law No. 114-95, Every Student Succeeds Act, Title II, Part A, Sec. 2101, Formula Grants to States, December 10, 2015, pp. 118–122.

⁸ Public Law No. 114-95, Every Student Succeeds Act, Title II, Part B, Subpart 1, Sec. 2211, December 10, 2015, p. 130.

⁹ Public Law No. 114-95, Every Student Succeeds Act, Title 2, Part B, Subpart 2, Sec. 2242, Subgrants to Eligible Entities in Support of Kindergarten Through Grade 12 Literacy, December 10, 2015, pp. 147–148.

¹⁰ Public Law No. 114-95, Every Student Succeeds Act, Title 2, Part B, Subpart 4, Sec. 2243, School Leader Recruitment and Support, pp. 148–150.

¹¹ This simplified model does not illustrate the full complexity of the process for improving school leadership. For example, the model does not explore how leadership improvement might differ depending on the type of school (e.g., rural versus urban or high poverty versus low poverty). The simplified model also does not describe the many potential steps between changes in leadership and changes in instruction—such as teacher training on effective instruction, more-challenging curricula, or higher expectations.

¹² Under Title II, states have flexibility in applying the evidence-based requirements for some specific ESSA allowable uses of funds, because of the following language: “[An activity] is evidence based, to the extent that the state . . . determines that such evidence is reasonably available.” Of the ESSA programs that relate to school leaders, the following may be exempted from the evidence requirements: coursework for residency programs, new-leader induction and mentoring programs, and any other relevant activities a state selects that are not explicitly listed as allowable uses under Public Law No. 114-95, Every Student Succeeds Act, Title II, Part A, Sec. 2002, Definitions, and Sec. 2101, Formula Grants to States, December 10, 2015.

¹³ Public Law No. 114-95, Every Student Succeeds Act, Title VIII, Sec. 8101, Definitions, December 10, 2015, pp. 289–290.

¹⁴ Education Department General Administrative Regulations (EDGAR), Code of Federal Regulations, Title 34, Subtitle A, Chapter 1, Part 77.1, Definitions That Apply to All Department Programs, as amended December 19, 2014.

¹⁵ Although we did not apply the size criterion from the Evidence Guidance, supplemental analysis of the findings shows that if we were to use a criterion of 50 schools or 350 students, only two findings would change.

¹⁶ ESSA focuses on statistically significant findings. The Evidence Guidance suggests that educators also consider the impact of the intervention on participants: “Stakeholders should also consider whether there is evidence that an intervention has substantially improved an important education outcome” (U.S. Department of Education, 2016c, p. 8). Such outcomes are often measured in effect sizes or metrics, such as “years of schooling gained.” The Evidence Guidance does not specify the size or metric for “substantially improved . . . outcome.” The Department of Education has said, “We believe that judgment should be made based on the context” (U.S. Department of Education, 2016d).

¹⁷ The definition of the logic model is from EDGAR, Code of Federal Regulations, Title 34, Subtitle A, Chapter 1, Part 77.1, Definitions That Apply to All Department Programs, as amended December 19, 2014, and is also cited in the Evidence Guidance.

¹⁸ EDGAR, Code of Federal Regulations, Title 34, Subtitle A, Chapter 1, Part 77.1, Definitions That Apply to All Department Programs, as amended December 19, 2014.

¹⁹ This would include research that finds that the components of the intervention (e.g., weekly mentoring sessions) improve student outcomes (or other relevant outcomes), even in the absence of high-quality evidence proving the effectiveness of the intervention as a whole. In cases where interventions are new or are adapted to context, it may not be possible to have evidence of the impact of the full intervention. Knowing that the components are effective provides an indicator that the intervention overall might be effective—recognizing that this is far from strong evidence of proven impact.

²⁰ For borderline cases, where there appeared to be a logic model that was not graphically displayed in the reviewed documents, we checked the developers’ website as well.

²¹ Public Law No. 114-95, Every Student Succeeds Act, Title VIII, Sec. 8101, Definitions, December 10, 2015, p. 289.

²² Education Department General Administrative Regulations (EDGAR), Code of Federal Regulations, Title 34, Subtitle A, Chapter 1, Part 77.1, Definitions That Apply to All Department Programs, as amended December 19, 2014.

²³ See the introduction for background regarding the language of “activity, strategy, or intervention.”

²⁴ Intervention descriptions were summarized from information within the reviewed studies, where available, and supplemented with information from developer websites, where available.

²⁵ Public Law No. 114-95, Every Student Succeeds Act, Title II, Sec. 2002, Definitions, December 10, 2015, pp. 114–115.

²⁶ Public Law No. 114-95, Every Student Succeeds Act, Title II, Sec. 2002, Definitions, December 10, 2015, p. 113.

²⁷ Meta-analyses tend to cast a wide net for studies, including some that have flaws (e.g., no controls for selection bias) and rely on variation across the set of studies to even out differences. If a large set of studies, each of which has some unique flaw, converges on a finding, we can presume that the finding is valid. Additional studies—some more rigorous and some less—point to many of the same leadership actions with varying degrees of emphasis.

²⁸ Public Law 107-110, No Child Left Behind Act of 2001, Title I, Sec. 1114(b)(1)(B)(ii), January 8, 2002.

Bibliography

Abdulkadiroglu, Atila, Joshua D. Angrist, Susan M. Dynarski, Thomas J. Kane, and Parag A. Pathak, "Accountability and Flexibility in Public Schools: Evidence from Boston's Charters and Pilots," *The Quarterly Journal of Economics*, Vol. 126, 2011, pp. 699–748.

Advanced Education Measurement, "Research & the ESSA Pt 2: The Four-Tiered Problem," February 3, 2016.

Alliance to Reform Education Leadership, *AREL State Policy Project*, 2013. As of April 11, 2016:
<http://www.bushcenter.org/alliance-reform-education-leadership/arel-state-policy-project>

Angrist, J. D., S. M. Dynarski, T. J. Kane, P. A. Pathak, and C. R. Walters, "Who Benefits from KIPP?" *Journal of Policy Analysis and Management*, Vol. 31, No. 4, 2012, pp. 837–860.

Augustine, C. H., G. Gonzalez, G. S. Ikemoto, J. Russell, G. L. Zellman, L. Constant, J. Armstrong, and J. W. Dembrowsky, *Improving School Leadership: The Promise of Cohesive Leadership Systems*, Santa Monica, Calif.: RAND Corporation, MG-885-WF, 2009. As of April 11, 2016:
<http://www.rand.org/pubs/monographs/MG885.html>

Bailey, James, Greg Cameron, and Evelyn Cortez-Ford, *Helping School Leaders Develop the Capacity Necessary for Continuous Improvement: McREL'S Balanced Leadership Framework*, Aurora, Colo.: McREL, 2004

Basileo, L., M. Toth, and E. Kennedy, *Final Report: Pinellas County Public Schools 2013–2014 Multiple Measures Pilot Results*, West Palm Beach, Fla.: Learning Sciences International, 2015.

