



Developing Effective Principals

What Kind of Learning Matters?

Linda Darling-Hammond, Marjorie E. Wechsler, Stephanie Levin,
Melanie Leung-Gagné, and Steve Tozer

Developing Effective Principals: What Kind of Learning Matters?

Linda Darling-Hammond, Marjorie E. Wechsler, Stephanie Levin,
Melanie Leung-Gagné, and Steve Tozer

Acknowledgments

The authors thank their Learning Policy Institute (LPI) colleagues and former colleagues for their support and contributions to this research: Seher Ahmad, Cristina Alvarez, William Berry, Jee Young Bhan, Kathryn Bradley, Ayana Campoli, Laura Hernández, Iris Hinh, Ashley Jones, Sharin Park, Anne Podolsky, Darian Rice, Caitlin Scott, Tina Trujillo, and Darion Wallace. We thank Anna Egalite, Ellen Goldring, Jason Grissom, Mariesa Herrmann, Constance Lindsay, and Mollie Rubin, who were simultaneously working on related syntheses, for their collegueship, insights, and feedback. We thank our colleagues at the National Association of Elementary School Principals and National Association of Secondary School Principals for their partnership in administering surveys to their members. We thank the LPI Communications Team for their invaluable support in editing, designing, and disseminating this report. Without their generosity of time and spirit, this work would not have been possible.

This research was supported by The Wallace Foundation. Core operating support for the Learning Policy Institute is provided by the Heising-Simons Foundation, William and Flora Hewlett Foundation, Raikes Foundation, Sandler Foundation, and MacKenzie Scott and Dan Jewett. We are grateful to them for their generous support. The ideas voiced here are those of the authors and not those of our funders.

External Reviewers

This report benefited from the insights and expertise of two external reviewers: Kenneth Leithwood, Professor Emeritus, University of Toronto, Ontario Institute for Studies in Education; and Margaret Terry Orr, Professor, Fordham University. We thank them for the care and attention they gave the report.

Suggested citation: Darling-Hammond, L., Wechsler, M. E., Levin, S., Leung-Gagné, M., & Tozer, S. (2022). *Developing effective principals: What kind of learning matters?* [Report]. Learning Policy Institute. <https://doi.org/10.54300/641.201>

This report can be found online at <https://learningpolicyinstitute.org/product/developing-effective-principals>.

This work is licensed under the Creative Commons Attribution-NonCommercial 4.0 International License. To view a copy of this license, visit <http://creativecommons.org/licenses/by-nc/4.0/>.



Document last revised May 17, 2022

Table of Contents

Executive Summary.....	v
Introduction	1
The Current Landscape for Principals	1
Study Focus and Methodological Overview	4
Challenges in Studying the Influences of Principal Learning.....	7
Overview of the Report	8
Principal Preparation	10
Introduction	10
Comprehensive Principal Preparation Programs	10
Specific Features of High-Quality Principal Preparation Programs.....	15
Principal Preparation Research: Limitations and Opportunities	21
Principal In-Service Professional Development.....	23
Introduction	23
Professional Development Programs Evaluated in Their Entirety.....	23
Elements of High-Quality Professional Development	30
Principal Professional Development Research: Limitations and Opportunities	35
Access to High-Quality Learning Opportunities	38
Overview of the National, California, and North Carolina Principal Surveys	38
Principals' Access to Strong Preparation	38
Principals' Access to High-Quality Professional Development	46
Conclusion	55
Principal Development Policy	56
Changes in Principal Development Policy Over Time.....	56
Can Policy Influence Practice?	65
Summary of Principal Development Policy	72
Summary and Implications.....	74
Summary	74
Research Implications.....	76
Policy Implications.....	80
Conclusion	82
References.....	83
About the Authors	99

List of Figures and Tables

Figure 1	Theory of Action for Principal Professional Learning	6
Figure 2	Content That Principals Had Access to During Professional Development.....	47
Figure 3	Principals' Reports of Professional Development Topics That Were Covered to a Moderate or Great Extent	51
Figure 4	Professional Development Topics Principals Want More Of.....	52
Figure 5	Professional Development That Principals Want More Of, by School Composition, National Sample	54
Figure 6	Analysis of Trends in State Policy Plans Under ESSA	64
Table 1	Characteristics of Exemplary Principal Learning Programs Identified in Preparing Leaders for a Changing World	2
Table 2	Content That Principals in California and Nationally Had Access to During Preparation.....	39
Table 3	Principals' Access to Authentic Learning Opportunities in California and Nationally	42
Table 4	Principals' Internship Experiences, National.....	43
Table 5	Principals' Reports of Access to Various Topics and Program Strategies During Preparation by School Poverty Level, National and California.....	44
Table 6	Principals' Reports of Frequency of Participation in Collaborative Forms of Professional Development, Nationally and in California	48
Table 7	Principals' Access to Mentors, Coaches, and Principal Supervisors	49
Table 8	Obstacles Principals Experienced in Pursuing More Professional Development, by Schools With High and Low Percentages of Students of Color, National Sample.....	55
Table 9	Overview of Leadership and Preparation Standards.....	57
Table 10	UCEA Criteria for Evaluating State Principal Preparation Policies	59
Table 11	California Principals' Reports of Preparation Experiences.....	69

Executive Summary

A substantial and growing body of research suggests that strong school leadership is critical for shaping productive learning environments, supporting high-quality teachers and teaching, and influencing student outcomes. In 2007, *Preparing School Leaders for a Changing World: Lessons From Exemplary Leadership Development Programs* showed that effective principal preparation and development programs could transform principals' practice and increase their success by proactively recruiting dynamic, instructionally focused educators; developing and applying strong knowledge of instructional leadership, organizational development, and change management practices; and offering coaching, feedback, and opportunities for reflection in purposeful communities of practice. Since then, there has been a growing knowledge base about principal learning opportunities that foster positive educational experiences and outcomes. Major changes in policies have also altered the principal learning landscape.

This report reviews the research literature since 2000 to understand the elements of high-quality programs and learning experiences that have been associated with positive outcomes, including principals' sense of preparedness, efficacy, and reported practices, staff perceptions of school climate, teacher retention, and student achievement. It also examines the extent to which principals have opportunities to participate in learning experiences with those elements and the policies that drive both the development of high-quality programs and access to them.

This Study

To understand the evidence regarding high-quality principal learning, we reviewed and synthesized the peer-reviewed research from 2000 to 2021 that met our criteria for addressing the features of principal preparation and development programs and their relationship to principal, teacher, and student outcomes. To understand the extent to which principals have access to high-quality learning opportunities both nationwide and in some distinctive states, we analyzed survey data from representative national samples of principals affiliated with the National Association of Elementary School Principals and the National Association of Secondary School Principals as well as two statewide samples: one from California and one from North Carolina. Initially collected as part of other studies of principal development, these state-specific surveys provide recent, large-scale data that reflect principals' access to preservice and in-service learning opportunities in two large, demographically diverse states with very different policy contexts.

In a separately published analysis, we were able to link the California survey data to student-, teacher-, and school-level administrative data to examine the relationship between specific features of principals' preparation and professional development and teacher retention and student achievement in their schools. We also examined recent trends in federal and state policy influencing principal learning opportunities and identified high-leverage policies, along with potential strategies for expanding their reach.

Key Findings

- 1. A growing body of literature indicates that high-quality principal preparation and professional development programs are associated with positive principal, teacher, and student outcomes, ranging from principals' feelings of preparedness and their engagement in more effective practices to stronger teacher retention and improved student achievement.**

Many programs have adopted the practices of exemplary leadership programs identified in *Preparing School Leaders for a Changing World*. Recent research confirms that principal learning programs that reflect these practices (such as authentic learning opportunities; critical content focused on developing instruction, people, and the organization, as well as managing change; collegial supports; and proactive recruitment) can contribute to the development of principals' leadership knowledge and skills. They also can contribute to positive teacher outcomes, including satisfaction and retention, and increased student achievement. The literature illustrates the importance of field-based internships and problem-based learning opportunities. The efficacy of these opportunities is enhanced when they include an experienced, expert mentor or coach who can provide support and guidance. A growing number of studies have linked principal learning to student achievement gains. Not all studies have found correlations, but many have experienced limitations in the research context (e.g., insufficient duration, inadequate controls, inappropriate comparison groups) or problems with implementation fidelity. Though the findings require careful interpretation, the consistency of the findings across a large number of studies provides reassurance about the overall conclusions we draw.

- 2. An emerging focus on equity-oriented leadership has the potential to develop aspiring principals' knowledge and skills for meeting the needs of diverse learners.**

Recent literature also has explored programs designed to help principals meet the needs of diverse learners. Findings suggest that, through applied learning opportunities (e.g., action research, field-based projects) and reflective projects (e.g., cultural autobiographies, cross-cultural interviews, analytic journals), aspiring principals can deepen their understanding of the ways in which biases associated with race, class, language, disability, and other factors manifest in society and schools and how principals can work toward more equitable opportunities and outcomes.

- 3. Access to preservice and in-service learning opportunities covering important content has been increasing for principals and is now widely available. However, access to important job-based learning opportunities (e.g., internships, applied learning, and mentoring or coaching) is still lacking.**

Our analyses of principal surveys found that most principals reported having at least minimal access to important content related to leading instruction, managing change, developing people, shaping a positive school culture, and meeting the needs of diverse learners, and access to this content has increased over time. Principals certified in the past 10 years were more likely to report access to these areas of study than earlier-certified principals. Even with these improvements, a minority of principals nationally reported having had access to the authentic, job-based learning opportunities that the research has identified as being important to their development. Only 46% of principals reported having had an internship during their preparation that allowed them to take on real leadership responsibilities characteristic of a high-quality internship experience, and very few in-service principals reported having access to coaching or mentoring.

4. Principals' access to high-quality learning opportunities varies across states and by school poverty level, reflecting differences in state policies.

Access to high-quality preparation and professional development differs across states, reflecting their different policies. For example, compared to principals nationally, a greater percentage of California principals reported that they had access to preparation and professional development in nearly every important content area, including areas focused on equity and teaching diverse learners, and a greater percentage reported that they had authentic, job-based learning opportunities in both pre- and in-service contexts. This access reflects recent changes made to state licensure and accreditation policies. At the same time, after many years of budget cuts, North Carolina principals reported having far less access to nearly every kind of professional development.

Access to high-quality preparation also varies by school poverty level within states and nationally. Principals in low-poverty schools across the country were much more likely to report that they had learning opportunities in important areas compared to principals in high-poverty schools, and they were more likely to report that they experienced problem-based and cohort-based preparation. Likewise, principals serving high-poverty schools were less than half as likely as principals serving low-poverty schools to have access to an on-the-job mentor or coach. These disparities, however, did not appear among principals in California, which had overhauled its principal licensure and program accreditation policies. In California, large majorities of principals in all kinds of schools had access to professional learning covering important content and using applied learning strategies, suggesting that policy can influence the availability and distribution of these opportunities.

Across the country, most principals reported wanting more professional development in nearly all topics, but they also reported obstacles in pursuing learning opportunities, including a lack of time and insufficient money.

5. Policies that support high-quality principal learning programs can make a difference. In states and districts that have overhauled standards and have used them to inform preparation, clinically rich learning opportunities, and assessment, evidence suggests that the quality of principal learning has improved.

More state and local policymakers have adopted standards for principal licensing and program accreditation. These are important levers for improvement if they are infused throughout the relevant learning, supervision, and assessment systems. However, few states adopted other high-leverage policies, such as requiring a rigorous selection process, a clinically rich internship, district–university partnerships, or a performance-based assessment for licensure.

All states developed plans to bolster their efforts to support leadership development through the Every Student Succeeds Act (ESSA), using aspects of the law to strengthen preparation, reimagine on-the-job support, advance equity-focused leadership, distribute leaders more equitably, and build leadership pipelines.

Evidence from several states and districts shows that where leadership policies and implementation are strong, access to high-quality principal learning opportunities increases. In some cases—such as Chicago Public Schools' investments in new forms of principal

preparation, Pennsylvania’s induction program for novice principals, and six districts’ engagements in the Principal Pipeline Initiative for career-long learning—well-implemented policies have resulted in students outperforming their peers from schools led by principals who were not participating in these programs. And in states like California and Illinois, major reforms have been associated with evidence of stronger principal preparedness, practices, and retention.

Research Implications

Our research syntheses add to the findings on which stronger practice can be based. At the same time, the syntheses reveal gaps in the available research and methodological weaknesses. We recommend the following for future research:

- **Broaden the scope of research to include detailed descriptions of program content and pedagogical approaches** so that there is greater knowledge about what principals have the opportunity to learn and what approaches make a difference in their practices and impacts.
- **Account for principals’ prior experiences, for program recruitment and selection criteria, and for district context** so that the design and outcomes of professional learning experiences can be better interpreted.
- **Better define outcome measures, and include a broader spectrum of outcomes associated with principal practices as they influence school conditions** to fill the large gap in the body of research between principals’ views of their training and changes in student achievement.
- **Take a longitudinal view** to allow potential effects to become visible and to provide a better understanding of the mechanisms by which principals’ knowledge and skills translate to their practices and their influences on staff and students.
- **Pay attention to how programs are implemented** so that research results can be more accurately interpreted and programs can be better designed.
- **Use mixed methods skillfully to deepen understanding of program processes and effects, especially those that link program features to outcomes.** For example, experimental designs can be strengthened by qualitative data about the program, its implementation, and the comparison group’s experiences. Case studies can combine interviews, observations, surveys, and outcome data to shed light on program offerings and how they develop principals’ knowledge and skills.

Policy Implications

Our analyses of the policies that foster high-quality principal learning programs inform the following policy recommendations:

- **Develop and better use state licensing and program approval standards to support high-quality principal preparation and development.** The stronger use of licensure and program approval standards can help ensure that programs include the features of

high-quality programs and help align program content with the knowledge principals need to produce positive school outcomes. Licensure and program approval standards can also require quality internships for aspiring principals and encourage applied learning opportunities, accompanied by expert coaching and mentoring for practicing principals.

- **Invest in a statewide infrastructure for principal professional learning.** Federal funds from ESSA Titles I and II (including the 3% state set-aside for leadership development initiatives) and the American Rescue Plan Act of 2021 can be used, along with state investments, to ensure principals have access to coordinated, high-quality, and sustained professional learning. Leadership academies and paid internships or residencies can start all principals off with strong skills.
- **Encourage greater attention to equity** both by addressing equity concerns in professional learning and by ensuring that principals who work in high-poverty schools and those with concentrations of students of color have access to high-quality preparation and professional development. This can be done by directing professional development resources to those schools or districts and underwriting high-quality preparation for prospective principals who will work in those schools.
- **Undertake comprehensive policy reforms at both the state and local levels to build a robust pipeline of qualified school principals and a coherent system of development.** Encourage districts, through competitive grants and/or technical assistance, to launch pipeline programs that find teachers with leadership potential and carry them along a pathway to becoming a principal. Ensure novice principals receive strong mentoring and induction and veteran leaders have quality learning opportunities that contribute to coherence in practice that supports systemic change and increased student learning.

Moving forward, improved research can continue to build the field's knowledge about how to best develop high-quality principals, and enhanced policies can create a principal learning system that, as a whole, will better serve principals and, ultimately, all children.

Introduction

The importance of effective principals for students' and teachers' success has been well established. Research has shown that principals are a critical school-level factor influencing student outcomes, including student achievement, graduation rates, and attendance rates (Bartanen, 2020; Coelli & Green, 2012; Grissom et al., 2015; Grissom et al., 2021; Leithwood & Louis, 2012; Leithwood et al., 2004). In fact, recent research conducted by Grissom et al. (2021) concludes that, given the scope of principal effects across an entire school, "It is difficult to envision an investment with a higher ceiling on its potential return than a successful effort to improve principal leadership" (p. 43).

"It is difficult to envision an investment with a higher ceiling on its potential return than a successful effort to improve principal leadership."

Principals influence important teacher outcomes as well. A principal's ability to create positive working conditions and collaborative, supportive learning environments plays a critical role in attracting and retaining qualified teachers and developing their skills (Grissom, 2011; Grissom et al., 2021; Hughes et al., 2015). Indeed, teachers cite principal support as one of the most important factors in their decision to stay in a school or in the profession (Podolsky et al., 2016).

These positive student and teacher outcomes are associated with principals who effectively set direction; develop staff; have thoughtful, instructionally focused interactions with teachers; manage and redesign organizations; build positive school climates for students and teachers; and lead instruction (Grissom et al., 2021; Leithwood & Jantzi, 2006; Leithwood & Riehl, 2005). But what does it take to develop principals capable of building systems, supporting teachers, and leading instructional practices to realize these positive outcomes? That is the focus of this study.

Through a comprehensive and systematic research synthesis, we aimed to understand what features of preservice preparation and ongoing professional development programs for principals are associated with high-quality principal leadership behaviors, teacher practice and retention, and student outcomes. We also analyzed principal surveys nationally and in two states with recent data to understand the extent to which principals have access to high-quality learning opportunities. Finally, we reviewed a wide range of literature to understand trends in federal and state policies and their roles in shaping principal learning.

The Current Landscape for Principals

In 2007, *Preparing School Leaders for a Changing World: Lessons From Exemplary Leadership Development Programs* provided cutting-edge knowledge about effective preservice and in-service principal training. It found that exemplary preservice and in-service programs shared a number of common elements, including meaningful and authentic learning opportunities that apply learning in practice; a focus on leading instruction, developing people, creating a collaborative learning organization, and managing change; mentoring or coaching, along with feedback and opportunities for reflection; and cohort or networking structures that create a professional learning community. In the case of preparation, proactive recruitment of dynamic, instructionally skilled teacher leaders

was another key component. Highly effective in-service programs organized by districts created teaching and leadership pipelines that identified, developed, and recruited talent from their entry into the profession through multiple leadership roles. (See Table 1.)

Table 1
Characteristics of Exemplary Principal Learning Programs Identified in
Preparing Leaders for a Changing World

	Preservice	In-Service
Meaningful, authentic, and applied learning opportunities	Active, student-centered instruction (e.g., problem-based learning, action research, field-based projects) that integrates theory and practice into key leadership functions Close connections between coursework and clinical work, including supervised internships that allow candidates to engage in leadership responsibilities for substantial periods of time	Active learning that is grounded in key leadership practices (e.g., analysis and evaluation of classroom practice, applied learning of supervision and professional development practices, analysis of data and development of school improvement plans)
Curriculum focused on developing people, instruction, and the organization	A comprehensive and coherent curriculum aligned with state and professional standards A curriculum emphasizing instructional leadership, organizational development and improvement, staff development, and change management skills taught by professors and practitioner faculty knowledgeable in their subject areas	Learning that is organized around focused leadership tasks that support instructional leadership, the development of people and organizations, and the management of change, with hands-on opportunities to learn, practice, reflect, refine, and share progress in the context of data results for staff and students
Expert mentoring or coaching	Close supervision and mentoring during extended internships by expert principals knowledgeable in the program's philosophy and curriculum	Expert supervision and coaching from more senior leaders and from peers during induction and throughout the career continuum, with training and support for mentors and coaches to enable common practices
Program structures that support collegial learning	A cohort structure used to nurture collegial teams for planning and reflection Partnerships with districts that structure shared efforts for recruitment, curriculum design, and practicum learning opportunities	Collegial learning networks (e.g., principal networks, study groups, mentoring, and peer coaching)
Proactive recruitment	Targeted recruitment and selection to seek out expert teachers with leadership potential Development of pipelines, funding, and time allocations to make engagement of dynamic educators in high-quality programs possible and affordable	Development of pipelines that allow for ongoing advancement through leadership ranks, coupled with strong professional learning opportunities that are freely available

Source: Adapted from Darling-Hamond et al. (2007).

Graduates of programs with these features, as well as their employers, teachers, and school stakeholders, reported that they were able to effectively engage in practices associated with school success, such as cultivating a shared vision and practice, leading instructional improvement, developing organizational capacity, and managing change. Graduates' perceptions of their preparation and of their readiness to succeed in the principalship were significantly more positive than those of a national random sample of principals. Principals who completed these programs were more likely than a national sample of principals to rate their preparation highly for having purposeful, targeted recruitment; a coherent curriculum; active, problem-based learning; a cohort structure and mentoring and advising to support candidate learning; well-designed and supervised internships; and strong relationships between local districts and universities. They also reported that they found their jobs as principals less stressful and that they were more committed to staying in the principalship than other principals, even though they were more likely to be in high-need schools.

Furthermore, because the programs were proactive about recruitment, the graduates of the exemplary programs were more likely to be women and people of color. They also were more likely to have had experience as instructional coaches and mentors and thus were able to build on their instructional knowledge and skills. Partnerships between the programs and districts allowed for joint recruitment and internships under the wing of expert principals.