Bass, B. M., and B. J. Avolio, *Improving Organizational Effectiveness Through Transformational Leadership*, Thousand Oaks, Calif.: Sage, 1994.

Battle, D., *Principal Attrition and Mobility: Results from the 2008–09 Principal Follow-Up Survey*, Washington, D.C.: National Center for Education Statistics, 2010.

Béteille, T., D. Kalogrides, and S. Loeb, "Stepping Stones: Principal Career Paths and School Outcomes," *Social Science Research*, Vol. 41, No. 4, 2012, pp. 904–919.

Bickman, L., E. Goldring, A. R. De Andrade, C. Breda, and P. Goff, *Improving Principal Leadership Through Feedback and Coaching*, Evanston, Ill.: Society for Research on Educational Effectiveness, 2012.

Bowers, J. A., and R. B. White, "Do Principal Preparation and Teacher Qualifications Influence Different Types of School Growth Trajectories in Illinois? A Growth Mixture Model Analysis," *Journal of Educational Administration*, Vol. 52, No. 5, 2014, pp. 705–736.

Boyd, D., P. Grossman, M. Ing, H. Lankford, S. Loeb, and J. Wyckoff, "The Influence of School Administrators on Teacher Retention Decisions," *American Education Research Journal*, Vol. 48, No. 2, 2011, pp. 303–333.

Branch, Gregory F., Eric A. Hanushek, and Steven G. Rivkin, *Estimating the Effect of Leaders on Public Sector Productivity: The Case of School Principal*, Washington, D.C.: National Center for Analysis of Longitudinal Data in Education Research, working paper 66, 2012. As of October 2014:
<http://ideas.repec.org/p/nbr/nberwo/17803.html>

———, "School Leaders Matter," *Education Next*, Vol. 13, No. 1, 2013.

Braun, Donna, Felice D. Billups, and Robert K. Gable, "Transforming Equity-Oriented Leaders: Principal Residency Network Program Evaluation," *International Journal of Educational Leadership Preparation*, Vol. 8, No. 1, 2013, pp. 161–181.

Braun, Donna, Robert K. Gable, and Stacey L. Kite, *Relationship Among Essential Leadership Preparation Practices and Leader, School, and Student Outcomes in K–8 Schools*, paper presented at the annual meeting of the Northeastern Educational Research Association, Rocky Hill, Conn., October 2008. As of November 9, 2016: http://scholarsarchive.jwu.edu/k12_ed/8

———, “Situated in a Community of Practice: Leadership Preparation Practices to Support Leadership in K-8 School,” *International Journal of Educational Leadership Preparation*, Vol. 6, No. 1, 2011.

Brazer, S. David, and Scott C. Bauer, “Preparing Instructional Leaders: A Model,” *Educational Administration Quarterly*, Vol. 49, No. 4, 2013, pp. 645–684.

Briggs, K., G. R. Cheney, J. Davis, and K. Moll, *Operating in the Dark: What Outdated State Policies and Data Gaps Mean for Effective School Leadership*, Dallas, Tex.: George W. Bush Presidential Center, 2013.

Brown, K. C., J. Squires, L. Connors-Tadros, and M. Horowitz, *What Do We Know About Principal Preparation, Licensure Requirements, and Professional Development for School Leaders?* New Brunswick, N.J.: Center on Enhancing Early Learning Outcomes, 2014.

Browne-Ferrigno, T., and A. Shoho, “Exploratory Analysis of Leadership Preparation Selection Criteria,” paper presented at Annual Meeting of the University Council for Educational Administration, Pittsburgh, Penn., November 1–3, 2002.

Bryk, A., P. Sebring, E. Allensworth, S. Luppescu, and J. Easton, *Organizing Schools for Improvement: Lessons from Chicago*, Chicago: University of Chicago Press, 2010.

Bussey, L. H., and J. Welch, “Dispositions Matter! Now What? Exploring Leader Dispositions, Measurement, and Practical Applications for Helping School Leaders to Grow,” in A. I. Lahera, K. Hamdan, and A. H. Normore, eds., *Pathways to Excellence: Developing and Cultivating Leaders for the Classroom and Beyond*, Bingley, UK: Emerald Group Publishing, 2014, pp. 21–42.

Carbaugh, Beverly, Robert J. Marzano, and Michael Toth, *Marzano School Leader Evaluation Model, Including Scales, Evidences, and Learning Map*, West Palm Beach, Fla.: Learning Science Marzano Center for Teacher and Leader Evaluation, 2014. As of November 10, 2016:

<http://sde.ok.gov/sde/sites/ok.gov.sde/files/documents/files/NATIONAL%20School%20Leader%20Eval%20Model%2020140204%5B5%5D.pdf>

———, *School Leadership for Results: Shifting the Focus of Leadership Evaluation*, West Palm Beach, Fla.: Learning Sciences International, 2015.

Casserly, M., S. Lewis, C. Simon, R. Uzzell, and M. Palacios, *Principal Evaluations and the Principal Supervisor: Survey Results from the Great City Schools*, New York: The Wallace Foundation, 2013.

Center for Education Compensation Reform, “Pittsburgh School District Principal Incentive Program,” fact sheet, undated. As of September 30, 2017:

<https://www2.ed.gov/programs/teacherincentive/cohort2/pittsburgh.pdf>; Hamilton et al., 2012

Chapman, C., and D. Muijs, “Collaborative School Turnaround: A Study of the Impact of School Federations on Student Outcomes,” *Leadership and Policy in Schools*, Vol. 12, No. 3, 2013, pp. 200–226.

Cheney, G. R., J. Davis, K. Garrett, and J. Holleran, *A New Approach to Principal Preparation: Innovative Programs Share Their Practices and Lessons Learned*, Fort Worth, Tex.: Rainwater Charitable Foundation, November 2010.

Chiang, H., S. Lispcomb, and B. Gill, *Is School Value Added Indicative of Principal Quality?* Princeton, N.J.: Mathematica Policy Research, working paper, 2012.

Clark, D., P. Martorell, and J. Rockoff, *School Principals and School Performance*, Washington, D.C.: National Center for Analysis of Longitudinal Data in Education Research, Urban Institute, working paper 38, 2009. As of April 11, 2016:

http://www0.gsb.columbia.edu/faculty/jrockoff/cm_r_principals_calder_WP38.pdf

Clifford, M., *Hiring Quality School Leaders: Challenges and Emerging Practices*, Washington, D.C.: American Institutes for Research, 2012.