Related research found that principals who participated in one of these exemplary leadership preparation programs were significantly more likely than a random group of comparison principals to report that they learned about and engaged in effective leadership practices. Frequent use of those practices was positively associated with school improvement progress and the school effectiveness climate. The degree to which principals experienced high-quality program features and internships predicted both the frequency with which they used effective practices and the strength of their school improvement progress. These positive relationships between the quality of preparation and leadership outcomes persisted after taking principals' prior leadership experiences and school characteristics into account (Orr & Orphanos, 2011).

In addition, teachers who worked in schools led by principals who were initially prepared in exemplary school leadership programs rated their principals' leadership practices significantly more positively than did teachers in similar schools led by traditionally prepared principals with similar levels of experience. Principal leadership had further positive and significant effects on teachers' professional development, their influence on school policies (distributed leadership), their collaboration, and their satisfaction (Orphanos & Orr, 2014).

Since the publication of *Preparing Leaders for a Changing World*, the demands of society and the economy have changed what it means to prepare students for college and careers. In addition to mastering deep content knowledge, students need to develop skills related to problem-solving, communication and collaboration, transferring knowledge to new contexts, and critical thinking (Heller et al., 2017). Developing these skills requires teachers to provide a different kind of learning experience that is rooted in an awareness of—and responsiveness to—students' sociocultural contexts, their developmental pathways, and their individual strengths and needs (Darling-Hammond & Oakes, 2019). Additionally, research on the science of learning and development has illuminated the need to address students' social and emotional development, as well as their

academic development, which requires a positive school climate, individualized supports, and productive instructional strategies that include social and emotional learning (Darling-Hammond & Cook-Harvey, 2018; Darling-Hammond et al., 2020).

Together, these advancements have begun to influence how we think about school principals. Principals must be able to follow and share a vision for deeper learning to create the learning opportunities that will prepare students for college and career; prioritize and adopt a social justice orientation to address widespread inequities in opportunities to learn; become culturally competent to meet the needs of the country's highly diverse student population; build collaborative communities of practice to foster deeper engagement from fellow educators and to make good use of others' expertise; provide learning opportunities for staff members that are developmentally grounded and personalized; and take a systems perspective to school change that is grounded in their specific school and district contexts. Principals need more than administrative capacity and expertise as instructional leaders. They need the ability to redesign schools and manage change; to organize adult learning; to connect to communities; and to support rigorous, relevant learning for all students (Wechsler et al., forthcoming).

Because of the significant role school leaders play in shaping learning environments, preparing and developing leaders for today's schools is an essential driver of change. Therefore, it is important to understand how principal development programs—both preservice and in-service—can build principals' knowledge and skills to support learning aligned with 21st century needs. This study was designed to help build this understanding.

Study Focus and Methodological Overview

There are three primary purposes of this study, each with its own methodology:

1. **To understand the evidence regarding high-quality principal learning**, we conducted a comprehensive review of the research literature that addresses the features of preservice and in-service principal development programs and program outcomes. We approached the review systematically, specifying search terms, defining inclusion criteria, coding each study, and evaluating the rigor and quality of each study. Of the nearly 1,400 articles identified, 104 met the criteria for inclusion.
2. **To understand the extent to which principals have access to high-quality learning opportunities**, we analyzed principal survey data from representative national samples of principals affiliated with the National Association of Elementary School Principals and the National Association of Secondary School Principals. We also analyzed data from statewide principal surveys from California and North Carolina. Though initially administered for other studies, these surveys provide recent large-scale data that reflect the experiences of principals in the nation and in each state, respectively, with respect to their access to preservice and in-service learning opportunities.
3. **To understand the role of federal and state policies in shaping principal learning**, we examined over 170 articles, books, chapters, and policy reports and tracked significant policy changes over time. This review illuminates the relationship between policies and the design, implementation, and outcomes of principal learning.¹

¹ Detailed descriptions of the survey methodology and results are available in the online technical supplement at <https://learningpolicyinstitute.org/product/developing-effective-principals>.

Literature Synthesis Methodology

We approached the research synthesis for principal preparation and professional development using the following three steps.

1. **Define the scope of the search.** We included studies that were published between 2000 and 2021 in a peer-reviewed journal or by an organization with established peer-review processes; focused on the outcomes of professional learning opportunities; and relied on data collected in the United States that focused on k–12 public schools.
2. **Gather and screen sources.** We began the search using ProQuest Summon and Google Scholar and identified additional literature by searching the archives of research firms and organizations with a peer-review process. We initially identified 1,380 articles and screened titles and abstracts to determine if they met our criteria for inclusion. In addition to place and time of publication as defined in the scope of the search, these criteria included having a specific focus on the outcomes of professional learning and sufficient explanation of the methods. At this stage, based on our review of titles and abstracts only, we excluded 1,078 articles that clearly did not meet the criteria.

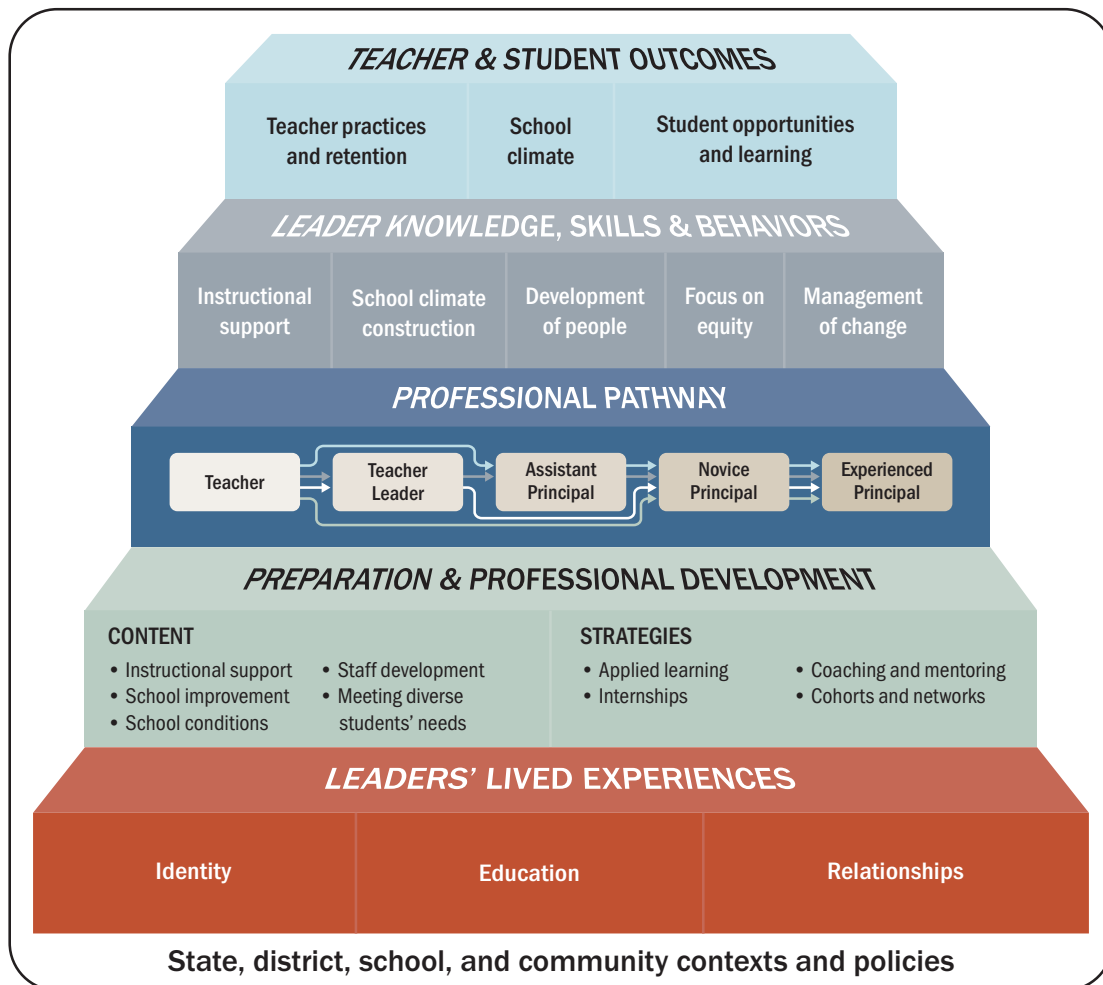
We reviewed the full text of the remaining 302 articles to determine if all criteria were actually met. Reviewing the full article enabled us to make this determination more accurately than our initial scan of abstracts. We also reviewed the reference lists of the articles identified to confirm that we did not overlook any key studies. We added 79 articles through this process and reviewed the full text of these additional articles as well. After reviewing the full text of the articles, we identified and eliminated 270 that did not, in fact, meet our criteria. Ultimately, 104 studies met our criteria and were included in the syntheses, which included 54 studies of principal preparation and 52 studies of in-service professional development (with two studies addressing both topics).

3. **Analyze and synthesize the literature.** Research team members coded all articles that had passed the initial abstract and full text screens, capturing methods employed, the research design, the population and sample studied, program details, context, outcomes considered, and findings. We organized and synthesized the findings from the 104 studies. We considered both the main findings and ancillary findings and assessed studies for their methodological rigor.

The general theory of action guiding our analysis throughout this report is depicted in Figure 1. We acknowledge that principals bring different knowledge, skills, and dispositions to the job, beyond those acquired in formal training. Principals bring with them their lived experiences from their own personal and cultural contexts, from the education they received as children and young adults—as well as in their teacher preparation programs—and from the close relationships they have forged, often in the professional community.

On top of this foundation, they learn in and from the job experiences they may have had as a teacher, teacher leader or coach, assistant principal, novice principal, and experienced principal. And they learn from formal professional learning experiences, which interact with all of these other experiences in widely varying ways. As Goldring, Rubin, and Hermann (2021) found, for example, the assistant principalship, which is an increasingly important pathway to the principalship, can be formally designed and supported to increase individual and team effectiveness, but there is no common approach to this role and its learning opportunities.

Figure 1
Theory of Action for Principal Professional Learning



Source: Learning Policy Institute. (2022).

In considering professional learning opportunities, we attend to both the content of the learning—*what* principals learn about (e.g., how to lead instruction, create collegial school environments, or evaluate teachers)—and *how* they learn. This includes the structures that support learning, such as practicums, internships, and coursework, and the pedagogies that are used, such as the extent to which learning opportunities feature applications of learning through case studies, action research, observations in schools, and hands-on efforts to implement strategies and analyze the outcomes, thereby supporting learning by doing.

These aspects of professional learning influence leadership knowledge, skills, and dispositions—how principals lead, the school climates they establish, and their goals and actions. Leadership characteristics influence teachers—how teachers perceive and interact with others in their schools, the environments they establish in their classrooms, the learning opportunities they provide to

students, and how long they choose to stay in a given school. Teachers' actions and retention ultimately influence student outcomes—how students perceive schools; their motivations and feelings of belonging; and their social, emotional, and academic development.

All of these elements are influenced by the specific policies and contexts in which they sit. For example, there are wide differences in state licensure requirements and program approval standards (Anderson & Reynolds, 2015; Manna, 2015). Districts and schools, too, vary considerably in their sizes and demographics, relationships with principal preparation programs, investments in principal learning, principal recruitment and hiring priorities, and levels of principal autonomy.

Challenges in Studying the Influences of Principal Learning

A number of studies suggest that principal quality is associated with student learning gains (Bartanen, 2020; Coelli & Green, 2012; Grissom et al., 2015; Grissom et al., 2021; Leithwood et al., 2004) and that specific behaviors may be particularly important in enabling these effects. The latest research synthesis from Grissom et al. (2021) identified four classes of principal behaviors that appear to produce positive school outcomes:

1. Engaging in instructionally focused interactions with teachers
2. Building a productive school climate
3. Facilitating collaboration and professional learning communities
4. Managing personnel and resources strategically

Other research on leadership behaviors has also pointed to the importance of *setting direction* (helping the school community develop a shared sense of purpose and vision that can motivate action); *developing people* (which may go beyond strategic management of personnel to the provision of feedback, encouragement, and high-quality professional development opportunities that develop collective efficacy in the staff); *distributing leadership and decision-making* (which can be part of collaboration but is not always an emphasis); and *managing change* by using data to monitor school and student progress and to support ongoing improvement efforts (Leithwood & Louis, 2012).

How these behaviors may be developed—and how preparation or professional development may contribute to this process—is a more challenging question. In addition, how these formal learning opportunities interact with principals' prior knowledge and experiences, including the extent and quality of their teaching experience and training, is rarely addressed in the research. There is some case study evidence that shows that proactive recruitment of dynamic teachers contributes to the success of some exemplary principal preparation programs (Darling-Hammond et al., 2007). This may be because their prior experience as teachers—both the extent and quality of their teaching experience and training—influences their knowledge base about instruction as well as their capacities to mentor and help other teachers improve. For example, Goldhaber, Holden, & Chen (2019) found that principals who appear to be more effective in spurring student achievement are also those who appeared to have been more

How formal learning opportunities interact with principals' prior knowledge and experiences is rarely addressed in the research.

effective in contributing to student reading and math achievement when they were teachers. In addition, their experience before becoming a principal—perhaps as an instructional coach or assistant principal—may strongly influence their readiness for certain leadership tasks.

Not all preparation or professional development programs are alike (Hess & Kelly, 2007; Orr, 2011), and studies vary in the extent to which they describe the features of programs to understand what the learning opportunities may be. On a related note, studies vary in the extent to which they describe the features of the groups to which program participants are being compared, with many failing to do so adequately. This omission is particularly problematic because principals' pre-program characteristics, such as their professional experiences, are also extremely important.

Clearly, there is some interaction between who is recruited to a principal preparation or professional development program, what that person understood and could do before they entered the program, and what that person is able to do as a result of the training they received. Relatively few studies provide the detailed information about candidates or participants, as well as about the content and nature of the programs they experience, to sort out what features may be associated with which outcomes.

Another factor influencing principal development is the district context. Districts vary in the ways in which they treat principals and the extent to which they support principals. These differences can undermine or augment the professional training principals have received and the extent to which principals can be effective. For example, despite evidence that principals' effectiveness is greater when they stay longer in a school (Coelli & Green, 2012) and that principal turnover negatively impacts student achievement (Bêteille et al., 2012), some districts rotate principals across schools every few years (Harper, 2017). Similarly, some districts offer a coherent pipeline of preparation, mentoring, and ongoing training tightly connected to local practices, while others offer a hodgepodge of incoherent and decontextualized professional development offerings. Thus, the effects of principals' knowledge and skills—which may be produced through preparation or professional development—can be negated or expanded by district conditions.

All of these factors should come into play when interpreting the research on principals' professional learning opportunities. Since no single research study can address all of these challenges, it is hard to draw definitive causal claims about the elements of high-quality principal learning opportunities. However, in the aggregate, the full body of research can illuminate the most promising elements.

Overview of the Report

Recognizing the difficulties of understanding effective principal development programs, we developed a multipronged approach that examines the topic from various angles.

The sections “Principal Preparation” and “Principal In-Service Professional Development” delve into the existing research literature on principal preparation and professional development, examining how the features of principal learning opportunities are associated with outcomes such as candidates' views of their preparation, the way they perceive their own skills and behaviors and the way others perceive them, and the association between preparation and student achievement. These sections present a considerable body of evidence that principals' opportunities to apply what they are learning in guided practice—through field-based internships and problem-based learning opportunities—are particularly critical. Also important are collegial cohorts or networks and

learning opportunities focused on instructional improvement, creating collegial organizations, and using data for change. Equity has recently emerged as an important topic in principal preparation, and an emerging body of research points to the kinds of learning opportunities that can build principals' knowledge and skills to meet the needs of diverse learners.

With these insights into what appears to matter in principal development, we then evaluate in the section "Access to High-Quality Learning Opportunities" the issues of access to high-quality learning opportunities for principals across the nation and in two states: California and North Carolina. We show that while most principals have at least minimal access to preparation and development on the key topics that our analysis and research syntheses identified as being important, fewer have access to intensive, clinically focused learning in these areas.

The section "Principal Development Policy" describes how policies related to principal preparation and in-service professional development have evolved over time, describing the current status of accreditation and licensure policies at the state level and the uses of new federal funds to build principals' leadership capacities. The policy review shows that policy can make a difference. In states that have overhauled licensing and program approval, evidence indicates that the quality of principal learning has improved. However, relatively few states have enacted and maintained a comprehensive set of high-leverage policies for supporting principal learning.

The section "Summary and Implications" first provides an overall summary of our findings. We then discuss the implications for research. We describe the current state of the research literature as a whole and suggest ways in which it can be strengthened. The section then discusses implications for policy, presenting ways in which policy can support the improvement of principal learning opportunities and access to them. We address the development and better use of state licensing and program approval standards; investments in state infrastructure for principal professional learning; a deliberate focus on equity; and the building of local principal pipelines and a coherent system of development.

Principal Preparation

Introduction

New research on principal preparation programs often focuses on programs that are seeking to change long-standing features of principal preparation increasingly viewed as problematic. Historically in the United States, principal preparation has been carried out under the banner of general administrative credentialing—not necessarily geared toward the job of the principal, per se. Until the 1990s, many university programs were filled by any candidate who applied who wanted to earn that credential part time while continuing to engage in their current job, often as a teacher or counselor. The incentive for many was to earn a notch on the salary schedule rather than to become a school principal.

Courses, often taken part time on nights and weekends, treated administrative topics like budgeting and management in the abstract, without application to real-world problems of school leadership (Lashway, 1999). Clinical practice, to the extent that it was required, often took the form of projects that educators would conduct in their own schools while continuing their current jobs, rather than actual tours of duty in administrative roles under the tutelage of veteran principals. Having completed this training, many did not apply for principalships, and few felt prepared to take on the challenging role of a principal (Darling-Hammond et al., 2007; University Council for Educational Administration, 2008).

As research and observation of best practice began to define the kind of preparation that could help truly prepare aspiring school leaders, and as reforms of school designs and curricula called for a broader range of skills, some innovative programs began to change their approaches (Cosner et al., 2012; Orr et al., 2010). They began to undertake proactive recruitment of dynamic educators in concert with district leaders; to prepare them with more emphasis on learning to lead instruction and develop strong teachers; and to place them in salaried positions—often with state or local funding—as administrative interns under the wing of expert principals integrated with more useful coursework.

The question is, what difference have these efforts made in the preparation of principals? Equally important, what features appear to influence what principals know and can do in productive ways that translate into more support for staff and better learning for students? In this section, we synthesize the results of 54 research studies that examine the features of high-quality principal preparation programs and their influence on principals' knowledge and skills, school functioning, teachers, and student outcomes.

Comprehensive Principal Preparation Programs

Many studies of principal preparation focus holistically on programs in their entirety. All of the studies that met our criteria for review focused on programs that incorporate all or many of the critical features identified in *Preparing Leaders for a Changing World* (Darling-Hammond et al., 2007). These features include close partnerships between districts and programs; proactive recruitment into the program; well-supported cohorts and/or networks for collegial learning; a coherent curriculum enacted through applied learning (e.g., internships longer than 20 weeks

with a mentor, action research or inquiry projects, field-based projects); and a focus on leading instruction, developing the organization, developing people, and managing change. We refer to these programs as “comprehensive principal preparation programs.”

Some programs also offer continued, aligned support during a principal’s first year or two on the job. We include these programs in our review of principal preparation since that is their primary purpose, and it is how they are treated in the research. Studies of comprehensive principal preparation programs examine principals’ self-reports of preparation, teachers’ views about their principals’ leadership, and evidence of student outcomes in the schools they are leading.

Principals’ perceptions of their preparation

Collectively, studies of comprehensive preparation programs consistently found that program participants and graduates felt that the comprehensive programs they attended contributed to the development of their general leadership abilities as well as to more fine-grained leadership skills, such as their ability to effectively supervise staff, diagnose and handle school problems, lead groups of teachers, conduct strategic planning, and engage in collaborative decision-making and action.

In interviews and surveys, participants and graduates also reported that these programs positively influenced their sense of preparation and self-efficacy (Bartee, 2012; Beard, 2018; Braun et al., 2013; Donmoyer et al., 2012; Korach & Agans, 2011; Orphanos & Orr, 2014; White et al., 2011). In one study, a program graduate described the influence of this kind of comprehensive, cohesive program:

Studies consistently found that program participants and graduates felt that the comprehensive programs they attended contributed to the development of their general leadership abilities.

For me, it was the structure of the program, the projects, the way we would read something and reflect on it and have a concentrated amount of time to apply those concepts ... and it was through the application that you could see the big picture. The learning-by-doing had the biggest impact on me and that came from the structure of the program. (Braun et al., 2013, p. 176)

These benefits are highlighted further in comparative studies. For example, one study of a comprehensive university-based preparation program looked at candidates’ ratings of their experience before and after staff significantly restructured the program. The redesigned program increased hours for internship experiences; hired additional highly qualified faculty members; developed and implemented assessments to measure participants’ mastery of skills and knowledge; aligned curriculum with state standards and Educational Leadership Constituent Council standards to create curriculum coherence; and emphasized a focus on leading school improvement efforts. In surveys, graduates of the restructured program rated five learning outcomes significantly higher than graduates of the earlier program: (1) learning to lead for vision building, (2) learning to lead learning for students and teachers, (3) learning to lead organizational learning, (4) learning management and operations, and (5) learning to lead parent and community involvement. Ratings remained the same for the program features that had not changed: analyzing budgets and reallocating resources to achieve critical objectives (Ballenger et al., 2009).