———, *Building Leadership Talent Through Performance Evaluation*, Washington, D.C.: American Institutes for Research, 2015.

Clifford, M., E. Behrstock-Sherratt, and J. Fettes, *The Ripple Effect: A Synthesis of Research on Principal Influence to Inform Performance Evaluation Design*, Washington, D.C.: American Institutes for Research, 2012.

Coelli, M., and D. A. Green, “Leadership Effects: School Principals and Student Outcomes,” *Economics of Education Review*, Vol. 31, No. 1, 2012, pp. 92–109.

Condon, C., and M. Clifford, *Measuring Principal Performance: How Rigorous Are Commonly Used Principal Performance Assessment Instruments?* Naperville, Ill.: Learning Point Associates, 2009.

Copeland, G., and A. Neeley, *Identifying Competencies and Actions of Effective Turnaround Principals: Southeast Comprehensive Center Briefing Paper*, Metairie, Ala.: SEDL, 2013.

Corcoran, A., M. Casserly, R. Price-Baugh, D. Walston, R. Hall, and C. Simon, *Rethinking Leadership: The Changing Role of Principal Supervisors*, Washington, D.C.: Council of the Great City Schools, 2013.

Corcoran, R. P., J. M. Reilly, and S. M. Ross, *An Examination of the Effect of the National Institute for School Leadership’s Executive Development Program on School Performance Trends in Milwaukee: A Propensity Score Analysis*, Baltimore, Md.: The Center for Research and Reform in Education, Johns Hopkins University, October 2015.

Corcoran, S. P., A. E. Schwartz, and M. Weinstein, “Training Your Own: The Impact of New York City’s Aspiring Principals Program on Student Achievement,” *Educational Evaluation and Policy Analysis*, Vol. 34, No. 2, 2012, pp. 232–253.

Council of Chief State School Officers, *Educational Leadership Policy Standards: ISLLC 2008*, Washington, D.C., 2008. As of April 11, 2016:

http://www.ccsso.org/documents/2008/educational_leadership_policy_standards_2008.pdf

Darling-Hammond, L., M. LaPointe, D. Meyerson, M. T. Orr, and C. Cohen, *Preparing School Leaders for a Changing World: Lessons from Exemplary Leadership Development Programs*, Stanford, Calif.: Stanford University, Stanford Educational Leadership Institute, 2007.

Davis, S. H., and L. Darling-Hammond, “Innovative Principal Preparation Programs: What Works and How We Know,” *Planning and Changing*, Vol. 43, Nos. 1/2, 2015, pp. 25–45.

Davis, S. H., R. J. Leon, and M. Fultz, “How Principals Learn to Lead: The Comparative Influence of On-the-Job Experiences, Administrator Credential Programs, and the ISLLC Standards in the Development of Leadership Expertise Among Urban Public School Principals,” *International Journal of Educational Leadership Preparation*, Vol. 8, No. 1, 2013.

Dembowski, F. L., and L. K. Lemasters, eds., *Unbridled Spirit: Best Practices in Educational Administration—The 2006 Yearbook of the National Council of Professors of Educational Administration*, Lancaster, Pa.: NCPA Publications, 2006.

Derrington, M. L., and J. W. Campbell, “Principal Concerns and Superintendent Support During Teacher Evaluation Changes,” *AASA Journal of Scholarship and Practice*, Vol. 12, No. 3, 2015, pp. 11–22.

- DeVita, M. C., R. L. Colvin, L. Darling-Hammond, and K. Haycock, *Educational Leadership: A Bridge to School Reform*, New York: The Wallace Foundation, 2007.
- Dhuey, E., and J. Smith, “How Important Are School Principals in the Production of Student Achievement?” *Canadian Journal of Economics*, Vol. 47, No. 2, 2014, pp. 634–663.
- Dodson, R. L., “Kentucky Principal Perceptions of the State’s New Teacher Evaluation System: A Survey Analysis,” *Educational Research Quarterly*, Vol. 39, No. 2, 2015, pp. 53–74.
- Donaldson, M. L., “Principals’ Approaches to Cultivating Teacher Effectiveness Constraints and Opportunities in Hiring, Assigning, Evaluating, and Developing Teachers,” *Educational Administration Quarterly*, Vol. 49, No. 5, 2013, pp. 838–882.
- Doyle, D., and G. Locke, *Lacking Leaders: The Challenges of Principal Recruitment, Selection, and Placement*, Washington, D.C.: Thomas B. Fordham Institute, 2014.
- DuFour, R., and M. Mattos, “How Do Principals Really Improve Schools?” *Educational Leadership*, Vol. 70, No. 7, April 2013, pp. 34–40.
- Duke, D. L., “Keys to Sustaining Successful School Turnarounds,” *ERS Spectrum*, Vol. 24, No. 4, 2006, pp. 21–35.
- Ebmeier, H., *Diagnostic Assessment of School and Principal Effectiveness: A Reference Manual*, Topeka, Kan.: KanLEAD Educational Consortium Technical Assistance Center, 1992.
- Educational Policy Institute, *Focus on Results: An Academic Impact Analysis of the Knowledge Is Power Program (KIPP)*, Virginia Beach, Va.: Educational Policy Institute, 2005.
- Feuerstein, A., “Knuckling Under? School Superintendents and Accountability-Based Educational Reform,” *Journal of School Leadership*, Vol. 23, No. 5, 2013.
- Fouche, T. P., *Effects of the Texas Principal Excellence Program on Texas Principal Leadership Behavior and School Outcomes*, Denton: University of North Texas, 2011.
- Friend, J., and M. Militello, “Lights, Camera, Action Advancing Learning, Research, and Program Evaluation Through Video Production in Educational Leadership Preparation,” *Journal of Research on Leadership Education*, Vol. 10, No. 2, 2015, pp. 81–103.
- Fry, B., G. Bottoms, and K. O’Neill, *The Principal Internship: How Can We Get It Right?* Atlanta, Ga.: Southern Regional Education Board, 2005.
- , *Schools Need Good Leaders Now: State Progress in Creating a Learning-Centered School Leadership System: Challenge to Lead Series*, Atlanta, Ga.: Southern Regional Education Board, 2007.
- Fry, Richard, “Millennials Overtake Baby Boomers as America’s Largest Generation,” Pew Research Center, April 25, 2016. As of October 24, 2016:
<http://www.pewresearch.org/fact-tank/2016/04/25/millennials-overtake-baby-boomers/>
- Fuller, E., M. Young, and B. D. Baker, “Do Principal Preparation Programs Influence Student Achievement Through the Building of Teacher-Team Qualifications by the Principal? An Exploratory Analysis,” *Educational Administration Quarterly*, Vol. 47, No. 1, 2011, pp. 173–216.
- Furgeson, J., V. Knechtel, M. Sullivan, C. C. Tuttle, M. A. Anderson, M. Barna, and I. Nichols-Barrer, *KIPP Leadership Practices Through 2010–2011*, San Francisco, Calif.: KIPP Foundation, 2014.
- Gallagher, B. M., and S. M. Ross, *Analysis of Year 2 (2003–2004) Student Achievement Outcomes for the Memphis KIPP DIAMOND Academy*, Memphis, Tenn.: Memphis University, January 2005.

- Gates, Susan M., Laura S. Hamilton, Paco Martorell, Susan Burkhauser, Paul Heaton, Ashley Pierson, Matthew D. Baird, Mirka Vuollo, Jennifer J. Li, Diana Lavery, Melody Harvey, and Kun Gu, *Preparing Principals to Raise Student Achievement: Implementation and Effects of the New Leaders Program in Ten Districts*, Santa Monica, Calif.: RAND Corporation, RR-507-NL, 2014. As of October 25, 2016:
http://www.rand.org/pubs/research_reports/RR507.html
- Gates, S. M., J. S. Ringel, L. Santibanez, C. H. Chung, and K. E. Ross, *Who Is Leading Our Schools? An Overview of School Administrators and Their Careers*, Santa Monica, Calif.: RAND Corporation, MR-1679-EDU, 2003. As of October 25, 2016:
http://www.rand.org/pubs/monograph_reports/MR1679.html
- Gill, J., *Stories from the Field: Make Room for the Principal Supervisors*, New York: The Wallace Foundation, 2013.
- Gleason, P. M., C. C. Tuttle, B. Gill, I. Nichols-Barrer, and B. R. Teh, “Do KIPP Schools Boost Student Achievement?” *Education*, Vol. 9, No. 1, 2014, pp. 36–58.
- Goff, P. T., M. Mavrogordato, and E. Goldring, “Instructional Leadership in Charter Schools: Is There an Organizational Effect or Are Leadership Practices the Result of Faculty Characteristics and Preferences?” *Leadership and Policy in Schools*, Vol. 11, No. 1, 2012, pp. 1–25.
- Goldring, E., J. A. Grissom, C. M. Neumerski, J. Murphy, R. Blissett, and A. Porter, *Making Time for Instructional Leadership*, Vol. 1: *The Evolution of the SAM Process*, New York: The Wallace Foundation, 2015. As of November 7, 2016:
<http://www.wallacefoundation.org/knowledge-center/Pages/Making-Time-for-Instructional-Leadership.aspx>
- Goldring, R., and S. Taie, *Principal Attrition and Mobility: Results from the 2012–13 Principal Follow-up Survey (NCES 2014-064)*, Washington, D.C.: U.S. Department of Education, National Center for Education Statistics, 2014. As of October 6, 2014:
<http://nces.ed.gov/pubs2014/2014064rev.pdf>
- Goodwin, B., G. Cameron, and H. Hein, *Balanced Leadership for Powerful Learning: Tools for Achieving Success in Your School*, Alexandria, Va.: ASCD, 2016.
- Gordon, G., *Principal Talent as Seen Through Teachers’ Eyes*, Washington, D.C.: Gallup, 2013.
- Grissom, J. A., “Can Good Principals Keep Teachers in Disadvantaged Schools? Linking Principal Effectiveness to Teacher Satisfaction and Turnover in Hard-to-Staff Environments,” *Teachers College Record*, Vol. 113, No. 11, 2011, pp. 2552–2585.
- Grissom, J. A., D. Kalogrides, and S. Loeb, “Using Student Test Scores to Measure Principal Performance,” *Education Evaluation and Policy Analysis*, Vol. 37, No. 1, 2015, pp. 3–28.
- Grissom, J. A., and S. Loeb, “Triangulating Principal Effectiveness: How Perspectives of Parents, Teachers, and Assistant Principals Identify the Central Importance of Managerial Skills,” *American Educational Research Journal*, Vol. 48 No. 5, 2011, pp. 1091–1123.
- Grissom, J. A., S. Loeb, and B. Master, “Effective Instructional Time Use for School Leaders: Longitudinal Evidence from Observations of Principals,” *Educational Researcher*, October 25, 2013.
- Hallinger, P., “Leadership for Learning: Lessons from 40 Years of Empirical Research,” *Journal of Educational Administration*, Vol. 49, No. 2, 2011, pp. 125–142.
- Hallinger, P., and R. H. Heck, “Reassessing the Principal’s Role in School Effectiveness: A Review of Empirical Research, 1980–1995,” *Educational Administration Quarterly*, Vol. 32, No. 1, 1996, pp. 5–44.
- Hallinger, P., and M. Lee, “Mapping Instructional Leadership in Thailand Has Education Reform Impacted Principal Practice?” *Educational Management Administration and Leadership*, Vol. 42, No. 1, 2014, pp. 6–29.