Another study analyzed program features in 17 leadership preparation programs in relation to graduates' ratings on a common survey of what they learned in their programs. Through correlational analyses, the study found that the strength and emphasis of program features contributed to what graduates learned and believed about the principalship. Specifically, the more that programs were coherently organized around instructional leadership and provided a challenging, fieldwork-rich experience, the more positively their graduates rated their learning across five leadership domains: (1) vision and ethics, (2) learning, (3) organizational learning, (4) management and operations, and (5) parent and community engagement. Candidates in these more coherent, fieldwork-based programs were also more positive about principalship as a career (Orr, 2011).

Teachers' perceptions of their principals' leadership

Some studies included data from staff in principals' schools in addition to the principals' self-reports. One study looked at a very intensive comprehensive program in a large urban district that included targeted recruitment and rigorous selection processes, a cohort-based structure, an internship with one-on-one mentoring, and continued mentoring after program completion. Graduates who became principals in low-income elementary schools reported that they felt well prepared as instructional leaders, armed with the ability to analyze data to guide their school improvement efforts. They and their staff, who were also surveyed and interviewed, reported that the principals had successfully created a collaborative leadership model, another target of the program (Donmoyer et al., 2012).

A larger-scale survey found that teachers in the schools of principals who had graduated from exemplary leadership programs (i.e., those who were part of the Stanford Leadership Study that first identified the features of exemplary programs) held significantly more positive views of their principals' leadership practices than did teachers in the schools of a nationally representative sample of elementary school principals (Orphanos & Orr, 2014). Furthermore, teachers who had more positive perceptions of their principals' leadership also felt they experienced stronger teacher collaboration and were more satisfied with their jobs.

Student outcomes

Linking principal preparation to student achievement trends is challenging because few studies are of sufficient duration with adequate controls and the kind of comparison group needed to draw apples-to-apples comparisons and because few have been able to control for important differences among principals and schools. The findings of all of these studies require careful interpretation.

One large-scale study examined the long-term outcomes of a restructured program at the University of Illinois at Chicago (UIC) designed specifically to prepare principals for low-income, urban schools (Cosner et al., 2012, 2015). Program faculty replaced a traditional master's-level principal preparation program with a doctoral program that featured selective recruitment; a cohort structure; aligned coursework emphasizing equity-driven, instructionally focused urban school leadership; a full-time yearlong residency under the guidance of an expert principal (often a graduate of the same program); leadership coaching; induction; and a close district partnership. For each school run by a UIC graduate, researchers compared the combined grade 3–8 reading and math gains to the district combined grade 3–8 gains and the state's

average student growth gains. They also compared each school's gains to the district average gains for student attendance rates, freshman on-track rates, high school graduation rates, and reductions in high school dropout rates. Although the study did not control for different school characteristics, it is worth noting that UIC graduates disproportionately worked in high-poverty schools.

Researchers found that, over 11 years, 72% of elementary schools led by program graduates and 60% of secondary schools led by program graduates exceeded the state's average student growth gains, with differentials emerging by the end of principals' first years in this role. Elementary and secondary schools led by UIC graduates also outperformed district averages for student attendance rates. Secondary schools led by UIC graduates outperformed district averages for freshman on-track rates, high school graduation rates, and reductions in annual dropout rates. Additionally, of the 96 participants in the first eight cohorts who completed the residency, 65 became urban school principals within 4 years, nearly all in high-need schools, and 30 became district administrators or assistant principals (Cosner et al., 2012). Further, nearly all (90%) program participants passed the district's principal eligibility test on their first attempt, in contrast to the 40% pass rate of non-UIC participants.

Although somewhat shorter in duration, the New Leaders Aspiring Principals Preparation program—a national program that operates across multiple schools and districts—includes selective recruitment and admissions; a cohort structure; coursework on data-driven decision-making, cultural competence, instruction, and organizational culture; a yearlong residency with a mentor principal; problem-based learning; and 2 years of mentoring after participants become principals. A study in 10 districts found, on average, larger achievement gains among students who attended schools led by New Leaders principals than comparable students who attended schools led by non-New Leaders principals in the same districts (Gates et al., 2014). However, the magnitudes of change in achievement varied substantially across districts. Four districts had more positive outcomes among students who attended schools led by New Leaders principals than those who attended schools led by principals from other programs on at least one measure. Four other districts had less positive outcomes on at least one measure. In the other two districts studied, Chicago Public Schools and New York City Public Schools, the differences in achievement were small and insignificant; however, both of these districts have other principal preparation programs similar to New Leaders, so comparing principals from the two groups was unlikely to find substantial differences.

The researchers found that achievement gains in reading and mathematics were associated with more favorable school conditions reported on principal surveys. Gains in reading were associated with higher ratings of teacher capacity; gains in math were associated with time spent on instructional leadership as well as more favorable ratings of strategies and actions taken by the district or charter management organization. These findings suggest that along with their preparation, supports that the school and principal experience may make a difference in student outcomes.

One of the other programs operating in New York City is the city's Aspiring Principals Program (APP). The APP is characterized by a three-phase selective admissions process; a 6-week summer intensive session grounded in practical problem-based learning and aligned with the district's goals, policies, and objectives; a 10-month school residency with a mentor principal; and a transitional planning summer. The program is designed to develop aspiring principals' knowledge

and behaviors in nine areas: (1) personal behavior, (2) resilience, (3) communication and the context of learning, (4) student performance, (5) situational problem-solving, (6) learning, (7) supervision, (8) management, and (9) technology.

Using administrative data sets that allowed controls for school and principal characteristics, two studies of the program (Clark et al., 2009; Corcoran, 2012) found little average difference in outcomes for the schools of APP principals compared to those of new principals prepared elsewhere. This finding is not surprising since there is a relatively high likelihood the comparison principals also attended comprehensive preparation programs after the state overhauled requirements several years ago to create a more common curriculum and more clinical training. However, both studies also found that APP principals tended to work in lower-performing schools that were exhibiting steeper downward trends in student achievement prior the principal transition than the comparison schools. They both also found that over time, the schools with APP-trained principals showed stronger improvements than the other schools.

The Principal Residency Network program in Rhode Island is a university–district partnership with rigorous entrance requirements that offers financial support, standards-based content, a coherent and relevant curriculum, a focus on equity and school reform, a high-quality internship, problem-based learning, mentoring or coaching, a cohort, and performance assessments. Researchers found that participants felt the program had a great impact on their abilities to lead change and to be equity-oriented leaders (Braun et al., 2013). They compared changes in school-level student achievement in English language arts and mathematics for program graduates who had been a principal or instructional leader (e.g., director of curriculum) for at least the 3-year period between 2008 and 2011, disaggregated by school level and location, to that of schools serving similar students. The descriptive study found that program graduates' schools showed more growth than comparison schools in English language arts for urban ring elementary schools and urban middle schools and showed greater growth than comparison schools in math for suburban elementary schools, suburban middle schools, and urban middle schools. Due to the small sample size, there were no tests of significance.

Much like the multi-district New Leaders study, a study of graduates of five comprehensive preparation programs conducted by the American Institutes for Research (George W. Bush Institute & American Institutes for Research, 2016) found that graduates of the selected programs generally had positive perceptions of their coursework and practicum experiences, but they had mixed perceptions of district supports and ongoing program supports after graduation. The programs included many of the components identified as best practices: alignment with research-based competencies; partnerships with school districts; experiential learning, including problem-based learning and internships; rigorous recruitment and selection; and on-the-job support for at least 1 year after graduation. Within a relatively short period of time after hiring (1–4 years, depending on the cohort), there was little evidence that student achievement gains in schools led by new principals from the selected programs were better or worse than in similar schools led by new principals of other programs. As with the previous studies described, this research lacked information about the comparison programs. Further, the study could not control for prior teaching and administrative experience of the new principals. In fact, a key study finding was that both the districts and the preparation programs lacked high-quality data on principal characteristics and placements.

One recent study that allowed for better-controlled analyses with detailed information across multiple programs and extensive controls for student, teacher, principal, and school characteristics found significant associations between high-quality preparation for principals and both teacher retention rates and student achievement in their schools (Campoli & Darling-Hammond, 2022). Researchers linked survey data from a representative sample of California elementary and secondary principals to state administrative data on student, teacher, and school characteristics and outcomes.

One recent study that allowed for better-controlled analyses found significant associations between high-quality preparation for principals and both teacher retention rates and student achievement in their schools.

A preparation program quality scale was created to represent the extent to which principals reported having experienced content on leading instruction, shaping a positive school climate, developing people, and meeting the needs of diverse learners; opportunities for applied learning; and a high-quality internship. Controlling for a wide range of student, school, and district factors, the researchers found that overall preparation quality was significantly related to teacher retention. For example, on average, the odds of staying through the following year were 78% for a teacher in a school led by a principal who had low-quality preparation versus 89% for a teacher in a school led by a principal who had high-quality preparation. The study also found that principals' experience with high-quality internships was associated with student gains in English language arts. These gains were equivalent to an additional month of English language arts instruction for the median student in a school led by a principal who had experienced a high-quality internship compared to one in a school led by a principal who had experienced a low-quality internship. We discuss the role of internships in principals' development in the next section.

Specific Features of High-Quality Principal Preparation Programs

As noted, the studies that examined comprehensive preparation programs found positive outcomes related to principals' self-perceived development of leadership knowledge and the perceptions of their leadership by teachers and other staff. Several studies also found positive associations of such programs with student outcomes, although these were often not measured with sophisticated controls for the differences in students and school features.

Quite often, principals underscored the importance of how their programs integrated applied learning into intensive and extensive clinical experiences. The survey responses from principals who graduated from the five programs studied by the American Institutes for Research (George W. Bush Institute & American Institutes for Research, 2016) are common. They listed the following program features as important to principals' preparation:

- internship or residency
- mentoring or coaching
- focus on instructional leadership
- reflections on the realities of the job of principal
- cohort model and networking
- role-playing and simulation exercises

Other research that focused on specific program features confirmed the particularly important role of internships and applied learning opportunities tied to the realities of the principalship.

Internships

Recent comparative research has consistently found that graduates of programs with strong internship components were more likely than graduates of programs without internships to report being knowledgeable in their field (Hafner et al., 2012), being more committed (Orr & Barber, 2006), feeling more prepared (Orr & Barber, 2006), having a sense of self-efficacy (Versland, 2016), and being able to advance in their careers (Hafner et al., 2012; Orr & Barber, 2006). For example, surveyed principals in the Los Angeles Principal Residency Network program, which requires working at a school site with authentic engagement in leadership activities and support from a coach, were significantly more likely to be satisfied with their program and to report being knowledgeable in their field than those from a nearby traditional preparation program that required considerably fewer hours in schools (only 185 hours of fieldwork over five quarters of study²), all linked to content-specific courses (Hafner et al., 2012).

Orr & Barber (2006) surveyed graduates from two university–district partnership programs with internships and one conventional program. Graduates of the partnership programs were more likely to rate the effectiveness of their program structures highly. Furthermore, the researchers found that the scope and quality of the internship was the most influential program element on the three outcomes studied: (1) a commitment to educational leadership, (2) a perceived sense of preparedness for the principalship, and (3) an ability to obtain administrative positions shortly after completing the program. Versland (2016) surveyed all principals in Montana to identify preparation program elements that contributed most to self-efficacy. She found that every highly efficacious principal in the study had a long-term internship with opportunities to operationalize the concepts learned in coursework and to lead teachers in school improvement strategies. Many studies examining principals' views of their programs have found they felt well prepared for the principalship due to their internships (Bartee, 2012; Perez et al., 2011; Stevenson & Cooner, 2011; Thessin & Clayton, 2013). For example, 100% of graduates of the redesigned Principal Corps at the University of Mississippi, which requires a full-year internship under the tutelage of a mentor principal, agreed that the internship prepared them well for administrative practice; 90% of them strongly agreed (Bartee, 2012).

Other studies have found a strong relationship between the internship and the development of principals' specific skills, such as their ability to establish a vision for learning and lead instruction (McCotter et al., 2016; Perez et al., 2011; Saleh et al., 2006); to understand and use data to motivate and monitor change (Perez et al., 2011); to shape a positive school climate by working collaboratively and bringing stakeholders together (Perez et al., 2011; Saleh et al., 2006); and to develop teachers by supporting their individual needs and expanding capacity through distributed leadership (McCotter et al., 2016; Perez et al., 2011). Internships also appeared to influence aspiring principals' understanding of the principalship role (Perez et al., 2011) and the transformation of their identities from teacher to principal (Simmons et al., 2007).

The way the internship achieves these outcomes is illuminated by one qualitative study of a master's degree preparation program with a required 18-month field experience (Perez et al., 2011). During the field experience, all participants were required to create an advisory

² A typical residency places candidates in school sites for more than 1,000 hours per year.

committee of teachers, other administrators, and support staff to review data; construct a vision for improvement; and develop strategies for instructional improvement, student engagement, professional development, and parent involvement. Participants also engaged in management practices, such as analyzing master schedules and teacher assignments, reviewing the collective bargaining agreement, reviewing district policies and procedures, and modifying budgets to ensure their proposed strategies were appropriately aligned with each. In interviews, a majority of candidates reported that due to the field experience, they came to see the work of school leadership as complex and saw how various aspects of leadership were interrelated; they developed deeper recognition of the leader's role in fostering trust and relationships, encouraging collaboration, and building leadership capacity within schools; they conceptualized data as powerful evidence to stimulate the urgency for change; they articulated greater confidence as leaders and change agents; and they demonstrated increased understanding of, and ability to enact, specific leadership practices aimed at improving students' learning. One program participant described the influence of fieldwork activities related to setting a school vision:

Now I have an understanding of what it means to create and try to live by a vision, so that it guides any decisions that I make. That's a whole new understanding of what it means to be an instructional leader. (Perez et al., 2011, p. 239)

Another described how her internship changed her perceptions of the leaders' role:

I used to think that the core work was about managing people and a school. Now I think it's about ensuring that there is a transformation, and, in order to do that, [principals] have to make sure that everyone is learning and engaged in the transformation. (Perez et al., 2011, p. 241)

Studies that have investigated the relationship between clinical training and leadership development at a state or national level have consistently concluded that the internship is important to principals' development (Dodson, 2014, 2015; Gümüş, 2015; Militello et al., 2009; Ni et al., 2019). In a national survey of recent graduates of leadership preparation programs, Ni et al. (2019) found that graduates' internship experiences were significantly associated with their self-reports of "overall leadership learning," which includes instructional leadership, strategic leadership, ethics and professional norms, operations and management, supportive and equitable learning environments, family and community engagement, and professional and organizational culture. In a qualitative study, an intern reported on his preparedness:

I began to think about all the responsibilities that a principal has. The decisions that have to be made, and the composure you must maintain. As I complete my internship and begin to apply for jobs, I know I am ready to accept this responsibility. (Stevenson & Cooner, 2011, p. 293)

In combination, the studies found that internships are most successful in developing aspiring principals' knowledge and skills when they provide opportunities for the intern to operationalize concepts learned in coursework and engage in real context-based leadership activities. In one study, a program graduate described the range of leadership activities she engaged in as an intern:

I did a lot of hiring, a lot of the interview processing. I finished up the school improvement plan and created a more detailed plan—we had just gone through [...] accreditation and so I took that data and I came up with a plan of, okay, this is

where we're weak. How can we improve on this? I organized the freshman transition program. I started the summer school online program, which I had—I wrote a grant and used that grant money to provide transportation [...] I did a lot of memo writing and organizing for the upcoming school year. I planned a leadership team retreat. (Thessin & Clayton, 2013, p. 802)

Elements of successful clinical training include giving participants real opportunities to lead (Lochmiller & Chesnut, 2017; Thessin & Clayton, 2013; Versland, 2016); giving them exposure to new schools and areas of administrative work responsibilities (Lochmiller & Chesnut, 2017; Thessin & Clayton, 2013); and having mentors who are in the same building, share priorities, have trust, and are well matched (Clayton et al., 2013; Hines, 2007; Thessin & Clayton, 2013). Time is also an important aspect of clinical experiences—both time during the day for aspiring principals to work with their mentors (Lochmiller & Chesnut, 2017) and time for internships to be of sufficient length (Huang et al., 2012).

Applied learning opportunities

The research also consistently found that applied learning opportunities are important for principals' knowledge and skills, including their ability to analyze data, their ability to develop staff, their knowledge of discrete content, and their ability to motivate teachers and engage in effective teacher development (Batagiannis, 2011; Borden et al., 2012; Brody et al., 2010; Casey et al., 2013; Copland, 2000; Gilbert, 2017; Korach, 2011; Ovando, 2006; Sappington et al., 2010). Applied learning includes problem-based instructional approaches, such as action research or inquiry projects; field-based projects in which program participants apply ideas from coursework to experiences in schools; and case studies addressing specific leadership problems, among other related activities. Active learning experiences provide opportunities for aspiring principals to practice difficult tasks in a safe setting (Friedland, 2005; Versland, 2016).

Research also consistently found that applied learning opportunities are important for principals' knowledge and skills.

One preparation program required principal candidates to thoroughly describe and critically analyze all of the professional development activities in their schools during the preceding 2 years, integrating scholarly literature and identifying needed improvements in their schools (Sappington et al., 2010). Investigating the participants' final projects, the researchers concluded that most participants learned to be critical thinkers about professional development as they examined the professional development policies and practices in their schools. A majority of participants provided rich data about their schools, exhibited a clear understanding of the literature, and had important insights into the problems their schools faced regarding professional development. Furthermore, these participants successfully developed appropriate recommendations for improving the professional development programs. Another preparation program required its participants to plan and present professional development sessions for preservice teachers (Casey et al., 2013). Program graduates reported in surveys that they continued to use the skills developed in this applied learning activity in their later work as principals. The program graduates also reported that the project increased their confidence to deliver effective professional development, heightened their leadership skills and abilities, and developed their collaboration skills.

In another case, an action research project required program participants to conduct classroom observations, prepare and deliver written feedback to the teachers they had observed, and then reflect on the experience. In a questionnaire, participants reported that they learned how to conduct effective classroom observations, provide useful feedback to teachers, and provide ongoing support and resources to develop teachers' skills (Ovando, 2006). One participant described the depth of her learning in this way:

I learned the importance of following up with a discussion about the walk-through, especially with new teachers or teachers with whom you are concerned. I learned that I should concentrate on the strengths of the teacher and be careful of how you address the areas in which the teacher might need further professional development. I learned that in order for the teacher to really receive and act on feedback given, the way in which you give that feedback is so very important.... I learned that being specific as to what was observed is critical and [that] in delivering the message it is a good idea to do it in person.... I learned that it is important to use the proper observation format. I also learned that when delivering feedback, you should be [as] specific as possible. (Ovando, 2006, p. 178)

In an urban school–university partnership, candidates had to complete five school-based projects in a host school, including (1) conducting an organizational diagnosis by analyzing student achievement and cultural data; (2) creating a personalized instructional leadership project; (3) engaging parents and communities as school partners; (4) conducting a student services project in which they identified student needs and evaluated instructional practices; and (5) identifying teacher development and school management needs and planning and executing leadership actions to promote school improvement. According to teachers in the host school, the graduates learned to challenge teachers' thinking, improve teacher practice, and expect results. Further, they were knowledgeable of and practiced behavioral strategies related to changing school culture (Korach, 2011). One participant described the benefits of the projects:

On the whole, it was a wonderful opportunity to put into practice some of what we have been learning in class—we were able to observe an effort to put Understanding by Design and inclusion into practice as well as to use some of our newfound leadership skills to observe and assess teachers in this new charter school. I think we are all feeling that we are being transformed from teachers to administrators. (Brody et al., 2010, p. 632)

The Educational Leadership Program for Aspiring Principals at the University of Pennsylvania required daylong visits to schools, during which teams of aspiring principals visited classrooms to observe instruction, reviewed curriculum, and interviewed teachers and students. The teams prepared an oral report that they presented to the school's principal and faculty. In their study of the focused observations, Brody et al. (2010) found that, as a result of engaging in these school-based activities, aspiring principals conceptualized leadership as a complex process of critical inquiry. They also learned to engage themselves and others in implementing an instructional vision, shape effective communication that promotes individual and collective growth, embrace critical inquiry, and understand the complexity of organizational change (Brody et al., 2010).

Two research studies also showed that technology-based simulated applied learning can contribute to the development of principals' knowledge and skills when it augments other important program features, such as coursework and a clinical experience (Mann et al., 2011; Tucker & Dexter, 2011). For example, the [Educational Theory Into Practice](#) software provides virtual leadership cases that address organizational, instructional, and relational leadership, facilitating a structured approach to the decision-making process. Pre- and post-surveys demonstrated an increase in participants' decision-making skills and more generalized self-efficacy, confidence, and certainty about the decision-making process (Tucker & Dexter, 2011).