- Hallinger, P., and J. Murphy, "Assessing the Instructional Leadership Behavior of Principals," *The Elementary School Journal*, Vol. 86, No. 2, 1985, pp. 217–248.
- Hallinger, P., W. C. Wang, and C. W. Chen, "Assessing the Measurement Properties of the Principal Instructional Management Rating Scale: A Meta-Analysis of Reliability Studies," *Educational Administration Quarterly*, Vol. 49, No. 2, 2013, pp. 272–309.
- Hamilton, L. S., J. Engberg, E. D. Steiner, C. A. Nelson, and K. Yun, *Improving School Leadership Through Support, Evaluation, and Incentives: The Pittsburgh Principal Incentive Program*, Santa Monica, Calif.: RAND Corporation, MG-1223-PPS, 2012. As of April 13, 2016:
<http://www.rand.org/pubs/monographs/MG1223.html>
- Hansen, J. S., and M. Roza, *Decentralized Decisionmaking for Schools: New Promise for an Old Idea?* Santa Monica, Calif.: RAND Corporation, OP-153-EDU, 2005. As of April 13, 2016:
http://www.rand.org/pubs/occasional_papers/OP153.html
- Hart, H., S. Ponisciak, S. Spote, W. D. Stevens, and Consortium on Chicago School Research, *Principal and Teacher Leadership in Chicago: Continuing Analysis of Three Initiatives*, Evaluation Report, Chicago: Consortium on Chicago School Research, 2006.
- Hassel, E. A., and B. Hassel, "The Big U-Turn: How to Bring Schools from the Brink of Doom to Stellar Success," *Education Next*, Vol. 9, No. 1, 2009.
- Hausman, C. S., and E. B. Goldring, "Teachers' Ratings of Effective Principal Leadership: A Comparison of Magnet and Nonmagnet Elementary Schools," *Journal of School Leadership*, Vol. 11, No. 11, 2014, pp. 399–423.
- Heck, R. H., and P. Hallinger, "Modeling the Longitudinal Effects of School Leadership on Teaching and Learning," *Journal of Educational Administration*, Vol. 52, No. 5, 2014, pp. 653–681.
- Herman, R., P. Dawson, T. Dee, J. Greene, R. Maynard, S. Redding, and M. Darwin, *Turning Around Chronically Low-Performing Schools: A Practice Guide*, Washington, D.C.: National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, NCEE No. 2008-4020, 2008.
- Herman, R., S. M. Gates, E. R. Chavez-Herrerias, M. Harris, *School Leadership Interventions Under the Every Student Succeeds Act: Volume I—A Review of the Evidence Base, Initial Findings*, Santa Monica, Calif.: RAND Corporation, RR-1550-WF, 2016.
- Herman, R., C. Graczewski, S. James-Burdumy, M. Murray, I. Perez-Johnson, and C. Tanenbaum, *Operational Authority, Support, and Monitoring of School Turnaround*, Washington, D.C.: National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, 2014.
- Herman, R., and M. Huberman, "Differences in the Policies, Programs, and Practices (PPPs) and Combination of PPPs Across Turnaround, Moderately Improving, and Not Improving Schools," paper presented at Effective Partnerships: Linking Practice and Research conference for the Society for Research on Educational Effectiveness, Washington, D.C., September 6–8, 2012.
- Hess, F. M., *A License to Lead? A New Leadership Agenda for America's Schools*, Washington, D.C.: Progressive Policy Institute, 2003.
- , *Cage-Busting Leadership: Combating the Culture of Can't*, Cambridge, Mass.: Harvard Education Press, 2013.
- Hess, F. M., and A. P. Kelly, "An Innovative Look, a Recalcitrant Reality: The Politics of Principal Preparation Reform," *Educational Policy*, Vol. 19, No. 1, 2005, pp. 155–180.
- Hochbein, C., and B. C. Cunningham, "An Exploratory Analysis of the Longitudinal Impact of Principal Change on Elementary School Achievement," *Journal of School Leadership*, Vol. 23, No. 1, 2013.

- Honig, M. I., “District Central Office Leadership as Teaching: How Central Office Administrators Support Principals’ Development as Instructional Leaders,” *Educational Administration Quarterly*, Vol. 20, No. 10, 2012, pp. 1–42.
- Honig, M. I., and L. R. Rainey, “Autonomy and School Improvement: What Do We Know and Where Do We Go from Here?” *Education Policy*, Vol. 26, No. 3, 2012, pp. 465–495.
- Hoogstra, Lisa, Trisha Hinojoso, Karen Drill, Andrew Swanlund, Melissa Brown-Sims, Michelle Oliva, David Manzeske, and Nancy Zajano, *Final Report on the Evaluation of the Texas Principal Excellence Program (TxPEP)*, Chicago: Learning Point Associates, 2008. As of October 15, 2017:
http://www.air.org/sites/default/files/downloads/report/TxPEP_Final_Narrative_and_Appendices_0.pdf
- Hopkins, D., S. Stringfield, A. Harris, L. Stoll, and T. Mackay, “School and System Improvement: A Narrative State-of-the-Art Review,” *School Effectiveness and School Improvement*, Vol. 25, No. 2, 2014, pp. 257–281.
- Hornig, E. L., D. Klasik, and S. Loeb, “Principal’s Time Use and School Effectiveness,” *American Journal of Education*, Vol. 116, No. 4, 2010, pp. 491–523.
- Institute for Educational Leadership, *Preparing and Supporting Diverse, Culturally Competent Leaders: Practice and Policy Considerations*, Washington, D.C.: Institute for Educational Leadership, 2005. As of August 5, 2016:
<http://eric.ed.gov/?id=ED493453>
- Institute of Education Sciences, “About IES: Connecting Research, Policy and Practice,” web page, undated. As of November 9, 2016:
<http://ies.ed.gov/aboutus/>
- Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, *What Works Clearinghouse: Procedures and Standards Handbook*, Version 3.0, Washington, D.C., January 2014. As of November 9, 2016:
http://ies.ed.gov/ncee/wwc/Docs/referenceresources/wwc_procedures_v3_0_standards_handbook.pdf
- Ishimaru, A., “From Heroes to Organizers Principals and Education Organizing in Urban School Reform,” *Educational Administration Quarterly*, Vol. 49 No. 1, 2013, pp. 3–51.
- Jackson, B. L., and C. Kelley, “Exceptional and Innovative Programs in Educational Leadership,” *Educational Administration Quarterly*, Vol. 38, No. 2, 2002, pp. 192–212.
- Jacob, R., R. Goddard, M. Kim, R. Miller, and Y. Goddard, “Exploring the Causal Impact of the McREL Balanced Leadership Program on Leadership, Principal Efficacy, Instructional Climate, Educator Turnover, and Student Achievement,” *Educational Evaluation and Policy Analysis*, Vol. 37, No. 3, 2015.
- James-Ward, C., and J. Abuyen, “McREL Leadership Responsibilities Through the Lens of Data: The Critical Nine,” *Global Education Review*, Vol. 2, No. 3, 2015, pp. 82–93.
- Jarl, M., A. Fredriksson, and S. Persson, “New Public Management in Public Education: A Catalyst for the Professionalization of Swedish School Principals,” *Public Administration*, Vol. 90, No. 2, 2012, pp. 429–444.
- Johnson, J., *A Mission of the Heart: What Does It Take to Transform a School?* New York: The Wallace Foundation, 2008.
- Kaufman, J. H., S. M. Gates, M. Harvey, Y. Wang, and M. K. Barrett, *What It Takes to Operate and Maintain Principal Pipelines: Costs and Other Resources*, Santa Monica, Calif.: RAND Corporation, RR-2078-WF, 2017. As of October 1, 2017:
https://www.rand.org/pubs/research_reports/RR2078.html
- Khalifa, M., “A Re-New-ed Paradigm in Successful Urban School Leadership: Principal as Community Leader,” *Educational Administration Quarterly*, Vol. 48, No. 3, 2012, pp. 424–467.