Meeting the needs of diverse learners

Over the past 2 decades, a new research focus related to principal preparation has emerged: understanding how to best prepare principals to meet the needs of students from diverse racial, ethnic, linguistic, and cultural backgrounds. Different programs use different terminology, such as equity leadership, leadership for social justice, or culturally responsive leadership. Their efforts may include a single course or an entire program. Comparative research shows that engagement in applied learning opportunities (e.g., action research, field-based projects) and reflective projects (e.g., cultural autobiographies, cross-cultural interviews, and analytic journals) can lead to growth in aspiring principals' awareness about how to meet the needs of diverse learners.

For example, a full-time 2-year master's degree program at a large flagship university in the Southeast designed a suite of experiences to develop aspiring principals' ability to develop culturally responsive leadership. Program components included cultural autobiographies, life histories, diversity workshops, cross-cultural interviews, diversity presentations and panels, and reflective analytic journals. Brown (2005) compared two cohorts that took the Social Context course in the fall semester (i.e., the "treatment" group) to two cohorts that took a School Management course in the fall (i.e., the "control" group). (The following spring, the course assignments were switched.) Based on comparative pre- and post-surveys on the Cultural and Educational Issues Survey (Pettus & Allain, 1999, Version B), the research confirmed improved attitudes toward issues of diversity in education for the treatment group, while the control group regressed. An analysis of candidates' weekly journals also revealed that all 40 candidates became conscious of practices that lead to systemic inequities and developed a sense of responsibility to change them.

Another program that was focused on developing culturally responsive leadership integrated equity theory, inquiry, fieldwork, and reflection focused on understanding oneself and others through the lens of culture throughout the program (Gordon & Ronder, 2016). Through interviews, researchers found that end-of-program candidates generally had more sophisticated conceptions of culturally responsive leadership than new-to-the-program participants and school administrators who had not attended the program. Rather than identifying special programs for different groups of students, these graduates understood that culturally responsive leaders build relationships and work collaboratively with students, teachers, and parents to make the school more culturally responsive; provide professional development to teachers; and regularly communicate with parents and the community to bring them into the school. As one program participant said, for example:

I think they [culturally responsive leaders] attempt to make a connection with the students that's on a personal note—a personal level—that may be directly related to that student's culture, trying to find a common ground and really looking at a student as an individual. (Gordon & Ronder, 2016, p. 138)

Research suggests that even a single course about meeting the needs of diverse learners can be linked to the development of principals' skills in this area. For example, a course on school community relations that included a community service project related to cultural proficiency increased participants' dispositions for community connection (Keiser, 2009).

Research suggests that even a single course about meeting the needs of diverse learners can be linked to the development of principals' skills in this area.

It is important to note that background qualifications of program participants can affect how programs' efforts are taken up and used—and their results. A few studies examined the engagement in and outcomes of equity-centered programs from the perspectives of participants of different racial and ethnic backgrounds (Guerra et al., 2013; Jacobs et al., 2013; Williams et al., 2018). These studies showed that participants come into programs with different understandings and experiences with racial diversity and, therefore, experienced the programs differently.

For example, Jacobs et al. (2013) studied how participants in an educational leadership program operationalized social justice theory during an action research activity. They found that white participants tended to become equity-oriented through “professional cultural intuition”—their experiences in Title I schools or schools that were experiencing demographic shifts. In contrast, participants of color often drew on their “navigation capital”—their own personal experiences—in addition to professional cultural intuition. Further, while all participants recognized that building relationships with faculty, staff, and communities of color was integral to facilitating change on their school campuses, participants of color were more likely to develop relationships with parents by affirming their experiences and cultural backgrounds. Thus, the outcomes of programs are a combination of both what the programs do and whom they recruit, and the design of program strategies may need to be sensitive to the various ways in which participants can access the learning opportunities and make sense of them.

Most studies of efforts to meet the needs of diverse learners focus on students of color. We identified only one study focused on meeting the needs of LGBTQ students. Marshall and Hernandez (2013) examined two preparation courses that focused on social justice, highlighted the needs of LGBTQ students, and found that participants became more analytic and less passion driven when discussing sexual orientation and that they developed concern about their districts' lack of attention to sexual orientation and its negative effect on students and staff.

Principal Preparation Research: Limitations and Opportunities

In synthesizing the research on principal preparation, we found that study design, program participants, and implementation can influence research results. Just as the programs we studied varied considerably, so did the methodologies employed to study these programs. For each study we reviewed, we were interested in understanding the details of the methodology to assess the strength of the evidence supporting the researchers' conclusions. For example, a number of the descriptive studies had small sample sizes, focusing on single cohorts or spanning short periods of time, limiting the generalizability of their findings. However, the consistency of findings across a large number of studies provides some reassurance about the overall conclusions we were able to draw.

There are fewer studies that focus on student achievement, and in many cases, their limitations influence what can be interpreted from the findings. For example, Donmoyer et al. (2012) noted in their examination of student achievement trends that the 2 years covered by the study were insufficient for producing achievement gains. Further, they recognized that they did not have a sufficient sample size or a set of controls to draw valid conclusions about the mix of trends that they identified. Braun et al. (2013) faced similar limitations, noting that due to small sample sizes, the findings they present related to student achievement were descriptive only, with no tests of statistical significance.

Other studies with large samples were unable to account for the preparation of their comparison groups, such as in the study of the New York City Aspiring Principals Program (APP) conducted by Corcoran et al. (2012). Given that the state overhauled its program requirements and that program quality in New York City is relatively high, it is likely that the comparison principals also attended high-quality preparation programs. If so, the lack of difference detected does not mean the APP was ineffective. Rather, it may mean that the treatments and outcomes were not significantly different among programs.

There are other issues when comparing new principals operating in the same district context. In the study of New Leaders, Gates et al. (2014) recognized that the estimates of New Leaders' effects may be smaller because of districtwide changes that give advantages to all principals, not just New Leaders principals. Further, sites varied in terms of their concentration of New Leaders principals, access to other principal preparation, and the extent to which principals had decision-making authority, all factors influencing study outcomes. As in the study of the APP, some districts, including Chicago Public Schools and New York City Public Schools, had many non-New Leaders principals who received similar training, so principals from the two groups were unlikely to show substantial differences.

Another factor influencing the interpretation of these comparison studies was the inability of the researchers to control for differences in who was selected into the various programs. As a result, principals often had important differences from the start. For example, compared to principals coming through other routes, principals from the APP had less prior teaching experience and assistant principal experience, restricting the knowledge bases they were able to bring to their training and to the job (Corcoran et al., 2012), which can be conflated with the quality of the program itself when examining outcomes.

All of these implementation and methodological factors temper the conclusions we are able to draw about the link between principal preparation and student achievement.

Further, despite the extensive research base on the design and outcomes of principal preparation, unanswered questions remain. The field would benefit from additional research focused on what newly trained principals do in their schools, if and how they change school culture and practices, and the links between principal preparation and teacher outcomes and a broad array of student outcomes.

The research that goes deep into clinical experiences and applied learning opportunities illuminates various models and their potential outcomes. Little in-depth research exists on other program components, such as coursework, recruitment and admissions, and cohort models. The field would benefit from deep dives into each of the features of preparation programs. Research is also lacking on principal induction and how it may build on initial preparation. And the new research on meeting the needs of diverse learners needs to be expanded to include a wider range of comparisons and outcomes, as well as concerning different populations of students, such as students with disabilities or dual language learners.

Principal In-Service Professional Development

Introduction

There are some notable similarities between the research on in-service principal professional development and principal preparation. As with the preparation programs studied, many of the in-service professional development programs studied had been newly developed or redesigned to reflect emerging knowledge about the characteristics of high-quality professional development. Like the research on principal preparation, the research on in-service professional development includes studies that examine programs in their entirety and others that focus on specific program features, such as coaching or mentoring, networks, or applied learning opportunities. In this section, we synthesize the findings of 52 research studies to examine how programs and their features influence principals' practices and perceptions, aspects of school functioning, and student outcomes.

Professional Development Programs Evaluated in Their Entirety

A number of studies of principal professional development focus on programs in their entirety. The programs studied include some or all of the features of exemplary programs identified in earlier studies (e.g., Darling-Hammond et al., 2007). These features include content focused on leading instruction, managing change, shaping a positive school climate, and developing people; individualized, one-on-one support provided by a coach or mentor; opportunities for networking with peers, often in structures like professional learning communities (PLCs); and opportunities for authentic, job-embedded, applied learning activities. These studies examine a range of outcomes, including principals' views of their knowledge and practice and the effect of principal participation on student achievement.

Principals' views of their knowledge and practice

Studies have consistently found that principals participating in comprehensive professional development programs with the features of high-quality professional learning report increases in their understanding of leadership and, where studied, improvements in their leadership practices (Barnes et al., 2010; Camburn et al., 2016; Hewitt et al., 2014; Leithwood et al., 2003; Nunnery et al., 2010; Nunnery, Ross, et al., 2011; Nunnery, Yen & Ross, 2011; Tingle et al., 2019, 2017).

For example, a university–district partnership in a large urban southwestern school district developed a program that focuses on instructional leadership, human capital, executive leadership, school culture, and strategic operations using applied learning opportunities. The cohort-based program offered a peer network and individualized mentoring. In a principal effectiveness survey and in interviews, program participants reported that participation positively influenced their effectiveness in leading instruction, developing people, building a positive school culture, and managing operations (Tingle et al., 2019, 2017). Another program, IMPACT V, was created through a partnership between the North Carolina Department of Education, four educator preparation programs, and 11 school districts. Principals participated in monthly leadership development institutes and monthly executive leadership coaching sessions in their schools, during which they reflected, problem-solved, and assessed progress on their leadership skills, their professional goals, and their schools' improvement action plans. Through an analysis

of artifacts collected before and after program participation, researchers found that principals developed skills in creating a shared vision and in building goal consensus; building structures to enable collaboration; leading for strategic and systematic change; and modeling valued behaviors, beliefs, and values (Hewitt et al., 2014).

The benefits of comprehensive professional development on principals' self-ratings of their knowledge and skills are also evident in comparative studies. The Ohio Leadership for Inclusion, Implementation, and Instructional Improvement (OLi⁴) program, for example, is a 2-year professional development program designed to enhance school leaders' "inclusive instructional leadership" by emphasizing equity and social justice. The program consists of nine professional development sessions per year, practical school-based assignments, monthly school-based coaching, and school district engagement. Comparing survey responses of participants to those of a matched control group, researchers found that program participants reported significantly higher ratings both on their attitudes toward inclusive instructional leadership practices and on their practices of working with teachers on collaborative problem-solving and collaborative professional learning (Howley et al., 2019).

Another school–university partnership, the Brigham Young University Principals Academy, was initiated in 2002 as a partnership between the university and five school districts to support principals' learning. Principals participating in the Academy met for approximately 20 days over a 2-year period. The first cohort received instruction on the stages of implementing PLCs in their schools. Due to a change in program management, the second cohort focused on refining PLCs and developing their leadership capacities. The program developers surveyed principals before and after program participation and conducted focus group interviews to explore principals' growth.

Based on a comparison of pre- and post-Academy survey results, the first cohort of principals demonstrated growth in all measured learning outcomes (i.e., vision and mission, team collaboration, common assessments, data analysis). After changes to the program, the second cohort of participating principals did not demonstrate growth in learning outcomes. Through focus group interviews with participating principals, the researchers identified challenges stemming from changes in program management and content, as well as weak support from some districts and fewer opportunities for networking and collaboration (Boren et al., 2017). The growth of the first cohort of principals was corroborated in a separate study. District supervisors were interviewed and reported improvements in principals' practice (Boren & Hallam, 2019). While the research on the Academy shows the relationship between comprehensive programs and principals' self-reports of skill development, it also shows that program design and implementation can matter to the outcomes realized.

The RAND Corporation conducted two implementation evaluations of one of the largest professional development programs for principals, the National Institute of School Leadership (NISL), which has served more than 12,000 school and district leaders in at least 27 states. These programs feature a cohort model embedded within participating districts; networking opportunities; online and face-to-face instruction over 12 to 15 months; applied learning experiences that result in a performance assessment; and interactive learning with self-assessments, simulations, case studies, school evaluations, and online activities. Facilitators meet with participants individually and in small groups. In some contexts, NISL also offers one-on-one mentoring to principals. In others, principals work with their already-assigned local mentors. Taking a systems approach, NISL also offers training for principal supervisors, alongside principals,

in a school leadership coaching program so that they can leverage the NISL experience for the participating principals, creating a coherent approach at each level of the system (National Institute for School Leadership, n.d.)

The research-based curriculum, which consists of three comprehensive courses that can be taken for university credit, is unusual in how deeply it covers the knowledge base on how people learn and its implications for teaching, leadership, and design of the school organization, including the integration of social, emotional, and academic learning; content pedagogy; and culturally responsive teaching. The curriculum emphasizes strategic, systems thinking for transformation of the school into a learning organization focused on effective instruction and equity. Participants apply their learning through an interactive process involving a deep analysis of their own contexts, development of a theory of action, and enactment of related strategies in their schools. They are aided by facilitators who work with them individually and in small groups focused on common action learning themes. This facilitator support continues for 3 to 6 months beyond coursework until participants present their strategies and results in a capstone project.

The first RAND evaluation found, via surveys and interviews, that a sample of 174 participating principals felt that the program improved their abilities to conceptualize and lead school improvement efforts and that they highly valued both the program content and NISL coaching. Nine in-depth case studies of schools illustrated that participants enacted the program's core concepts and processes in ways that supported staff uptake of school improvement efforts, leading to changes in teachers' instructional practices (Wang et al., 2019).

Principals felt that the program improved their abilities to conceptualize and lead school improvement efforts and that they highly valued both the program content and National Institute for School Leadership coaching.

The second study analyzed the effects of a large-scale implementation of the NISL program and paired coaching for middle school principals in three states, 332 schools, and 118 school districts. Half of the principals in the 332 schools were randomly assigned to participate in the NISL training, and the control group had the option to take the training 3 years later. NISL-certified coaches offered at least 60 hours of one-on-one coaching to participating principals, which about 35% of the principals accepted. The researchers found large positive effects on two practices taught by the program—having a strategic plan and personalizing student instruction—and marginally significant effects ($p < 0.10$) on teachers' reports of collaboration. Here too, however, implementation was a challenge. Although principals were strongly positive about how the program and the coaching helped them to lead their schools better, only 35% of principals fully participated in the program (ranging from 15% to 49% across states) due to principal mobility or districts or principals opting out of the study (Masters et al., 2020). The authors note that accountability pressures meant that many principals were afraid to be out of their buildings for the required 24 days, especially in the state with the lowest participation rate, where 50% of principals left their positions during the course of the study (thus significantly reducing the already small sample size for the state).

Student outcomes

As with principal preparation, linking principal professional development to student achievement is challenging. Studies need to be of sufficient duration, with adequate controls and an appropriate comparison group. Additionally, it is important to understand program design and implementation to be able to interpret the findings. For example, in the earlier described evaluation of the NISL program, the authors noted, “Low participation rates dilute the measured effects of the intervention in our experimental analysis” (Masters et al., 2020, p. ix). We discuss these challenges later in this section.

A series of other studies of NISL did find positive outcomes of participation on student achievement. Studies in Pennsylvania (Nunnery, Yen, & Ross, 2011) and Massachusetts (Nunnery et al., 2010) compared student achievement in the 3 years following the training in schools led by NISL-trained leaders to comparison groups of schools in the state. These groups were matched by student performance in math and English language arts, the proportion of economically disadvantaged students, the proportion of students receiving special education services, and the proportion of students with limited English proficiency. Both studies found significantly higher rates of improvement on state tests for the schools led by NISL graduates. The Pennsylvania study found significantly larger gains in mathematics, and the Massachusetts study found significantly greater gains in both mathematics and English language arts. A follow-up study in Pennsylvania confirmed the higher rates of gain over an additional year (Nunnery, Ross, et al, 2011).

There were some differences between these programs and the program studied by RAND. Both the Massachusetts and Pennsylvania programs focused on novice principals and were offered to volunteers by the state departments of education, with much higher participation rates. The program design was somewhat longer (15–18 months, with more sessions). All beginning principals were already required to receive mentoring from their districts in Massachusetts and Pennsylvania (see Yirci & Kocobas, 2010), so NISL did not need to appoint mentors. In addition, the programs in these states began by training a Leadership Team cohort composed of key district leaders and principals who were selected as facilitator candidates, who received the facilitator handbook, *and* who went through as participants, so central office staff were fully exposed to the content of the program and could reinforce it. Finally, the achievement analyses began in the year the principals first began to participate in the program rather than in the year after. Thus, changes that may have occurred during that first year of participation were more likely to be captured. (See Masters et al., 2020, pp. 61–63).

Yet another large-scale study focused on Pennsylvania’s Inspired Leadership (PIL) Program, which relies on NISL practices. This study found that schools with principals who participated in PIL induction showed improved student math achievement. The researchers linked the increases to improvement in teacher effectiveness, especially in the most economically and academically disadvantaged schools in Pennsylvania. The researchers also found that PIL induction was related to increased principal and teacher retention and that PIL induction had the greatest influence on teacher effectiveness when principals participated in the program in their first 2 years as principals (Steinberg & Yang, 2020).

Finally, a small study using student-level data in an urban district in Wisconsin used propensity matching to compare students from schools with NISL-trained leaders to a comparison group of students in the same district over a 3-year period. Although the two groups could not be tightly

matched (the NISL groups had over twice as many African American students, a third fewer white and Asian students, and lower assessment scores in each year of the study), students in schools with NISL-trained leaders had greater increases in average math and reading achievement over the course of the 3 years. The differential size of the gains was statistically significant in 3 of 4 comparisons for elementary and middle school students in reading and math and contributed to reducing achievement gaps (Corcoran, 2017).

Other research examined two programs that included a mentoring component along with networking opportunities and applied learning experiences. The Cahn Fellows Program in New York City offers a 15-month fellowship, including a summer leadership institute, with opportunities for applied learning, regular study groups, and ongoing mentorship. Using longitudinal New York City administrative personnel data and student data, Clark, et al. (2009) found that having participated in the program was associated with reduced student absences and improved school test scores. The effect of program participation on math test scores was estimated to be roughly the same as the effect of a first-year principal acquiring 5 years of experience.

Another study examined the Greater New Orleans School Leadership Center (SLC), a cohort-based fellows program investing in school improvement initiatives. The program offers intensive summer institutes, conferences, and workshops; cohort meetings and research services to respond to principals' needs; and learning initiatives through which the principal fellows are guided by SLC staff in working with their schools' staff to develop and implement school improvement plans (Leithwood et al., 2003). Researchers studied 51 participating schools over 4 years. According to teacher surveys, principal participation in the program was associated with increases in the quality of their leadership and the conditions in their schools. Further, based on comparisons with similar schools statewide, program participation was associated with gains in multiple measures of student achievement in both English language arts and mathematics—with greater gains in years 2 and 3 than in year 1.

Design and implementation considerations

While the research described thus far points to the efficacy of high-quality principal professional development programs, a few studies with unclear and/or mixed outcomes have raised questions about the effectiveness of the programs studied, which exhibited different program designs and implementation challenges.

Unlike the programs noted in the previous section, the McREL Balanced Leadership Professional Development Program does not include a coaching or individualized support component. The program is designed to enhance principals' effectiveness by teaching school leaders 21 evidence-based leadership responsibilities, such as instructional leadership, developing people, and using data for change. It includes 10 2-day, cohort-based professional development sessions delivered over a 2-year period with the expectation that participants will implement learnings in their school sites between sessions and reflect with others when they return for the next session. Two experimental studies found positive outcomes related to principals' self-reported practices and the efficacy and retention of both principals and teachers. However, neither study found effects on student achievement within the 2 years students were followed (Jacob et al., 2015; Miller et al., 2016). While this program has some of the features of a comprehensive program, it lacks the critical feature of coaching that most other effective programs include.

Further underscoring the importance of high-quality coaching is a study of the University of Washington’s Center for Educational Leadership (CEL) program, which offered a 2-year program to improve instruction by preparing principals to conduct frequent classroom observations and document what teachers and students did and said in the classroom to provide useful feedback to teachers. A study of the CEL program in 100 elementary schools across eight districts in five states compared outcomes for schools randomly assigned to participate in the program to a control group in the 2 years of program implementation and for 1 year after. Researchers found that teachers in schools led by CEL participants had increased access to professional development and increased retention rates, but they only found positive effects on principal practice and students’ English language arts or math scores for a subset of CEL participants. Interestingly, the researchers found that the positive effects that did exist were associated with aspects of the coaching that some principals received, as well as with other principal characteristics, including their experience levels (Herrmann et al., 2019).

Researchers examining the CEL program also found that teachers in schools with inexperienced CEL-trained principals rated the instructional feedback and support they received from their principals much more negatively than teachers in schools with experienced CEL-trained principals. Teachers rated experienced principals more highly in year 2 than year 1 in the five categories of instructional support—that is, (1) principals’ competence in providing instructional supports, (2) the usefulness of feedback received from principals, (3) the usefulness of all types of instructional support from principals, (4) the usefulness of interactions with principals about instruction, (5) and the consistency of instructional feedback between principals and someone else. However, this was not the case for their ratings of inexperienced principals. By year 2, all of the perceived negative or null effects of the program on instructional interactions and feedback could be attributed to teachers’ low ratings of inexperienced principals.

The subset of teachers who did find their principals’ feedback frequent and helpful had positive effects on student achievement, with students experiencing significantly greater gains in math and English language arts scores by year 2. The researchers also found that student achievement gains were associated with teachers’ and principals’ reports of coherence in the school improvement plan. The study found that teachers’ reports of principals’ competence in providing instructional support, the usefulness of teacher–principal interactions about instruction, and the coherence of school improvement plans were, in turn, strengthened when coaches were more experienced, when their coaching focused more on instructional leadership, and when principals completed more of the coach-assigned activities. The mixed findings about the CEL program illustrate how the effects of professional development programs can be related to how the programs are designed and how they are implemented.

The effects of professional development programs can be related to how the programs are designed and how they are implemented.

The RAND study of a large-scale implementation of NISL’s program and paired coaching for middle school principals (described above) did not find differential effects for participating principals with respect to student achievement gains, student attendance rates, or grade-level progression during the 3-year time horizon of the study. These study results were likely influenced by poor program

The RAND study of a large-scale implementation of NISL’s program and paired coaching for middle school principals (described above) did not find differential effects for participating principals with respect to student achievement gains, student attendance rates, or grade-level progression during the 3-year time horizon of the study. These study results were likely influenced by poor program

implementation; just over one third of principals fully participated in the program. Although the state with the highest participation rate did have consistently positive results, with small samples, only one coefficient reached statistical significance (for math achievement gains in one of the years), and the size of the effect was small (Master et al., 2020).

A study of the District Professional Development (DPD) program likewise demonstrated how program implementation likely influenced research findings. DPD was designed to improve instruction through a sustained, multi-session, district-based leadership development program focused on problem-based learning. Coursework included collective inquiry and problem-based learning opportunities, but there was no mentoring or coaching component. The program was evaluated in three separate studies using the same quantitative data complemented by qualitative elements. A randomized controlled trial found little average difference in principal knowledge, principal practice, or student achievement outcomes of the treatment and control groups (Spillane et al., 2010). However, qualitative research unearthed many implementation challenges that undermined the experiment itself.

Neither the DPD program nor the research unfolded as intended. The newly hired superintendent of the district in which the research had already been slated to occur did not support the DPD, and he implemented a separate professional development program for principals. Thus, “control group” principals also experienced purposeful professional development emphasized by the leader of the district and had more support to do so. Further, the DPD was not implemented as planned. Only about half of the 22 principals assigned to the treatment group ever attended, and by the last session, only 4 principals had attended. Further complicating the findings, a few principals who attended DPD were actually assigned to the control group. Ultimately, only half of the planned DPD sessions were ever delivered to the dwindling group of attendees. With its implementation challenges and with the comparison group principals also receiving professional development (either through DPD or the district’s other program), it is not surprising that no differential effects were found on the treatment group’s practice. However, for those principals who did attend most of the professional development (a minority of those randomly assigned), a more nuanced follow-up study found positive effects on principal practice (Barnes et al., 2010; Camburn et al., 2016).

One lesson is that context matters in the design, implementation, and use of district-sponsored leadership development. Key to the context is district leader support and advocacy for the learning and a plan for its use within the district’s overarching vision and strategy.

A study of the Texas Principal Excellence Program (TxPEP) further illustrates how program design can influence findings. TxPEP was intended to improve student achievement and teacher retention by improving principals’ leadership skills. Unlike the more comprehensive programs just described, TxPEP was a set of workshops on business and management practices with no other features associated with high-quality professional development. Researchers compared TxPEP participants to nonparticipating Texas principals with similar characteristics and from similar schools. Using state administrative data, interviews, principal practice logs, and surveys of participating principals and their teachers, researchers found no evidence of program impact on principal practice, teacher performance and satisfaction, or student performance on state tests over the course of the following school year (Hoogstra et al., 2008).

Elements of High-Quality Professional Development

As described above, the research examining well-implemented comprehensive professional development programs in their entirety found positive outcomes for principals' learning, practices, and/or influences on school conditions and student learning. Studies that found mixed outcomes demonstrated problems with program design or implementation (e.g., lack of effective coaching or other comprehensive program elements) or experienced challenges with the research methodology (e.g., failure of treatment group members to participate in the program; small, nonrepresentative samples; lack of appropriate controls or a comparison group). However, in general, positive school and student outcomes were associated with programs that thoughtfully and purposefully incorporated all or most of the best practices in professional development.

Other research focused on specific programmatic features of professional development. These studies provide more detailed understandings of individual program elements and how they contribute to principals' development. As a whole, these studies strongly suggest that three strategies are particularly important for professional learning: (1) individualized, one-on-one support (mentoring and coaching); (2) communities of principals; and (3) applied learning. Other features of high-quality professional development, such as partnerships between programs and school districts, have received less specific attention in the literature.

Individualized, one-on-one support (mentoring and coaching)

As found in *Preparing School Leaders for a Changing World* (Darling-Hammond et al., 2007), guidance and mentorship from expert, experienced principals supports principals' learning. Most of the comprehensive programs described above that enabled greater principal effectiveness included mentoring or coaching.³ Notably, in the CEL professional development program, the distinguishing feature for the subset of principals whose work with teachers boosted student achievement was the high-quality mentoring they received. While outcomes of the comprehensive programs cannot be attributed solely or primarily to the mentoring and/or coaching they provided, those that have this feature have positively influenced principal practice.

Additional research conducted over the past 2 decades specifically examining mentoring and coaching corroborates the earlier research. It also offers new insights into the outcomes related to mentoring and coaching, as well as the mechanisms by which mentoring and coaching work to support school leaders, and the factors that are most important for productive mentoring and coaching programs. These studies consistently found that mentors and coaches can play an important role in building the capacity of school leaders (i.e., Goff et al., 2014; Grissom & Harrington, 2010; Houchens et al., 2012; Lackritz et al., 2019; Wise & Cavazos, 2017). Across studies, principals described their experiences with mentoring or coaching programs as positively influencing their leadership practices and as the most valued of all their professional development opportunities.

³ Programs that include mentoring: CEL professional development program, The Cahn Fellows Programs, IMPACT V, and a professional development program in a large urban district in the Southwest. Additionally, the Greater New Orleans SLC provided individualized supports from staff, and NISL program participants received mentoring through NISL, state induction programs for novices, and/or NISL-trained district principal supervisors.

In two rigorous studies, researchers found that principals who participate in mentoring or coaching programs have higher teacher ratings, greater student achievement outcomes, and stronger practices (e.g., providing feedback to teachers, discussing actions and goals aligned with feedback) than those who do not participate (Goff et al., 2014; Grissom & Harrington, 2010). In five additional studies, principals reported that mentoring and/or coaching helped them to improve their practice in multiple ways (e.g., leading instruction, developing people, building positive school cultures and community relationships, managing operations and budgets, and making data-driven decisions) (Duncan & Stock, 2010; Sciarappa & Mason, 2014; Tingle et al., 2019; Wise & Cavazos, 2017; Zepeda et al., 2014). In two of these studies, principals reported that their mentoring and/or coaching experiences resulted in improved student outcomes (Sciarappa & Mason, 2014; Wise & Cavazos, 2017). One novice principal participating in a coaching program explained how it informed her practice:

I enjoyed the instructional walkthroughs and the conversations I had with my coach regarding the observations. The coach's feedback was very candid and guided my next steps for professional development for my staff and me to enhance student achievement. Each professional development session I delivered ... supported the teaching practices on campus. (James-Ward, 2013, p. 28)

Research from the past 2 decades reveals the mechanisms by which, collectively, mentorship and coaching programs appear to build the capacity of school leaders (Alsbury & Hackmann, 2006; Della Sala et al., 2013; Duncan & Stock, 2010; Gümüş, 2019; Houchens et al., 2012; James-Ward, 2013; James-Ward & Salcedo-Potter, 2011; Lackritz et al., 2019; Lochmiller, 2014, 2018; Parylo et al., 2012; Sciarappa & Mason, 2014; Wise & Cavazos, 2017). These mechanisms include socializing novice principals into the profession, providing principals with the opportunity to learn from and collaborate with experts, providing emotional and tactical support to principals, providing opportunities for reflection, supporting the development and maintenance of networks, and building principals' capacities as instructional leaders.

Research has also identified key features that characterize high-quality mentoring and coaching (Alsbury & Hackmann, 2006; Augustine-Shaw & Liang, 2016; Della Sala et al., 2013; Duncan & Stock, 2010; Ermeling et al., 2015; Goff et al., 2014; Gümüş, 2019; Herrmann et al., 2019; Houchens et al., 2012; James-Ward, 2011, 2013; James-Ward & Salcedo-Potter, 2011; Lackritz et al., 2019; Lindle et al., 2017; Lochmiller, 2014, 2018; Sciarappa & Mason, 2014; Silver et al., 2009; Wise & Cavazos, 2017; Wise & Hammack, 2011). These features, which are associated with stronger outcomes, include the following:

- **Expertise:** Mentors or coaches are skilled and well prepared for their roles (e.g., competent in providing feedback and instructional support; knowledgeable about curriculum, schools, and districts; able to develop principal efficacy).
- **Coaching competencies:** Coaches have specialized coaching competencies, including communicating clearly, establishing the relationship with clear expectations and roles, developing trust, and establishing a results-based plan.
- **Content focused on capacity building:** Program content is focused on developing principals' leadership capacities (e.g., setting goals, assessing needs, and providing ongoing and tailored support).

- **Fit:** Mentors or coaches have the right expertise (e.g., particular skills, school level), disposition (e.g., empathy), and availability (e.g., flexibility, geographic proximity) to best meet the specific needs of the principal.
- **Trust:** Mentors or coaches hold a neutral position to develop trust with the principal.
- **Time:** The program offers an adequate number, length, and duration of coaching sessions to build skills, practice, reflect, and refine capacities in an iterative way.
- **Training:** Training for mentors and coaches is provided through coursework, workshops, and internships and opportunities for mentors and coaches to work with colleagues in professional networks to support each other and share best practices.
- **District support:** District leaders support the mentoring and coaching programs and are involved in goal setting for those programs.

Building communities of principals

While far less extensive than the literature on individualized, one-on-one support for principals, research shows that collegial learning networks (e.g., principal networks, study groups, formal professional learning communities) support principals' learning. They do this by providing opportunities for principals to learn from their peers, build their communication and collaboration skills, and learn new ways of thinking.

Collegial learning networks support principals' learning by providing opportunities for principals to learn from their peers, build their communication and collaboration skills, and learn new ways of thinking.

The comprehensive programs described above that had incorporated networking components demonstrated the program success in influencing either principal or student outcomes.⁴ Though positive outcomes cannot be tied directly to their networking components, this body of work points to the potential usefulness of collegial learning networks. Contributing to the research base, four additional studies examining PLCs found that, overall, principals participating in structured networking opportunities reported that their experiences helped them to be more responsive to the needs of teachers and staff, students, and their schools (Bengtson, 2012; Castro, 2004; DeMoss et al., 2007; Humada-Ludeke, 2013).

For example, one study examined the Arkansas Leadership Academy Master Principal Program, a professional development program in which participants advanced through three cumulative phases of professional learning experiences toward “mastery” (Bengtson, 2012). This program relied on peer learning networks to facilitate reflective practice. Researchers found that having more opportunities for structured reflection and peer learning was associated with higher scores on the participants' portfolios that measured principals' learning.

⁴ Programs that include networking: the CEL professional development program, the McREL Balanced Leadership Program, the District Professional Development Program, NISL, the PIL Program, The Cahn Fellows Programs, the Brigham Young University Principals Academy, the Greater New Orleans SLC, IMPACT V, and a professional development program in a large urban district in the Southwest.

The research base provides insight into how PLCs can build principals' capacities to lead. Specifically, the studies illustrate that PLCs provide rich opportunities for principals to learn from their colleagues, provide a model of PLCs for principals to re-create in their schools, and reduce principals' isolation. In one study, a principal reflected on how her experience participating in a PLC contributed to her sense of community and her ability to solve problems:

For me, I think this group has been important because I do not feel isolated. Before, I felt like I was practicing in isolation, because you are at your own school, and you have all these issues that arise, and issues that you do not really talk to your teachers about. So it was nice to have a sounding board, being able to talk and share experiences with people who were facing similar issues. We were eventually able to problem-solve around those issues together. (Humada-Ludeke, 2013, p. 96)

Notably, this research reflects the fact that it can take time for these networking opportunities to bear fruit. For example, one study that followed a university–district professional development partnership over multiple years discovered that it took approximately 2 years before principals saw the benefits of their participation in PLCs: in this case, a greater sense of self-efficacy, increased urgency to improve students' achievement, and a focus on teaching and learning (Humada-Ludeke, 2013).

Applied learning

Research also consistently shows that authentic, job-embedded experiences tied to principals' day-to-day practice can build principals' leadership capacities. As described earlier, multifaceted professional development programs that incorporate some aspect of applied learning⁵ are more likely to be associated with positive outcomes for principals. Three studies that directly examined principals' applied learning experience likewise found that applied learning activities—collecting and analyzing student data, facilitating learning opportunities for teachers, conducting classroom observations, and providing feedback to teachers—helped principals build their capacities to use data and enhance communication and collaboration in schools. They also work to improve the usefulness of in-school observations, coaching efforts, and teacher evaluations (Carraway & Young, 2015; Cosner et al., 2018; New Leaders for New Schools, 2011).

A benefit of applied learning experiences is that the program instructors can shape the participants' learning process by asking them to examine and consider specific educational elements. In this way, they can build on class discussions related to research and theory, providing a lens for principals to interpret what they are examining in their real practice. One school leader reported about the expanded range of data sources that she and others now use as a result of such a project:

We looked at student work samples, we looked at the students' grades, [and] we looked at the types of books that the students were being assigned to read in class [and] the types of tasks they were being assigned.... So it was a holistic [way of looking at] the multiple forms of data ... it was much broader than what we ... what we've done in the past. (Cosner et al., 2018, p. 245)

⁵ Programs that include applied learning activities: the CEL professional development program, the McREL Balanced Leadership Program, the District Professional Development Program, NISL, the PIL Program, The Cahn Fellows Programs, the Greater New Orleans SLC, IMPACT V, OLi⁴, and a professional development program in a large urban district in the Southwest.

Another principal in one of the programs featuring applied learning experiences shared how his participation in the program allowed him to look more deeply at instruction:

I think I am adept at going into classrooms and seeing the different elements that we have learned. [The program] has made me a better observer in the classroom. Before, I was looking for mechanics, and now, I look for talents, strategies that really make a difference in student achievement. (Carraway & Young, 2015, p. 239)

Supporting principals to meet the needs of diverse learners

Most principal professional development programs reviewed in these studies tended to focus on critical content, including the development of people and organizations, and management of change, with a consistent focus on instructional leadership. What is new in the research is evidence of a growing need to help principals learn to meet the needs of diverse learners and the potential efficacy of providing content addressing equity.

Research shows that principals can benefit from programs specifically focused on meeting the needs of diverse learners. Five studies looking at the outcomes of professional development programs include descriptions of content addressing equity. Perhaps the most intensive and tightly focused approach studied was the OLi⁴ program, which seeks to build principals' capacities to be inclusive instructional leaders over 2 years through nine in-person sessions per year, individual coaching, and school-based applied learning experiences. The curriculum and related activities were designed to embody "three core values: promoting equity and social justice; presuming the competence of all learners; and treating access to a high-quality general education curriculum as every student's educational right" through developing "six leadership practices: visioning, using data well, using research and evidence to guide instruction, sharing leadership, coaching teaching, and reflecting on practice" (Howley et al., 2019, p. 5). Researchers studying this program found positive changes in principals' attitudes and practices that were significantly greater than those in the comparison group that did not experience OLi⁴ (Howley et al., 2019).

Two additional programs feature a focus on equity. IMPACT V, the North Carolina professional development program described earlier, combined participation in a course with applied learning and coaching. Researchers found that candidates' writings and reflections offered evidence that principals' views of social justice and self-reported practices changed due to program participation (Hewitt et al., 2014). A program located in rural California provided a summer institute, workshops, and networking sessions focused on improving educational equity for students in rural schools with high percentages of socioeconomically disadvantaged students. Principals participating in this program reported that the program helped them develop the skills to change mindsets in their schools and work toward creating environments that value diversity (Castro, 2004).

Researchers have also noted that, given the changing demographics of districts and the kinds of learning opportunities available to principals, more professional development attending to equity concerns and to the needs of specific learners, such as English learners, is needed (Louie et al., 2019; Shields & Cassada, 2016).

How Professional Development Features Are Related to Student Outcomes

One recent study takes another approach to examining the relationship between principal professional development and teacher and student outcomes. Rather than evaluating a specific program, researchers examined outcomes associated with principals' access to professional development (Campoli & Darling-Hammond, 2022). Researchers linked survey data from a representative sample of California elementary and secondary principals to state administrative data files containing longitudinal data on student, teacher, principal, and school characteristics and outcomes, including teacher retention and English language arts and mathematics achievement of students.

Controlling for a wide range of student, teacher, school, and district factors, the researchers found that principals' access to certain content areas emphasized in professional development (i.e., managing change, leading instruction, shaping a positive school climate, developing people, meeting the needs of diverse learners) is positively related to teacher retention. An index of overall professional development access, which combined these components with a measure of the frequency of professional development, was also positively related to teacher retention, although none of these relationships reach a level of statistical significance.

However, the researchers found the associations between the extent of principal professional development, as measured by the index, and student achievement to be quite strong and consistent. The overall professional development index and each component of professional development content are positively and significantly related to student gains in both English language arts and math. The strength of the relationship is considerable. For example, on average, a student whose principal had received more extensive professional development (a score of 9 out of 10 on the index) would gain an additional month and a half (29 days) of instruction in English language arts and almost 3 months (55 days) of additional instruction in mathematics compared to a student whose principal had little access to professional development (a score of 2 out of 10 on the index). Notably, study findings indicate that having a principal who received professional development in instructional leadership is linked to achievement gains for most students, and those gains are greatest for students from historically underserved groups (Black, Latino/a, and Native American students).

Principal Professional Development Research: Limitations and Opportunities

Our conclusions are drawn from a thorough review of the literature that carefully examines study methodologies and results. While some researchers have cited studies finding that principal professional development “doesn’t matter” (Coggshall, 2015; Howley et al., 2019), we found that thoughtfully constructed and carefully implemented programs that incorporated the best practices identified in earlier research contributed to principals' knowledge and skills and, when measured, contributed to positive school and student outcomes.

The studies that did not find positive relationships between professional development and student outcomes either did not include the key features of successful programs (e.g., Texas Principal Excellence Program) or encountered serious implementation problems, including nonattendance of most members of the treatment group (e.g., the District Professional Development Program). A

study of one program found that positive influences for some principals and not others identified differences in the coaching quality available to principals who were more effective versus those who were less effective. This study also identified differences in principal experience that appeared to affect skill in giving feedback to teachers (e.g., University of Washington Center for Educational Leadership program). And one program that positively influenced principal perceptions of their learning but not their measured effectiveness lacked a coaching element (McREL Balanced Leadership Professional Development Program).

This more recent evidence adds to our understanding of how programs incorporating the features of high-quality professional development—for example, applying learning about instructional leadership, developing people and organizations, and managing change combined with mentoring or coaching and professional communities that support reflection—influence principals’ practice and, in some cases, how changes in practice appear to influence teacher, school, and student outcomes. In addition, these newer studies offer insights about the features of these elements that appear to matter, such as the kinds of applied learning opportunities and mentoring supports that are associated with changes in practices and outcomes. Recent research also offers insights about both the need for—and the possibilities for—constructing powerful professional learning to support equity and social justice, including meeting the needs of diverse learners.

Our review also highlights evidence about design and implementation challenges that can undermine well-intentioned professional development efforts—for example, a failure to adequately select and train mentors or a body of content that is not appropriate for all of the participants based on their prior experience.

Much of the research on the outcomes of principal professional development programs provides few details on the content and delivery of the professional development provided. Given that most principals have limited opportunities for professional learning, and the opportunities many have had do not incorporate the features of exemplary professional development programs (Rowland, 2017), we must rely on research that offers more information about program content, program delivery, implementation, context, and program participants to best understand how high-quality professional development can influence outcomes. To the extent that this information is not provided, we are tentative in our conclusions. At the same time, we consider the available lines of research as parts of a larger narrative that, collectively, can add to the knowledge base on effective principal professional development.