- King, C., *Quality Measures™ Principal Preparation Program Self-Assessment Toolkit: For Use in Developing, Assessing, and Improving Principal Preparation Programs*, Waltham, Mass.: Education Development Center, 2013.
- KIPP, “Five Pillars,” web page, undated. As of April 13, 2016:
<http://www.kipp.org/our-approach/five-pillars>
- Knechtel, V., M. A. Anderson, A. Burnett, T. Coen, M. Sullivan, C. C. Tuttle, and P. Gleason, *Understanding the Effect of KIPP as It Scales*, Vol. 2: *Leadership Practices at KIPP*, Princeton, N.J.: Mathematica Policy Research, 2015.
- Knoop, R., and R. W. Common, “A Performance Appraisal System for School Principals,” paper presented at the Annual Meeting of the Canadian Society for the Study of Education, Montreal, Quebec, May 1985.
- Kouzes, J., and B. Posner, *The Leadership Practices Inventory: Theory and Evidence Behind the Five Practices of Exemplary Leaders*, Arlington, Va.: The Leadership Institute, 2002. As of December 18, 2014:
http://media.wiley.com/assets/61/06/lc_jb_appendix.pdf
- Kowal, J., and E. A. Hassel, *Importing Leaders for School Turnarounds: Lessons and Opportunities*, Charlottesville, Va.: Darden/Curry Partnership for Leaders in Education, University of Virginia, 2011.
- Kowal, J., E. A. Hassel, and B. C. Hassel, *Successful School Turnarounds: Seven Steps for District Leaders*, Washington, D.C.: The Center for Comprehensive School Reform and Improvement, 2009.
- Ladd, H. F., “Teachers’ Perceptions of Their Working Conditions: How Predictive of Planned and Actual Teacher Movement?” *Educational Evaluation and Policy Analysis*, Vol. 33, No. 2, 2011, pp. 235–261.
- Lee, Omaria Z., *The Leadership Gap: Preparing Leaders for Urban Schools*, dissertation, Los Angeles: University of Southern California, 2010. As of November 9, 2016:
<http://gradworks.umi.com/34/18/3418101.html>
- Le Floch, K. C., B. Birman, J. O’Day, S. Hurlburt, D. Mercado-Garcia, R. Goff, K. Manship, S. Brown, S. B. Therriault, L. Rosenberg, M. H. Angus, and L. Hulsey, *Case Studies of Schools Receiving School Improvement Grants: Findings After the First Year of Implementation*, Washington, D.C.: Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, NCEE No. 2014-4015, 2014.
- Leithwood, K., and J. Jantzi, “A Review of Transformational School Leadership Research 1996–2005,” *Leadership and Policy in Schools*, Vol. 4, No. 3, 2005, pp. 177–199.
- Leithwood, L., K. Seashore Louis, S. Anderson, and K. Wahlstrom, *How Leadership Influences Student Learning*, New York: The Wallace Foundation, 2004.
- Leithwood, K., and J. Sun, “The Nature and Effects of Transformational School Leadership: A Meta-Analytic Review of Unpublished Research,” *Educational Administration*, Vol. 48, No. 3, 2012, pp. 387–423.
- Lindle, Jane Clark, Matthew R. Della Sala, Kenyae L. Reese, Hans W. Klar, Robert Charles Knoepfel, and Frederick C. Buskey, “A Logic Model for Coaching Experienced Rural Leaders: Lessons from Year One of a Pilot Program,” *Professional Development in Education*, June 5, 2015.
- Loeb, S., D. Kalogrides, and T. Béteille, “Effective Schools: Teacher Hiring, Assignment, Development, and Retention,” *Education Finance and Policy*, Vol. 7, No. 3, 2012, pp. 269–304.
- Lynch, J. M., “Responsibilities of Today’s Principal: Implications for Principal Preparation Programs and Principal Certification Policies,” *Rural Special Education Quarterly*, Vol. 31, No. 2, 2012, pp. 40–47.
- Marzano, R. J., T. Waters, and B. A. McNulty, *School Leadership That Works: From Research to Results*, Alexandria, Va.: Association for Supervision and Curriculum Development, 2005.

- McCarthy, M., “Educational Leadership Preparation Programs: A Glance at the Past with an Eye Toward the Future,” *Leadership and Policy in Schools*, Vol. 1, No. 3, 2002, pp. 201–221.
- McMahon, M., M. L. Peters, and G. Schumacher, “The Principal Evaluation Process and Its Relationship to Student Achievement,” *Journal of Scholarship and Practice*, Vol. 11, No. 3, 2014, pp. 34–48.
- Mendels, P., “The Effective Principal,” *Journal of Staff Development*, Vol. 33, No. 1, 2012a, pp. 54–58.
- , “Principals in the Pipeline: Districts Construct a Framework to Develop School Leadership,” *Learning Forward*, Vol. 33, No. 3, 2012b, pp. 48–52.
- Miller, A., “Principal Turnover and Student Achievement,” *Economics of Education Review*, Vol. 36, 2013, pp. 60–72.
- Miller, P., A. Pavlakis, V. Lac, and D. Hoffman, “Responding to Poverty and Its Complex Challenges: The Importance of Policy Fluency for Educational Leaders,” *Theory into Practice*, Vol. 53, No. 2, 2014, pp. 131–138.
- Mitgang, L. D., *Beyond the Pipeline: Getting the Principals We Need, Where They Are Needed Most*, New York: The Wallace Foundation, 2003.
- , *Becoming a Leader: Preparing School Leaders for Today’s Schools*, New York: The Wallace Foundation, 2008.
- , *The Making of the Principal: Five Lessons in Leadership Training*, New York: The Wallace Foundation, 2012.
- Mullen, C. A., and D. H. Schunk, “A View of Professional Learning Communities Through Three Frames: Leadership, Organization, and Culture,” *McGill Journal of Education/Revue des sciences de l’éducation de McGill*, Vol. 45, No. 2, 2010, pp. 185–203.
- Murphy, J., “Methodological, Measurement, and Conceptual Problems in the Study of Instructional Leadership,” *Educational Evaluation and Policy Analysis*, Vol. 10, No. 2, 1988, pp. 117–139.
- , “The Architecture of School Improvement,” *Journal of Educational Administration*, Vol. 51, No. 3, 2013, pp. 252–263.
- National Policy Board for Educational Administration, *Professional Standards for Educational Leaders 2015*, Reston, Va., 2015.
- Nunnery, J. A., S. M. Ross, S. Chappell, S. Pribesh, and E. Hoag-Carhart, *The Impact of the NISL Executive Development Program on School Performance in Massachusetts: Cohort 2 Result*, Norfolk, Va.: Center for Educational Partnerships at Old Dominion University, 2011.
- Nunnery, J. A., S. M. Ross, and C. Yen, *The Effect of the National Institute for School Leadership’s Executive Development Program on School Performance Trends in Pennsylvania*, Norfolk, Va.: Center for Educational Partnerships at Old Dominion University, 2010.
- Office of Innovation and Improvement, *Innovations in Education: Innovative Pathways to School Leadership*, Washington, D.C.: U.S. Department of Education, 2011.
- Onorato, M., “Transformational Leadership Style in the Educational Sector: An Empirical Study of Corporate Managers and Educational Leaders,” *Academy of Educational Leadership Journal*, Vol. 17, No. 1, 2013, pp. 33–47.
- Orr, M. T., C. King, and M. La Pointe, *District Developing Leaders: Eight Districts’ Lessons on Strategy, Program Approach, and Organization to Improve the Quality of Leaders for Local Schools*, Newton, Mass.: Education Development Center, 2010.
- Papa, F. C., Jr., “Why Do Principals Change Schools? A Multivariate Analysis of Principal Mobility,” *Leadership and Policy in Schools*, Vol. 6, No. 3, 2007, pp. 267–290.

Papa, F. C., Jr., H. Lankford, and J. Wyckoff, *The Attributes and Career Paths of Principals: Implications for Improving Policy*, Stanford, Calif.: Center for Education Policy and Analysis, Stanford University, 2002.

Peer, Diana, *Master Principals' Perceptions of the Impact of the Arkansas Leadership Academy's Master Principal Program on Leadership Practices, School Cultures and Student Achievement*, dissertation, University of Arkansas, Fayetteville, 2012.

Player, D., and V. Katz, *School Improvement in Ohio and Missouri: An Evaluation of the School Turnaround Specialist Program*, Charlottesville, Va.: Center on Education Quality and Workforce Competitiveness, University of Virginia, working paper, 2013.

———, "Assessing School Turnaround: Evidence from Ohio," *The Elementary School Journal*, Vol. 116, No. 4, May 2016, pp. 675–698.

Porter, A. C., J. F. Murphy, E. B. Goldring, and S. N. Elliot, *Vanderbilt Assessment of Leadership in Education*, Nashville, Tenn.: Vanderbilt University, 2006.

Porter, A. C., J. F. Murphy, E. B. Goldring, S. N. Elliott, M. S. Polikoff, and H. May, *Vanderbilt Assessment of Leadership in Education: Technical Manual*, version 1.0, Nashville, Tenn.: Vanderbilt University, 2008.

Portin, B., P. Schneider, M. DeArmond, and L. Gundlach, *Making Sense of Leading Schools: A National Study of the Principals*, Seattle, Wash.: Center on Reinventing Public Education, 2003.

Pounder, D. G., and R. J. Merrill, "Job Desirability of the High School Principalship: A Job Choice Theory Perspective," *Education Administration Quarterly*, Vol. 27, No. 1, 2001, pp. 27–57.

Price, H. E., "Principal–Teacher Interactions: How Affective Relationships Shape Principal and Teacher Attitudes," *Educational Administration Quarterly*, Vol. 48, No. 1, 2012, pp. 39–85.

Public Impact, *School Turnaround Leaders: Selection Toolkit*, Chapel Hill, N.C., 2008. As of April 12, 2016: http://www.publicimpact.com/publications/Turnaround_Leader_Selection_Toolkit.pdf

Public Law 107-110, No Child Left Behind Act of 2001, January 8, 2002.

Public Law No. 114-95, Every Student Succeeds Act, December 10, 2015.

Pulliam, C. L., L. LaCaria, J. Schoeneberger, and B. Algozzine, "A Preliminary Analysis of a Strategic Staffing Initiative," *Education Policy*, Vol. 10, No. 5, 2012, pp. 1–26.

Rice, J. K., *Principal Effectiveness and Leadership in an Era of Accountability: What Research Says*, Washington, D.C.: National Center for Analysis of Longitudinal Data in Education Research, 2010.

Robinson, V. M. J., *School Leadership and Student Outcomes: Identifying What Works and Why*, Sydney: Australian Council for Educational, 2007.

Robinson, V. M. J., C. A. Lloyd, and K. J. Rowe, "The Impact of Leadership on School Outcomes: An Analysis of the Differential Effects of Leadership Types," *Educational Administration Quarterly*, Vol. 44, No. 5, 2008, pp. 635–674.

Romay, M. L., C. Magee, and C. L. Slater, "Principal Leadership and Challenges for Developing a School Culture of Evaluation," in S. Scott, D. E. Scott, and C. F. Webber, eds., *Assessment in Education: Implications for Leadership*, Cham, Switzerland: Springer International Publishing, 2016, pp. 261–284.

Roza, M., *A Matter of Definition: Is There Truly a Shortage of School Principals?* Seattle: Center on Reinventing Public Education, Daniel J. Evans School of Public Affairs, University of Washington, 2003.

Schoeneberger, J. A., and C. L. Pulliam, *Evaluation of the Strategic Staffing Initiative in Charlotte-Mecklenburg Schools*, Charlotte-Mecklenburg, N.C.: Center for Research and Evaluation, 2011. As of April 12, 2016: <http://media.charlotteobserver.com/images/pdf/StrategicStaffEval.pdf>

Seashore Louis, K., K. Leithwood, K. L. Wahlstrom, S. E. Anderson, M. Michlin, B. Mascall, M. Gordon, T. Strauss, E. Thomas, and S. Moorek, *Learning from Leadership: Investigating the Links to Improved Student Learning*, St. Paul: Center for Applied Research and Educational Improvement, University of Minnesota, 2010.

Sebastian, J., and E. Allensworth, “The Influence of Principal Leadership on Classroom Instruction and Student Learning: A Study of Mediated Pathways to Learning,” *Educational Administration Quarterly*, Vol. 48, No. 4, 2012, pp. 626–663.

Shakman, K., and S. M. Rodriguez, *Logic Models for Program Design, Implementation and Evaluation: Workshop Toolkit*, Version 3.0, Washington, D.C.: U.S. Department of Education, Institute for Education Sciences, National Center for Education Evaluation and Regional Assistance, May 2015. As of November 15, 2016: <http://files.eric.ed.gov/fulltext/ED556231.pdf>

Shelton, S., *Strong Leaders Strong Schools: 2010 School Leadership Laws*, Denver, Colo.: National Conference of State Legislatures, 2011.

———, *Preparing a Pipeline of Effective Principals: A Legislative Approach*, Denver, Colo.: National Conference of State Legislators, 2012.

Slavin, Robert E., “Evidence and the ESSA,” *Huffington Post*, December 8, 2015. As of April 13, 2016: http://www.huffingtonpost.com/robert-e-slavin/evidence-and-the-essa_b_8750480.html

Snow-Renner, Ravay, *Assessing District Support for Leadership Development: Asking the Right Questions*, Aurora, Colo.: Mid-Continent Research for Education and Learning, December 2000.