The more recent literature also points to questions that have not yet been fully addressed and can guide future research:

- What features and attributes do successful programs embody? How might this vary for different program participants (e.g., novice versus experienced principals, principals serving in well-resourced versus poorly resourced schools, principals serving in elementary schools versus middle schools or high schools, principals serving in large schools versus smaller schools) and in different contexts (e.g., rural versus urban districts, large versus smaller districts, well-resourced versus poorly resourced districts)?
- What is the dosage (i.e., the amount of time and treatment provided) necessary for professional development programs (including various features of these programs) to be sufficient to support principals? How might this vary by program participants, context, and the combination of learning tools or opportunities?

- How long might it take to see an impact from participation in a professional development program? How might this vary by program participants and context?
- Because the nature of a leader’s professional development will change over the course of a principal’s career, what kinds of professional development would principals most benefit from at different points in their careers (beginners, mid-career, late career)?
- What are the challenges related to implementation of high-quality professional development programs? How might these challenges be addressed?
- What role can school districts play in facilitating positive outcomes related to principal participation in professional development programs?
- How do principals’ experiences over the course of their careers (i.e., the pipeline that leads to the principalship) relate to outcomes of participating in professional development programs? For example, how does having participated in professional development for serving as a mentor teacher or for becoming an assistant principal influence principal practice and related teacher, school, and student outcomes?

Future research can address these questions and others by collecting and analyzing more information when comparing program participants to nonparticipants (e.g., details about program participants and nonparticipants, such as prior preparation, access to supports, experience as a school administrator, and experience as a teacher, and details of the conditions and context program participants and nonparticipants experience) to evaluate program impact.

Answering the questions posed above and paying close attention to the methodologies used, participants, and program implementation would advance the field’s knowledge of the best approaches to develop and support school leaders.

Access to High-Quality Learning Opportunities

In the previous sections, we have shown that high-quality professional learning for principals is associated with their knowledge, skills, and practices and their ability to retain staff and support student learning. The next question we ask is, to what extent do principals have access to such learning opportunities? In this section, we address this question by analyzing survey data from representative samples of principals.

Overview of the National, California, and North Carolina Principal Surveys

To understand principals' access to high-quality learning opportunities, we designed and analyzed identical surveys from representative national samples of principals affiliated with the National Association of Secondary School Principals (2019) and the National Association of Elementary School Principals (2020). Combined, data collected from these two groups form a national sample of 836 elementary and secondary principals. We also analyzed two statewide samples of public school principals surveyed for previous studies that included related questions about professional learning experiences: one from California (2017) and one from North Carolina (2018). The national data offer an overview of professional learning for principals across the country, while the California and North Carolina surveys (with 461 and 847 principals, respectively) shed light on how state policy may influence principals' professional learning opportunities. An overview of the survey samples, data collected, analyses, and results is available in the online technical supplement.⁶

Principals' Access to Strong Preparation

With respect to preservice preparation, we were able to analyze both national data and data from California. National survey data show that more than 70% of principals have had at least superficial access to nearly all topics important for building leadership capacity and that access to this content has increased over the past decade. However, fewer principals have had authentic learning opportunities and well-designed internship experiences, ranging from about 40% to 60% depending on the type of experience. In all of these areas, California principals had greater opportunities to learn than principals nationally, likely as a result of recent licensing and accreditation reforms, as we discuss in the next section, "Principal Development Policy."

Access to important content

Nationally, more than two thirds of principals said they have had at least minimal access to all of the content areas that research identifies as important for developing principals' leadership capacities. For more recently prepared principals, the percentage was over 80% in most areas, suggesting that policy changes in the past 10 years may have played a role in deepening the content covered in principals' preparation. Changes in access were most pronounced in two areas: meeting the needs of English learners and creating a school environment that uses discipline for restorative purposes ($p < 0.01$).

Nonetheless, these were still among the areas in which principals were least likely to have opportunities to learn, along with how to recruit and retain teachers, how to support deeper learning, and how to support physical and mental health for students. Principals in California were significantly

⁶ Detailed descriptions of the survey methodology and results are available in the online technical supplement at <https://learningpolicyinstitute.org/product/developing-effective-principals>.

more likely than those nationally to encounter all but one of these kinds of learning experiences ($p < 0.01$), especially in areas associated with preparation to meet the needs of diverse learners. This finding suggests that distinctive policies may create different environments for principal learning within states, an issue we discuss in the next section. Most striking is that almost all California principals (99%) reported having access to preparation programs that addressed how to support students from diverse ethnic, racial, linguistic, and cultural backgrounds, compared with the national average of 82%. In addition, almost all California principals (97%) had access to preservice training to meet the needs of English learners, compared with just about two thirds of principals nationally (68%).

Table 2
Content That Principals in California and Nationally Had Access to During Preparation

	California	National	National	
			Principals Certified in the Past 10 Years	Principals Certified Over 10 Years Ago
Sample Size	461	836	197	559
Instructional Leadership				
Leading instruction that focuses on developing students' higher-order thinking	93%**	83%	87%	80%
Leading instruction that focuses on raising schoolwide achievement on standardized tests	93%**	83%	87%	81%
Selecting effective curriculum strategies and materials	91%**	82%	87%*	79%
Leading instruction that supports implementation of new state standards	81%	78%	84%*	74%
Leading and Managing School Improvement				
Using student and school data to inform continuous school improvement	95%**	90%	94%*	88%
Leading a schoolwide change process to improve student achievement	97%**	83%	85%	81%
Engaging in self-improvement and your own continuous learning	98%**	88%	88%	87%
Shaping Teaching and Learning Conditions				
Creating collegial and collaborative work environments	99%**	84%	88%	82%
Working with various school and community stakeholders, including parents, educators, and other partners	99%**	88%	93%*	86%
Leading schools that support students from diverse ethnic, racial, linguistic, and cultural backgrounds	99%**	82%	86%	81%

	California	National	National	
			Principals Certified in the Past 10 Years	Principals Certified Over 10 Years Ago
Leading schools that support students' social-emotional development	95%**	75%	80%	73%
Developing systems that support children's development in terms of physical and mental health	95%**	72%	75%	70%
Creating a school environment that develops personally and socially responsible young people	–	76%	82%*	73%
Creating a school environment that uses discipline for restorative purposes	92%**	67%	77%**	62%
Redesigning the school's organization and structure to support deeper learning for teachers and students	96%**	72%	78%	70%
Developing People				
Designing professional learning opportunities for teachers and other staff	96%**	77%	80%	76%
Helping teachers improve through cycles of observation and feedback	96%**	86%	86%	85%
Recruiting and retaining teachers and other staff	90%**	71%	78%~	68%
Managing school operations efficiently	98%**	91%	92%	91%
Knowing how to invest resources to support improvements in school performance	95%**	76%	81%	74%
Meeting the Needs of All Learners				
Meeting the needs of English learners	97%**	68%	78%**	64%
Meeting the needs of students with disabilities	98%**	91%	91%	91%
Equitably serving all children	98%**	87%	91%	85%

~p < 0.10; *p < 0.05; **p < 0.01.

Note: In the national survey, principals were asked, "During your preparation program, how helpful were professional development opportunities in the following areas at improving your [topic area] (if at all)?" Principals could choose from this list of responses: "not at all helpful," "slightly helpful," "somewhat helpful," "extremely helpful," or "N/A I did not have this opportunity." The table shows the percentage of principals who did *not* answer "N/A I did not have this opportunity," indicating that they had at least minimal access to professional learning addressing that topic during their preparation. In the California survey, principals were asked, "To what extent did your leadership preparation program emphasize [topic area]?" The table shows the percentage of principals who selected "to a minimal extent," "somewhat," "to a moderate extent," or "to a great extent" and excludes those who responded with "not at all."

Sources: NASSP/NAESP Principal Surveys (2019); California Principal Survey (2017).

Access to authentic learning opportunities

While large and growing majorities of principals have access to important content, the teaching strategies they encounter have not evolved nearly as quickly. Few principals have access to authentic, job-based learning opportunities during preparation, and high-quality internships are still relatively rare.

Just over half of principals across the country were trained in a preparation program that was problem based (60%), field based (58%), or cohort based (57%). (See Table 3.) In addition, only 17% of principals reported that they had had the opportunity to complete a project at a school other than the one at which they were then teaching. This means that most principals learned how to become administrators while serving as teachers, and they did not have the opportunity to undertake an applied learning project in the context of a school at which they were able to take on an administrative role with coaching. And while authentic learning opportunities are becoming more available in preservice training for principals, the gains in access have not been very large (increasing from about 56%–57% to 64%–68% for problem-based and field-based learning, respectively), suggesting that more could be done to enhance the learning experiences of principal candidates.

Once again, principals in California are significantly more likely than principals nationally to have experienced more effective modes of learning during preservice training. As shown in Table 3, these include problem-based learning approaches (69%, compared with 60% nationally), field-based projects (76% vs. 58% nationally), and cohort-based learning opportunities (73% vs. 57% nationally).

While most principals nationally (77%) reported having some kind of internship, less than half of those who had an internship (46%) felt that the experience adequately prepared them for their first year in the position. We found that only about half of principals who had internships had taken on responsibilities that are typical of an educational leader, such as leading, facilitating, and making decisions. (See Table 3.) Access to internships has been increasing over the past decade to 82% of recently certified principals, who were also noticeably more likely to have had experiences that developed their leadership capacities. Nationally, 57% of principals who were certified in the past 10 years had responsibilities typical of an educational leader, and 68% were able to develop an educational leader's perspective on improving the school, compared to 49% and 53%, respectively, for principals certified over 10 years ago. Still, nearly half of principals who were recently certified felt that their internships did not adequately prepare them for their first year in the job.

In California, at the time of the survey (2017), somewhat fewer principals had access to an internship or field experience during their preservice programs (68%, compared to 77% nationally), but those who did have an internship reported a more useful experience. Significantly more California principals reported that they were able to gain relevant work experience (74%, compared to 52% nationally) and develop a leader's perspective for supporting students and teachers (77%, compared to 57% nationally). In addition, principals in California were more likely to report that their practical training tightly aligned with their theoretical coursework (64%, compared to 47% nationally). Overall, about three quarters (74%) of California principals thought their internships were a good learning experience for becoming a principal, compared to only 46% nationally. Since the time of the survey, California has launched an induction program for principals as part of a two-tier licensing system as well as a performance assessment that requires principals to participate in significant fieldwork that engages them in the core tasks of school leaders. It is likely that the share of principals experiencing high-quality clinical support may increase as a result of these ongoing policy changes (Reising et al., 2019).

Table 3
Principals' Access to Authentic Learning Opportunities in California
and Nationally

	California	National	National	
			Principals Certified in the Past 10 Years	Principals Certified Over 10 Years Ago
Sample Size	461	836	197	559
The program used problem-based learning approaches, such as action research or inquiry projects, in which I gathered and analyzed data to help solve a problem.	69%**	60%	64%	57%
The program used field-based projects in which I applied ideas from your coursework to my experience in the field.	76%**	58%	68%~	56%
I completed a project in another school requiring that I work with staff to accomplish a goal.	–	17%	18%	17%
In my leadership preparation program, I had a supervised internship or field experience working directly with a principal and engaging in administrative tasks under supervision.	68%*	77%	82%	76%
Among principals who had an internship or field experience ^a				
My internship/field experience adequately prepared me for my first year as a principal.	74%**	46%	53%	44%
I had responsibilities for leading, facilitating, and making decisions typical of an educational leader.	74%**	52%	57%	49%
I was able to develop an educational leader's perspective on fostering the success and well-being of each student and adult in the learning community.	77%**	57%	68%*	53%
My internship/field experience was tightly aligned with theory and coursework.	64%**	47%	59%*	44%

~p < 0.10; *p < 0.05; **p < 0.01.

Notes: Principals were asked to "indicate the extent to which the following statements about your leadership preparation program are true." They were given options on a 5-point scale, from "not at all true" to "true to a great extent." Percentages indicate the proportion of principals who selected the top two choices: "true to a moderate extent" or "true to a great extent."

^a In the national survey, only principals who indicated that they had had an internship or field experience were directed to answer the four items listed in this section. In the California survey, all principals were given the option to respond to the four items regardless of whether they indicated they had had an internship or not.

Sources: NASSP/NAESP Principal Surveys (2019); California Principal Survey (2017).

The research we reviewed suggests that internships that provide relevant, hands-on experiences that are integrated into coursework are more effective than internships without these qualities in preparing principal candidates. Yet as our data and other analyses suggest, across the country, internship experiences vary greatly (Hafner et al., 2012). Some candidates have a full-year paid internship in the school of an expert veteran principal, taking on specific tasks of leadership in a planful way throughout the year. Others may have an “internship” that is really only a project in the school where they teach or only a few weeks of internship outside of that school (e.g., serving during a school vacation or summer school as an intern) that may not provide opportunities to learn to undertake many of the tasks of a principal.

To further understand the types of learning experiences that contribute to principals’ sense of preparedness, we disaggregated the survey findings by those who felt that their internships adequately prepared them for their first year as a principal versus those who did not feel adequately prepared. As shown in Table 4, principals who felt adequately prepared by their internships were much more likely to say their programs provided experiences to a “moderate” or “great” extent that reflected the work of an educational leader (77%, compared to 31% of principals who did not feel prepared); that allowed them to develop a leader’s perspective on fostering the success and well-being of members in the school community (88% vs. 30% who felt underprepared); and that tightly aligned the internship or fieldwork with theory and coursework (75% vs. 24% who felt underprepared). These findings suggest that internships that are highly relevant to a principal’s responsibilities and are purposefully supported by coursework are perceived by candidates as contributing to their abilities to lead schools.

Table 4
Principals’ Internship Experiences, National

	Principals Who Had Internships	Principals Who Felt Adequately Prepared by Their Internships	Principals Who Felt Underprepared by Their Internships
Sample Size	644	294	343
My internship/field experience adequately prepared me for my first year as a principal.	46%	–	–
I had responsibilities for leading, facilitating, and making decisions typical of an educational leader.	52%	77%**	31%
I was able to develop an educational leader’s perspective on fostering the success and well-being of each student and adult in the learning community.	57%	88%**	30%
My internship/field experience was tightly aligned with theory and coursework.	47%	75%**	24%

~p < 0.10; *p < 0.05; **p < 0.01.

Note: Of those who had an internship, principals were characterized as adequately prepared if they responded that their internship and/or field experience adequately prepared them for their first year as a principal “to a moderate extent” or “to a great extent.” Those who responded “not at all,” “to a minimal extent,” or “somewhat” were categorized as feeling underprepared. Respondents who indicated that they did have a supervised internship or field experience were asked the extent to which their internships or field experiences reflected the other listed attributes. Principals were given the options “not at all,” “to a minimal extent,” “somewhat,” “to a moderate extent,” and “to a great extent.” Percentages shown in the table indicate the proportion of principals who responded that their internships included each attribute “to a moderate extent” or “to a great extent.”

Sources: NASSP/NAESP Principal Surveys (2019).

Variation in principals' preparation by school poverty level

Our data suggest that access to strong principal preparation programs is not entirely equitable. Nationally, principals in low-poverty schools are significantly more likely than those in high-poverty schools to have preparation in creating collaborative work environments, working with various school and community stakeholders, supporting deeper learning, and designing professional opportunities for staff. (See Table 5.) Results from the national survey also suggest that principals in low-poverty schools are noticeably more likely than principals in high-poverty schools to have preparation for leading a schoolwide change process to improve student achievement (89% vs. 75%), developing systems that support children's physical and mental health (77% vs. 66%), developing personally and socially responsible young people (77% vs. 66%), creating a restorative school environment (69% vs. 55%), recruiting and retaining staff (71% vs. 61%), and meeting the needs of English learners (68% vs. 56%)—differences large enough to be practically important even though they are not statistically significant.

As we discuss in the next section, policy might make a difference in equalizing access to high-quality preparation. As shown in Table 5, nearly all California principals (typically 90% or more) have had access to all areas of learning covered in the survey, and disparities between principals in low- and high-poverty schools are not apparent. Similarly, California principals' access to programs that offer effective strategies for delivery of preparation is much higher than the national average, especially for those in high-poverty schools.

In comparing geographical differences in access to high-quality principal preparation, we did not find large or consistent differences in access for principals in cities, towns, suburbs, or rural areas or for principals of schools with higher and lower populations of students of color.

Table 5
Principals' Reports of Access to Various Topics and Program Strategies
During Preparation by School Poverty Level, National and California

	National		California	
	Low-Poverty Schools	High-Poverty Schools	Low-Poverty Schools	High-Poverty Schools
Sample Size	292	84	123	105
Topics				
Instructional Leadership				
Leading instruction that focuses on developing students' higher-order thinking	81%	83%	94%	95%
Leading instruction that focuses on raising schoolwide achievement on standardized tests	82%	80%	89%	95%
Selecting effective curriculum strategies and materials	80%	80%	91%	91%
Leading instruction that supports implementation of new state standards	79%	74%	79%	85%

	National		California	
	Low-Poverty Schools	High-Poverty Schools	Low-Poverty Schools	High-Poverty Schools
Leading and Managing School Improvement				
Using student and school data to inform continuous school improvement	89%	90%	95%	96%
Leading a schoolwide change process to improve student achievement	89%	75%	96%	99%
Engaging in self-improvement and your own continuous learning	93%	87%	97%	99%
Shaping Teaching and Learning Conditions				
Creating collegial and collaborative work environments	87%~	71%	98%	99%
Working with various school and community stakeholders, including parents, educators, and other partners	92%~	80%	99%	100%
Leading schools that support students from diverse ethnic, racial, linguistic, and cultural backgrounds	81%	78%	98%	100%
Leading schools that support students' social-emotional development	77%	72%	92%*	99%
Developing systems that support children's development in terms of physical and mental health	77%	66%	92%*	99%
Creating a school environment that uses discipline for restorative purposes	69%	55%	87%*	95%
Redesigning the school's organization and structure to support deeper learning for teachers and students	80%**	58%	96%	96%
Creating a school environment that develops personally and socially responsible young people	77%	67%	–	–
Developing People				
Designing professional learning opportunities for teachers and other staff	84%~	69%	94%	99%
Helping teachers improve through cycles of observation and feedback	91%	85%	93%	96%
Recruiting and retaining teachers and other staff	71%	61%	91%	91%
Managing school operations efficiently	91%	92%	98%	99%
Knowing how to invest resources to support improvements in school performance	76%	75%	94%	95%
Meeting the Needs of All Learners				
Meeting the needs of English learners	68%	56%	97%	97%
Meeting the needs of students with disabilities	93%	87%	97%	99%
Equitably serving all children	87%	83%	97%	100%

	National		California	
	Low-Poverty Schools	High-Poverty Schools	Low-Poverty Schools	High-Poverty Schools
Program Strategies				
The program used problem-based learning approaches, such as action research or inquiry projects, in which I gathered and analyzed data to help solve a problem.	68%	59%	70%	75%
The program used field-based projects in which I applied ideas from your coursework to my experience in the field.	56%	58%	86%	73%
The program organized principal candidates into student cohorts; that is, it defined groups of individuals who began the program together and stayed together throughout their courses.	62%	55%	64%*	77%

~p < 0.10; *p < 0.05; **p < 0.01.

Note: Low-poverty and high-poverty schools are defined as schools in the bottom and top quartile, respectively, of the national school population and of the California school population in terms of the proportion of students eligible for free or reduced-priced lunch. In the national survey, principals were asked, “In different parts of your career (i.e., during your preparation program and on-the-job/in-service), how helpful were professional development opportunities in the following areas at improving your [topic area] (if at all)?” Principals could choose from this list: “not at all helpful,” “slightly helpful,” “somewhat helpful,” “extremely helpful,” or “N/A I did not have this opportunity.” The table shows the percentage of principals who did *not* answer “N/A I did not have this opportunity,” indicating that they had at least minimal access to professional learning addressing that topic during their preparation. In the California survey, principals were asked, “To what extent did your leadership preparation program emphasize [topic area]?” The table shows the percentage of principals who selected “to a minimal extent,” “somewhat,” “to a moderate extent,” or “to a great extent” and excludes those who responded with “not at all.”

Sources: NASSP/NAESP Principal Surveys (2019); California Principal Survey (2017); National Center of Education Statistics, Common Core of Data (2017–18).