Southern Regional Education Board, *Schools Can't Wait: Accelerating the Redesign of University Principal Preparation Program*, Atlanta, Ga., 2006.

Steinberg, M. P., *Leadership and the Decentralized Control of Schools*, Rockville, Md.: Regional Educational Laboratory Mid-Atlantic, 2013. As of April 12, 2016: https://www.relmidatlantic.org/sites/default/files/general_uploads/4.8.4.Debriefing_materials_lit_review_2013-12-08_no_tracks_508c.pdf

———, “Does Greater Autonomy Improve School Performance? Evidence from a Regression Discontinuity Analysis in Chicago,” *Education Finance and Policy*, Vol. 9, No. 1, 2014, pp. 1–35.

Steiner, L. M., and E. A. Hassel, *Using Competencies to Improve School Turnaround Principal Success*, Chapel Hill, N.C.: Public Impact, 2011.

Steiner, L. M., E. A. Hassel, and B. Hassel, *School Turnaround Leaders: Competencies for Success*, Chapel Hill, N.C.: Public Impact, June 2008.

Supovitz, J. A., *Building a Lattice for School Leadership: The Top-to-Bottom Rethinking of Leadership Development in England and What It Might Mean for American Education*, Philadelphia: Consortium for Policy Research in Education, University of Pennsylvania, 2014.

Turnbull, B. J., M. B. Haslam, E. R. Arcaira, D. L. Riley, B. Sinclair, and S. Coleman, *Evaluation of the School Administration Manager Project*, Washington, D.C.: Policy Studies Associates, 2009.

Turnbull, B. J., D. L. Riley, E. R. Arcaira, L. M. Anderson, and J. R. MacFarlane, *Six Districts Begin the Principal Pipeline Initiative*, Washington, D.C.: Policy Studies Associates, 2013.

Turnbull, B. J., D. L. Riley, and J. R. MacFarlane, *Building a Stronger Principalship, Vol. 2: Cultivating Talent Through a Principal Pipeline*, Washington, D.C.: Policy Studies Associates, 2013. As of November 11, 2016: <http://www.wallacefoundation.org/knowledge-center/Pages/Building-a-Stronger-Principalship-Vol-2-Cultivating-Talent-Through-a-Principal-Pipeline.aspx>

- Tuttle, C. C., B. Gill, P. Gleason, V. Knechtel, I. Nichols-Barrer, and A. Resch, *KIPP Middle Schools: Impacts on Achievement and Other Outcomes; Final Report*, Princeton, N.J.: Mathematica Policy Research, 2013.
- Tuttle, C. C., P. Gleason, V. Knechtel, I. Nichols-Barrer, K. Booker, G. Chojnacki, T. Coen, and L. Goble, *Understanding the Effect of KIPP as It Scales*, Vol. 1: *Impacts on Achievement and Other Outcomes*, Washington, D.C.: Mathematica Policy Research, 2015.
- Tuttle, C. C., B. Teh, I. Nichols-Barrer, B. P. Gill, and P. Gleason, *Student Characteristics and Achievement in 22 KIPP Middle Schools*, Washington, D.C.: Mathematica Policy Research, June 2010.
- U.S. Department of Education, “Final Priorities, Requirements, Definitions, and Selection Criteria—Investing in Innovation Fund; Applications for New Awards; Investing in Innovation Fund, Development Grants; Rule and Notice,” *Federal Register*, Vol. 78, No. 59, March 27, 2013, pp. 18704–18705.
- , “School Improvement Grants,” August 14, 2016a. As of April 12, 2016:
<http://www.ed.gov/category/program/school-improvement-grants>
- , *Non-Regulatory Guidance for Title II, Part A: Building Systems of Support for Excellent Teaching and Learning*, Washington, D.C., 2016b.
- , *Non-Regulatory Guidance: Using Evidence to Strengthen Education Investments*, Washington, D.C., 2016c.
- , private communication with authors about Evidence Guidance, 2016d.
- Vandenberghe, R., “Development of a Questionnaire for Assessing Principal Change Facilitator Style,” paper presented at the Annual Meeting of the American Educational Research Association, New Orleans, La., April 1988.
- Vitaska, S., *Strong Leaders, Strong Schools: 2007 State Laws*, Denver, Colo.: National Conference of State Legislatures, 2008. As of December 20, 2011:
<http://www.ncsl.org/print/educ/strongleaders.pdf>
- The Wallace Foundation, *The School Principal as Leader: Guiding Schools to Better Teaching and Learning*, New York, 2013.
- , *Building Principal Pipelines: A Job That Urban Districts Can Do*, New York, 2016.
- Waters, T., R. Marzano, and B. McNulty, *Balanced Leadership: What 30 Years of Research Tells Us About the Effect of Leadership on Student Achievement*, Aurora, Colo.: Mid-Continent Research for Education and Learning, 2003.
- West, Martin R., *From Evidence-Based Programs to an Evidence-Based System: Opportunities Under the Every Student Succeeds Act*, Washington, D.C.: Brookings Institution, February 5, 2016. As of April 13, 2016:
<http://www.brookings.edu/research/papers/2016/02/05-evidence-based-system-opportunities-under-essa-west>
- Williams, B. T., “Ethical Leadership in Schools Servicing African American Children and Youth,” *Teacher Education and Special Education*, Vol. 24, No. 1, 2001, pp. 38–47.
- Witziers, B., R. J. Bosker, and M. L. Kruger, “Educational Leadership and Student Achievement: The Elusive Search for an Association,” *Educational Administration Quarterly*, Vol. 39, No. 3, 2003, pp. 398–425.
- Woodworth, K. R., J. L. David, R. Guha, H. Wang, and A. Lopez-Torkos, *San Francisco Bay Area KIPP Schools: A Study of Early Implementation and Achievement; Final Report*, Menlo Park, Calif.: SRI International, 2008.
- Yoder, N., D. Freed, and J. Feters, *Improving School Leader Preparation: Collaborative Models for Measuring Effectiveness*, Washington, D.C.: Center on Great Teachers and Leaders, 2014. As of April 12, 2016:
http://www.gtlcenter.org/sites/default/files/Principal_Preparation.pdf
- Zepeda, S. J., A. M. Jimenez, and P. D. Lanoue, “New Practices for a New Day: Principal Professional Development to Support Performance Cultures in Schools,” *Professional Development in Education: Pushing the Boundaries of Possibility*, Vol. 9, No. 1, Autumn 2015, pp. 303–322.