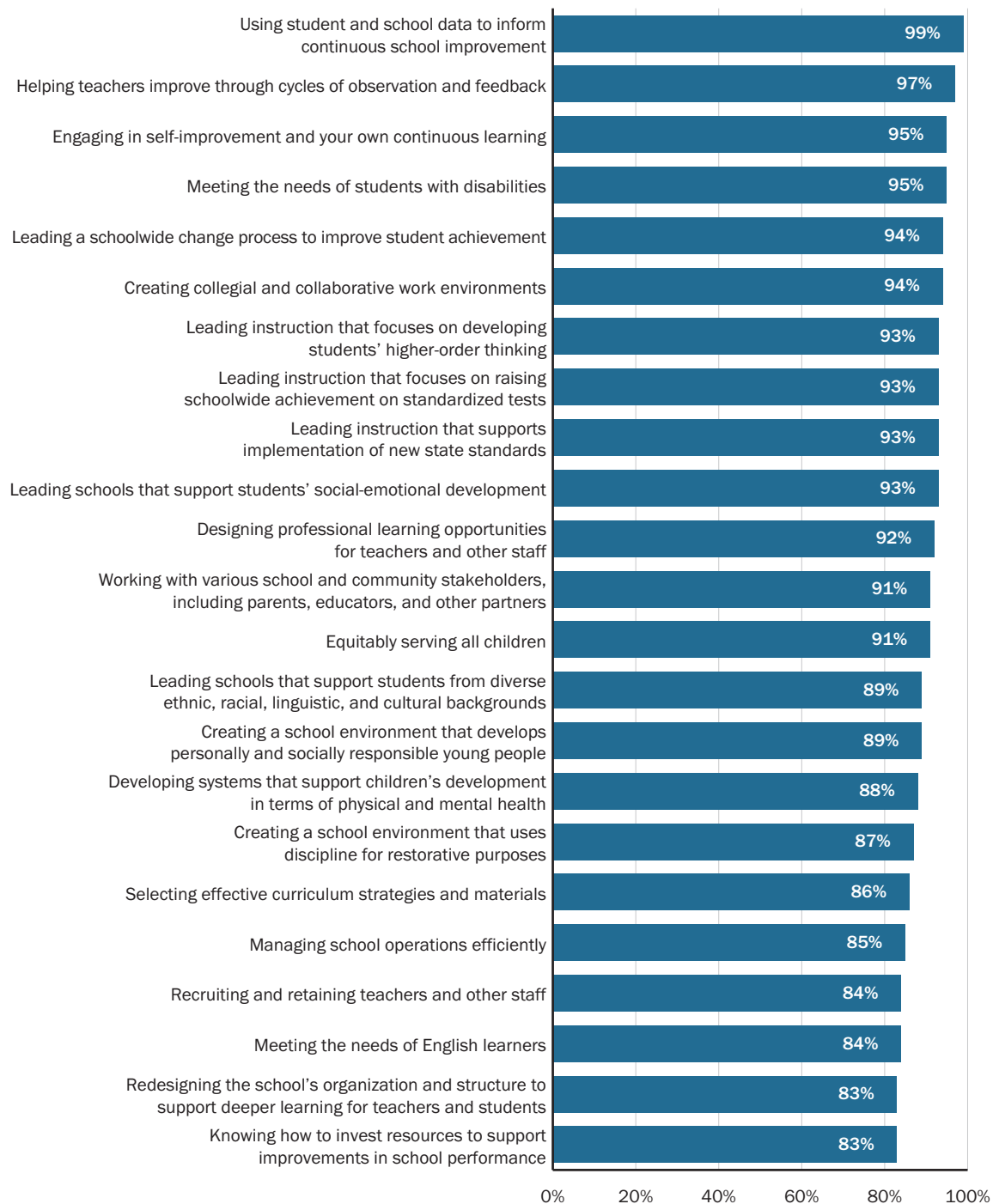
Principals’ Access to High-Quality Professional Development

As we consider principals’ careers, our survey data also allow us to answer this question: To what extent do principals have access to professional development that research has associated with positive school, teacher, and student outcomes? Specifically, we look at principals’ access to topics important for building leadership capacity, their authentic learning opportunities, and the degree to which they experience mentorship. We also discuss the professional development topics that principals want more of and the obstacles they face when pursuing continuous learning.

Access to important content

We found that most principals have at least minimal access to professional development that covers important content. As shown in Figure 2, about 85%–99% of principals reported they had had at least superficial exposure to the 23 topics covered in the survey, most of which were accessed through participation in workshops or conferences.

Figure 2
Content That Principals Had Access to During Professional Development
National Sample (n=836)



Note: Principals were asked, "While on-the-job/in-service, how helpful were professional development opportunities in the following areas at improving your [topic area] (if at all)?" Principals could choose from this list of responses: "not at all helpful," "slightly helpful," "somewhat helpful," "extremely helpful," or "N/A I did not have this opportunity." The figure shows the percentage of principals who did *not* answer "N/A I did not have this opportunity," indicating that they had at least minimal access to professional learning addressing that topic in their professional development.

Sources: NASSP/NAESP Principal Surveys (2019).

Access to authentic learning opportunities

Although principals have access to a wide range of content in workshops and conferences, we found that they have relatively little opportunity for forms of professional learning that are collaborative and applied. As shown in Table 6, just a third of principals were able to participate in peer observation and coaching three or more times over the past 2 years. While more principals (54%) had the opportunity to participate in a principal network at least three times in the past 2 years, nearly half of principals did not have regular access to a peer network. In California, principals generally have more access to these forms of collaborative professional development: Nearly two thirds (64%) of principals participated in a principal network at least three times in the past 2 years, significantly more than in the nation as a whole. While less than half of California principals (43%) regularly participated in peer observation and coaching during that time, the proportion nationally was even lower (33%).

Table 6
Principals' Reports of Frequency of Participation in Collaborative Forms of Professional Development, Nationally and in California

	National			California		
Sample Size	836			461		
Not counting the training you may have received through your leadership preparation program, how often have you participated in the following types of professional development activities during the past 2 years?						
	Never	1–2 times	3+ times	Never	1–2 times	3+ times
Peer observation/coaching with an opportunity to visit with other principals for sharing practice	34%	33%	33%*	29%	28%	43%*
Participation in a principal network (e.g., a group of principals organized by your district, an outside agency, or online)	16%	29%	54%*	14%	22%	64%*

~p < 0.10; *p < 0.05; **p < 0.01.

Sources: NASSP/NAESP Principal Surveys (2019); California Principal Survey (2017).

Despite research showing that mentoring improves principals' leadership capacities, it is not readily available. Nationally, less than a quarter of principals (23%) reported having an on-the-job mentor or coach in the past 2 years, and less than half (44%) reported having a principal supervisor (Table 7). In addition, underscoring the inequity in access to high-quality learning opportunities, we found that principals serving high-poverty schools were less than half as likely as principals serving low-poverty schools (10% vs. 24%) to have access to an on-the-job mentor or coach. In analyzing responses from the California and North Carolina

Principals serving high-poverty schools were less than half as likely as principals serving low-poverty schools to have access to an on-the-job mentor or coach.

surveys, we found that while principals from these two states may have more access to an on-the-job mentor compared with the rest of the country, access is still very low (37% in California and 35% in North Carolina).

Principals who had access to such individualized, one-on-one support found it helpful. Of those with access, nearly 9 in 10 principals (87%) nationally and nearly 4 in 5 (78%) in North Carolina said their mentors or coaches contributed to their success as a leader. Two thirds of principals nationally (66%) also said their supervisors contributed to their success as a leader.

Table 7
Principals' Access to Mentors, Coaches, and Principal Supervisors

	National	California	North Carolina
Sample Size	836	461	847
Other than through your leadership preparation program, were you supported in the past 2 years via a mentor/coach or a supervisor who was provided by the school district? ^a			
Yes, I had a formal on-the-job mentor or coach.	23%	37%	35%
Yes, I had a principal supervisor.	44%	-	-
No, I did not have support via a mentor/coach or a supervisor.	42%	63%	65%
For those who had access to a mentor, coach, or supervisor: To what extent did the following contribute to your success as a leader? ^b			
An on-the-job mentor or coach contributed to my success.	87%*	-	78%
A principal supervisor contributed to my success.	66%	-	-

~p < 0.10; *p < 0.05; **p < 0.01.

^a In the California and North Carolina surveys, respondents were asked, "Have you had a formal on-the-job mentor or coach (other than the mentor or coach in your leadership preparation program) [in the past 2 years]?" and were given the option to respond with yes or no. In the national survey, respondents were asked to indicate if they had an on-the-job mentor, a principal supervisor, or neither. As such, statistical significance between the national, California, and North Carolina results was not tested because of the differences in survey response options.

^b Principals could select "not at all," "a little," "some," or "a lot" for this survey item. Numbers indicate the percentage of principals who responded with "some" or "a lot."

Sources: NASSP/NAESP Principal Surveys (2019); California Principal Survey (2017); North Carolina Principal Survey (2018).

In comparing differences in access to high-quality professional development topics, learning strategies, and mentorship, we did not find large or consistent differences among principals who serve higher and lower populations of students of color.

Variation in principals' professional development across states

While we do not have data for all states, it is clear when comparing results of the California and North Carolina surveys that there are major differences in access to significant coverage of important professional development content in these two states. When asked about content covered to a "moderate" or "great" extent, in all categories but one, California principals reported experiencing deeper opportunities to learn, often by large margins, especially in the categories of instructional leadership, building a positive school environment (which is part of California's

school accountability system), and meeting the needs of diverse learners. (See Figure 3.) Whereas more than two thirds of California principals had professional learning opportunities for meeting the needs of English learners and for equitably serving all children (67% and 68%, respectively), only 26% of North Carolina principals had opportunities to learn about serving English learners to a moderate or great extent, and only 45% had opportunities to learn about equitably serving all children. Similar disparities were seen with respect to serving children with disabilities (56% in California vs. 39% in North Carolina). Some of these differences may be because California allocated significant funding for professional development while implementing new state standards over several years between 2014 and 2020. At the same time, North Carolina was cutting professional development funding fairly sharply as part of a broader set of budget cuts and policy shifts in the state (WestEd et al., 2019).

In the category of developing people, North Carolina principals reported having slightly more opportunities to learn about recruiting and retaining staff and helping teachers improve through observation and feedback, likely because the state instituted a statewide evaluation system, which did not occur in California. In both states, however, the percentage of principals receiving support for learning about teacher recruitment and retention is quite low (only 38% in North Carolina and 30% in California), a trend also reflected in the national data.

Principals' reports of professional development needs

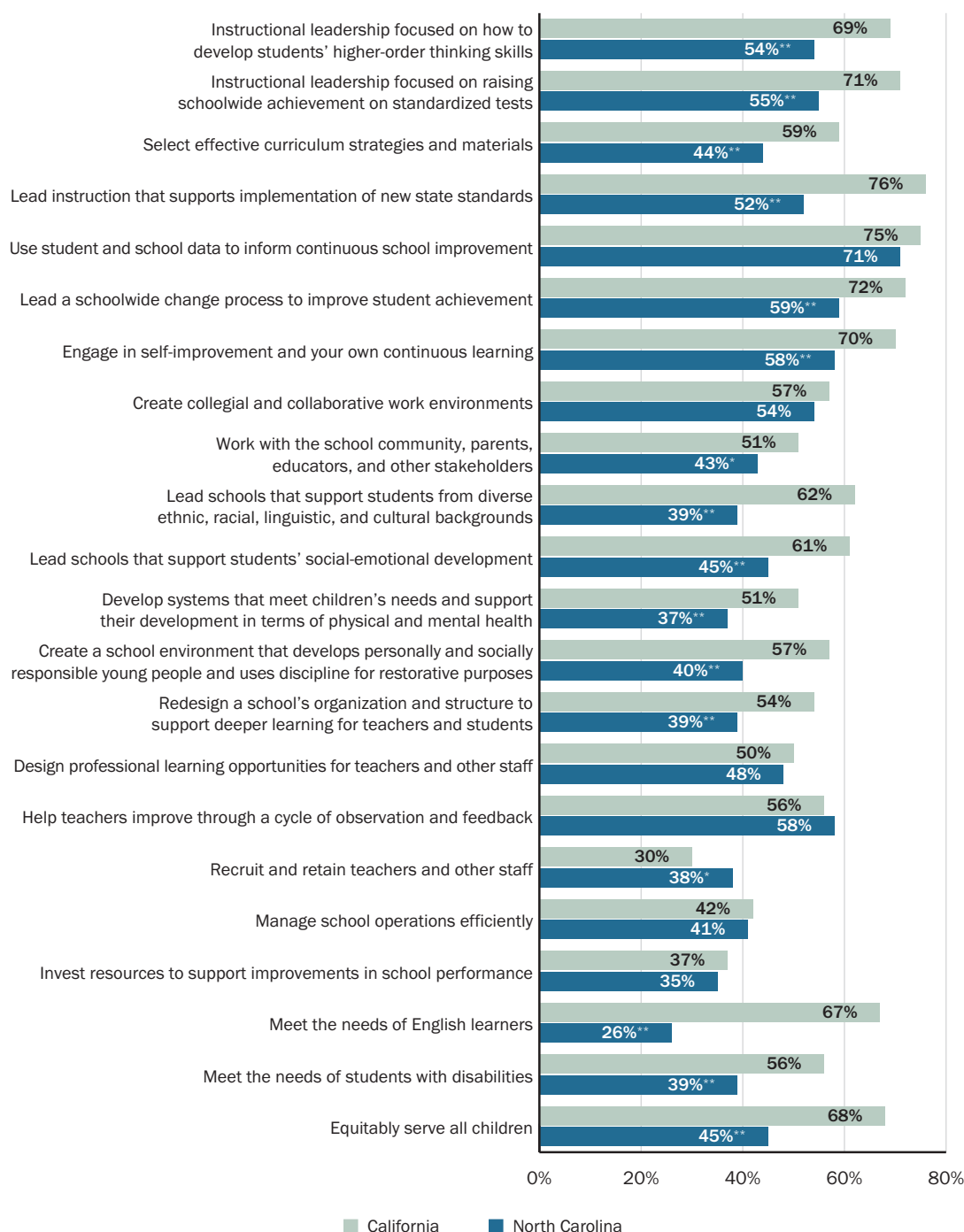
Most principals wanted more professional development in all of the topics covered in our survey. As shown in Figure 4, the topics in highest demand were related to social and emotional learning and whole child education, including supporting students' social-emotional development (84%) and their physical and mental health (81%), promoting deeper learning (77%), and developing students to become responsible people (77%). More than three quarters of principals were also interested in pursuing professional development to improve student achievement (78%) and using data for continuous school improvement (77%).

Most principals wanted more professional development in all of the topics covered in our survey. The topics in highest demand were related to social and emotional learning and whole child education.

Additionally, compared to the national average, California principals wanted more of virtually all professional development topics; over 80% of principals in California wanted more training on each topic. In contrast, less than half of North Carolina principals wanted further training in many of the topics covered in our survey. This could be due to their perceptions of the quality of professional development in the state. A recent study of professional learning opportunities in North Carolina surfaced extensive complaints about the low quality of current approaches, often negatively compared by respondents to the much more robust strategies that were widespread before the budget cuts of recent years (Berry et al., 2019).

Figure 3 Principals' Reports of Professional Development Topics That Were Covered to a Moderate or Great Extent

California Survey (n=461), North Carolina Survey (n=847)

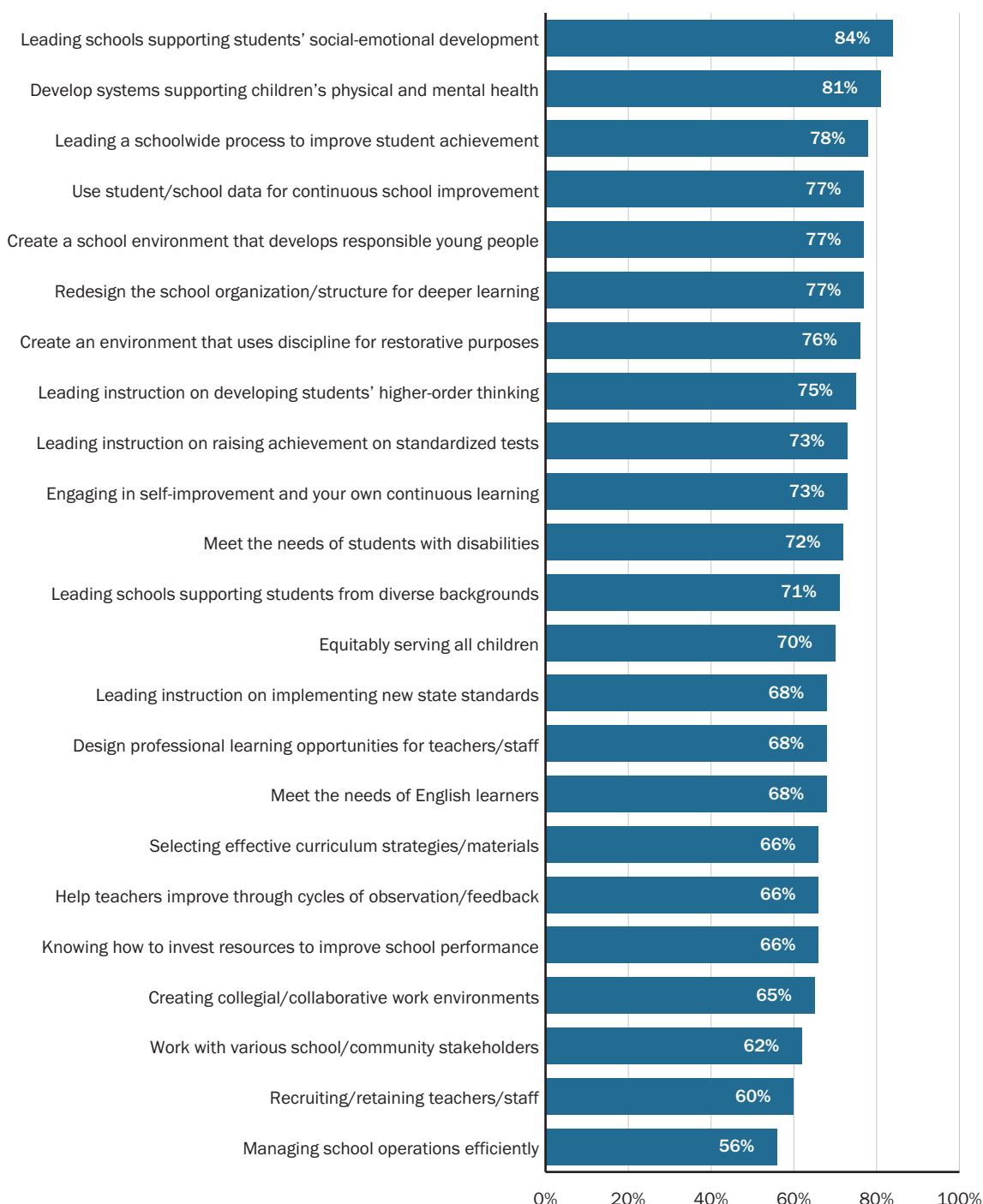


~p < 0.10; *p < 0.05; **p < 0.01.

Note: Principals were asked, "To what extent have the following topics been covered in the professional development related to [topic area] that you have participated in?" Topic areas included instructional leadership, leading and managing school improvement, shaping teaching and learning conditions, developing people, and meeting the needs of all learners. They were given the options "not at all," "to a minimal extent," "somewhat," "to a moderate extent," and "to a great extent." Percentages indicate the proportion of principals who selected "to a moderate extent" or "to a great extent."

Sources: California Principal Survey (2017); North Carolina Principal Survey (2018).

Figure 4
Professional Development Topics Principals Want More Of
National Survey (n=836)



Note: Principals were asked, "Would you like additional professional development in this area?" Percentages indicate the proportion of principals who responded with yes.

Sources: NASSP/NAESP Principal Surveys (2019).

In comparing principals from schools with different student compositions, we also found that principals of schools with high proportions of students of color were more likely to want professional development in almost all of the topics covered in our survey (Figure 5). The topics in highest demand are related to instructional leadership, which includes raising students' achievement on standardized tests (88%), implementing new state standards (88%), and developing students' higher-order thinking skills (87%). Principals of schools with high percentages of students of color are also much more likely than principals of schools with low percentages of students of color to want professional development on equitably serving all children (82% vs. 57%), meeting the needs of English learners (80% vs. 48%), and supporting students from diverse backgrounds (79% vs. 56%).

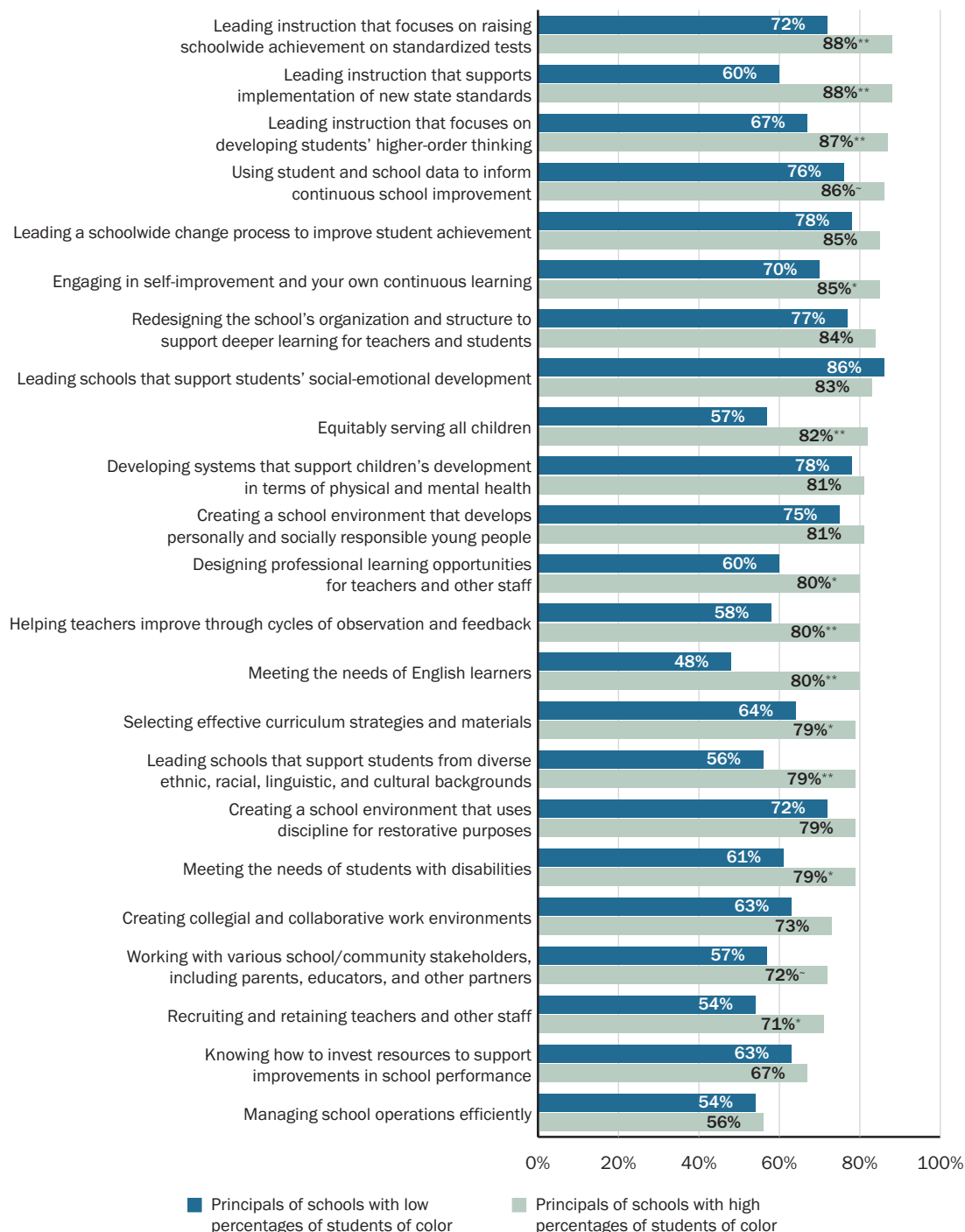
Despite a high demand from principals for more learning opportunities to build their leadership capacities, 85% of principals reported facing one or more obstacles to pursuing professional development. Nationally, the most common obstacle was a lack of time (66%), followed by a lack of money (45%) and insufficient coverage when they want to leave for professional learning (36%).

Despite a high demand from principals for more learning opportunities to build their leadership capacities, 85% of principals reported facing one or more obstacles to pursuing professional development.

The national survey also revealed variation across the nation. For example, when comparing regions, we found that principals in the South were most likely to report not having any obstacles (20%), while principals in the West were the least likely to do so (8%). As shown in Table 8, we also found that principals of schools with high percentages of students of color were more likely to lack money for professional development (49% vs. 36% in schools with low percentages of students of color) and knowledge of professional development opportunities (17% vs. 6%), while principals of schools with low percentages of students of color were more likely to not have enough time (67% vs. 58%) or coverage to leave for professional learning (43% vs. 25%).

Figure 5 Professional Development That Principals Want More Of, by School Composition, National Sample

National Survey – Principals in schools with low percentages of students of color (n=294) and principals in schools with high percentages of students of color (n=104)



~p < 0.10; * p < 0.05; **p < 0.01.

Note: Schools with low and high enrollment of students of color are schools in the bottom and top quartiles, respectively, of the national school population in terms of the proportion of non-white students. Principals were asked, "Would you like additional professional development in this area?" Percentages indicate the proportion of principals who responded with yes.

Sources: NASSP/NAESP Principal Surveys (2019); National Center of Education Statistics Common Core of Data (2017–18).

Table 8
Obstacles Principals Experienced in Pursuing More Professional Development, by Schools With High and Low Percentages of Students of Color, National Sample

	National	Schools With High Percentages of Students of Color	Schools With Low Percentages of Students of Color
Sample Size	836	104	294
In the school district in which you served during the 2018–19 school year, which (if any) of the following obstacles did you experience in pursuing more professional development for yourself as a school leader?			
I lacked enough time.	66%	58%	67%
I lacked enough money to cover the expense of professional development.	45%	49%	36%
The topics of the current professional development programs were not relevant to my work.	12%	9%	12%
I did not know where to find information about current professional development opportunities.	9%	17%	6%
I did not have sufficient coverage for when I left the building for professional learning.	36%	25%*	43%
I cannot travel outside of the district for professional learning.	7%	4%	8%
I did not experience any obstacles in pursuing professional development.	15%	17%	14%

~p < 0.10; *p < 0.05; **p < 0.01.

Note: Schools with low and high percentages of student of color are schools in the bottom and top quartiles, respectively, of the national school population in terms of the proportion of non-white students.

Sources: NASSP/NAESP Principal Surveys (2019); National Center of Education Statistics Common Core of Data (2017–18).

Conclusion

Responses from both national and state surveys show that principals have at least minimal access to professional learning opportunities addressing topics that research has found to be important to building leadership capacity. However, access to effective modes of professional learning, such as authentic, job-based learning opportunities and mentorship, is relatively low. We also found that inequities continue to exist: Principals serving high-poverty schools have less access to some important preparation topics as well as to key supports, such as mentors.

The survey results also suggest that principals' professional learning experiences vary by state. For example, principals in California have stronger preparation and professional development experiences compared with the national average, and those in North Carolina have much weaker professional development opportunities than California or the national average. These findings suggest that policies matter in determining the quality of principals' learning opportunities. We turn to the policy environment for principal learning in the next section.

Principal Development Policy

We know a great deal about the features of principals' learning opportunities that can make a difference in their effectiveness on the job. Survey data show, however, that there is wide variation in the extent to which principals have access to key content on how they can support student and staff learning, as well as the extent to which they experience applied learning with coaching and mentoring that can help them become more skilled. The differences among states and districts in principals' access to key features of preparation and professional development suggest that policy likely plays a role.

In this section, we review evidence about policy changes over time and the influence of policy on the learning opportunities principals experience. We sought to answer the following questions:

- How and to what extent has principal preparation and professional development policy changed over the past several decades?
- What are current policy trends, and how do these relate to the features of professional preparation and development that appear to be important for principal effectiveness?
- Can policy influence principal development practices and outcomes? If so, how?

To answer these questions, we reviewed over 170 documents: government documents, reports by professional associations and think tanks, monographs and books on leadership development and policy, and traditional journals. We focused on literature since 2000 and did not use formal exclusion criteria beyond the credibility of the source and its usefulness for answering these questions. For studies of policy or program effects, we relied on peer-reviewed sources.

Changes in Principal Development Policy Over Time

Since 2000, a number of studies have identified aggregate trends among state policies that support principal preparation and development. These studies suggest that while noticeable changes have occurred that align state policies with research on principal development, there is still considerable variability in what principals are expected to learn, what they have the opportunity to learn, and what supports are provided for their learning and practice.

State licensing and program approval standards

Among the key policy levers controlled by state agencies are the standards used to guide principal licensing and program approval or accreditation of the principal preparation programs. During the 1990s, new standards for student learning created by subject matter associations were accompanied by aligned standards for teachers and then leaders. Over the past 2 decades, standards for school principals have become increasingly research-based, have evolved in their content, and have been taken up as tools for leveraging systems of preparation and evaluation (see "Leadership and Leadership Preparation Standards Over Time," below).

Leadership and Leadership Preparation Standards Over Time

The first set of leadership standards—the Interstate School Leaders Licensure Consortium (ISLLC) standards—were published in 1996 by the Council for Chief State School Officers (CCSSO). Over the years, these standards have been revised and renamed. In 2008, the National Policy Board for Educational Administration (NPBEA) steering committee revised the standards to create the [Educational Leadership Policy Standards: ISLLC 2008](#). The changes were minimal, primarily making the language more inclusive. In 2015, as technologies, community demographics, and politics changed, the NPBEA assumed leadership over the next iteration of standards, which were renamed the [Professional Standards for Educational Leaders \(PSEL\)](#). The National Association of Elementary School Principals, National Association of Secondary School Principals, and American Association of School Administrators collaborated on the update, which further strengthened the focus on equity.

In 2011, the NPBEA created the [Educational Leadership Constituent Council \(ELCC\)](#) to guide preparation program design, accreditation, and state approval. These standards included a focus on equity and clinical experience. In 2018, the CCSSO, the University Council for Educational Administration (UCEA), and the NPBEA developed the most recent leadership program standards, the [National Educational Leadership Preparation \(NELP\) Program Recognition Standards](#), which reinforced a focus on equity and added a major emphasis on clinical practice. Table 9 provides an overview of the areas treated by the standards.

Table 9
Overview of Leadership and Preparation Standards

Standard Topic	Leadership Standards			Preparation Program Standards	
	ISLLC (1996)	ISLLC (2008)	PSEL (2015)	ELCC (2011)	NELP (2018)
Mission, vision, and improvement	✓	✓	✓	✓	✓
Ethics and professional norms	✓	✓	✓	✓	✓
Operations and management	✓	✓	✓	✓	✓
Meaningful engagement of families and community	✓	✓	✓	✓	✓
Learning and instruction	✓	✓	✓	✓	✓
Agent of advocacy	✓	✓	✓	✓	✓
Professional capacity for school personnel	✓	✓	✓	✓	✓
Equity, inclusiveness, and cultural responsiveness			✓	✓	✓
Field and clinical internship				✓	✓

Sources: Council of Chief State School Officers. (2008). [Educational Leadership Policy Standards: 2008](#); National Policy Board for Educational Administration (NPBEA). (2011). [Educational Leadership Program Recognition Standards: 2011 ELCC Building Level](#); National Policy Board for Educational Administration. (2015). [Professional Standards for Educational Leaders 2015](#); National Policy Board for Educational Administration. (2018). [National Educational Leadership Preparation \(NELP\) Program Recognition Standards: Building Level](#).

Trends over time

State principal licensure rules have evolved considerably over time. An analysis between 2002 and 2004 (Adams & Copland, 2005) found that state requirements did not reflect a significant focus on student learning and were “unbalanced across states and misaligned with today’s ambitions for school leaders” (p. 2). At that time, only six states emphasized knowledge and skills focused on student learning. While 28 more states included some mention of student learning, half of the states did not specify the intended knowledge or skills, and “totally missing” from requirements were such elements as “use of learning assessments, indicators and feedback mechanisms that indicated progress toward goals, promoting peer evaluation of teaching, or fostering knowledge of learning goals among teachers” (p. 29).

By 2014, 35 states had revised their licensure standards, and all 50 states plus Washington, DC, had adopted or adapted the ISLLC standards, focusing more clearly on supports for student learning (Vogel & Weiler, 2014). In addition to adoption of the standards, most states required:

- a valid educator license (40 states);
- experience in an educational setting (32 states, but only 8 required a teaching license);
- completion of a preparation program (50 states, with 34 states requiring a master’s degree); and
- passage of an assessment (30 states, with 19 states following an initial license exam with an advanced exam).

As state licensure requirements evolved, the rates at which principals completed preservice preparation programs increased. Between 1990 and 2000, there was a sharp increase in the proportion of principals reporting they had participated in a preparation program before becoming a principal, with a slower increase between 2000 and 2012 (after a brief dip near the beginning of the decade). By 2012, between 50% and 60% of urban, suburban, and rural principals had experienced preparation before becoming a principal (Manna, 2015). Updated data from the National Teacher and Principal Surveys show that by 2015–16, 64% of urban principals and 60% of suburban principals experienced preparation before entering the principalship, compared to only 52% of rural principals. While these data suggest progress, they also indicate there is a long way to go before the United States has a fully prepared principal force.

High-leverage policies

In 2015, the University Council for Education Administration (UCEA) developed criteria for examining state licensing and program approval policies from the research on strong principal preparation and development (Anderson & Reynolds, 2015). The researchers distinguished between high-leverage policies (those strongly grounded in the research) and regulatory policies (those that are necessary but less influential for supporting strong principal performance). (See Table 10.) High-leverage program approval policy criteria include proactive candidate recruitment and selection, clinically rich internships, strong partnerships between institutions of higher education and districts, and regular state oversight with feedback. In drawing on the research to define these criteria, they noted, for example, that effective clinical experiences are deliberately structured, are tightly integrated with curriculum, are supervised by an expert veteran, and offer engagement in core leadership responsibilities over at least 300 hours of clinical work. High-leverage candidate licensure policy criteria include experience and education requirements.

Table 10
UCEA Criteria for Evaluating State Principal Preparation Policies

Program Approval Criteria	No. of States (Including DC)
1. Has an Explicit Selection Process: High Leverage	6
1.1. Includes a plan for targeted recruitment into program	1
1.2. Utilizes performance-based assessments for principal candidates	6
2. Program Standards: Regulatory	51
2.1. Has adopted or adapted school leadership standards from a nationally recognized organization	51
3. Clinically Rich Internship: High Leverage	20
3.1. Is deliberately structured	21
3.2. Tightly integrates fieldwork with curriculum	16
3.3. Engages candidates in core leadership responsibilities	18
3.4. Provides supervision by an expert mentor	25
3.5. Enables exposure to multiple sites and/or diverse populations	18
3.6. Requires 300+ hours of field-based experience	14
4. University–District Partnerships: High Leverage	16
4.1. Provides a clinically rich internship experience	13
4.2. Enables district–provider collaboration on selection	10
4.3. Aligns district needs and program design	16
5. Program Oversight: High Leverage	38
5.1. Requires state review at specified intervals	26
5.2. Includes documentation and/or site visit in plan for initial program oversight	32
5.3. Requires oversight team to have relevant experience and training	30
5.4. Includes feedback mechanism to improve practice	30
Candidate Licensure Criteria	
1. Experience Requirements: High Leverage	50
1.1. Requires 3+ years of teaching experience	39
1.2. Requires a master's degree in educational leadership or a related field	20
1.3. Requires completion of an accredited and/or approved preparation program	43
2. Assessment Requirements: Regulatory	36
2.1. Requires completion of assessments based on national or state standards	34
2.2. Includes a portfolio review of practice in assessment	6
3. Licensure Renewal: Regulatory	47
3.1. Requires renewal with a distinction between license types	34
3.2. Requires continuing education activities	45

Source: Anderson & Reynolds (2015).

Applying these criteria to the 50 states, the study came to sobering conclusions: While all states had adopted nationally recommended program standards and nearly all required some experience and training to become a principal, as of 2015 less than half of the states required a rigorous selection process, a clinically rich internship, district–university partnerships, an advanced degree in educational leadership, or a performance-based assessment for licensure. Only 2 states—Illinois and Tennessee—met all five of the high-leverage criteria, while 11 states met none of the high-leverage criteria.

As of 2015 less than half of the states required a rigorous selection process, a clinically rich internship, district–university partnerships, an advanced degree in educational leadership, or a performance-based assessment for licensure.

The authors noted that states are more likely to legislate the requirements for principal licensure than for principal preparation program approval, despite the fact that more of the features required for approval of principal preparation programs have strong support in the research base. Similarly, regulatory policies are more likely to be legislated than high-leverage policies.

North Carolina's Principal Fellows Program

In 1993, North Carolina launched one of the nation's most ambitious programs to improve school leadership training: the state's Principal Fellows Program. The program provides competitive, merit-based scholarship loans to individuals seeking a master's degree in School Administration and a principal position in North Carolina public schools. In their first year, fellows receive \$30,000 to assist them with tuition, books, and living expenses while they study full time. In their second year, fellows receive an amount equal to the salary of a first-year assistant principal, as well as an educational stipend, and undertake a full-time school-based internship during which they work under the supervision and mentorship of a veteran principal. Fellows' yearlong internships can provide meaningful and authentic learning opportunities that research indicates are critical in principal development (Sutcher et al., 2017). Fellows are required to maintain employment as a principal or assistant principal in North Carolina for 4 years to repay their scholarship loans.

While the North Carolina survey we described in the section "Access to High-Quality Learning Opportunities" did not include questions about preservice training comparable to those asked in California, other outcome data suggest positive effects of the program. As of 2015, 1,300 principal fellows had completed the program; nearly 90% of fellows graduated and completed their 4-year service commitments (Bastian & Fuller, 2016). Research on the effectiveness of graduates who go on to serve in schools found that fellows have more positive impacts on student absences, teacher retention, and school working conditions than other North Carolina principals (Bastian & Fuller, 2016; University of North Carolina Academic and University Programs Division, 2015). Furthermore, more than two thirds of principal fellows assume administrative positions immediately after their training, about twice as many as graduates from other programs, and by 3 years after their training, nearly 80% have become administrators, about twice as many as in other pathways. By 3 years after graduation, only 14% of principal fellows have left teaching or administration in the state, about half the rate of graduates of other programs (Darling-Hammond et al., 2019).

In June 2020, the Principal Fellows Program, which funds principals directly, was merged with the Transforming Principal Preparation Program (TP3), a competitive annual state grant valued at about \$4 million that supported six North Carolina institutions of higher education. Programs applying for a TP3 grant must demonstrate how the program implements research-based practices to support effective preparation of principals for high-need schools. In practice, principal preparation programs selected for the now 6-year Principal Fellows Program grant include the following 10 features: (1) targeted efforts to recruit participants; (2) rigorous selection of participants; (3) implementation of a cohort model; (4) incorporation of professional leadership standards woven through all aspects of the program; (5) varied and frequent feedback from colleagues, faculty, mentors, and coaches; (6) an emphasis on inquiry-based, hands-on, and authentic learning experiences; (7) project-based learning methods and fieldwork to prepare participants to work in high-need communities and schools; (8) a full-time internship that allows participants to experience administrative responsibilities under the supervision of a mentor principal; (9) collaborative partnerships with districts; and (10) continuous review and program improvement activities. Aspiring principals who are accepted into the program receive a forgivable loan, a 10-month paid internship, and assistance for books (Gates et al., 2020).

Manna (2015) examined policies leveraging stronger quality and noted progress in several policy areas, including the following:

- Using **standards**, such as those developed by the ISLLC, **to create greater coherence** among the many policies and initiatives that influence preparation and practice. For example, Delaware used the ISLLC standards to guide policy and principal experiences “from pre-service to induction to career” (Augustine et al., 2009, p. 76), including professional development and principal evaluation. Iowa used the standards as the foundation for principal licensing, evaluation, mentoring, and other training. Kentucky used the standards as “the guiding doctrine” for preparing new principals, inducting them into their schools and evaluating their work.
- Encouraging **proactive recruitment** of potential principals rather than just selecting from among those who have entered credentialing programs. In Florida, for example, whereas anyone can apply to enter a university program to acquire an assistant principal credential (Level 1 certification), the state has made school districts responsible for identifying and developing candidates for the principal role (Level 2 certification). North Carolina’s Principal Fellows Program supports internships for prospective principals who are proactively selected by districts that partner with university-based master’s programs to provide placements with mentoring integrated into the coursework.
- Engaging in **more assertive program approval** of principal preparation programs to leverage improvement, including designing a serious process of program approval and sunseting old programs when new, higher standards are introduced, allowing only those that meet the standards to admit students. For example, Illinois and Kentucky sunsetted their preparation programs and required them to adopt new standards, research-based content, and well-designed internships to continue operations.

- Making **licensure more performance based**. Principal performance assessments, first launched in Connecticut in the 1990s, represent a powerful new trend in state licensure. Massachusetts became the second state to move beyond paper-and-pencil tests with its new Performance Assessment for Leaders (MA-PAL), which reflects the authentic work of school leaders, aligned with state indicators (see, for example, Orr & Hollingsworth, 2020). By 2015, California, Delaware, and Ohio required candidates for advanced licensure to assemble portfolios of artifacts based on their practice. Since then, California has launched a state-administered Administrator Performance Assessment for preservice principals (Reising et al., 2019). These assessments have triggered principal preparation programs to revamp their curricula and teaching methods to engage principals in research-based clinical learning about how to support teacher development and school improvement (Orr & Hollingsworth, 2018).
- Leveraging **more systemic professional development** to meet state and local policy and practice shifts, such as those associated with new student standards, as Kentucky did. States with leadership academies—such as Delaware, Kentucky, Massachusetts, Minnesota, New Mexico, and North Carolina—have a vehicle for such focused training around pressing needs. Six states developed systemic statewide initiatives with the National Institute for School Leadership (NISL), which offers a program based on the ISLLC standards and research on leadership across various fields. As we described in the section “Principal In-Service Professional Development,” for example, Pennsylvania partnered with NISL to develop a statewide program for novice principals and assistant principals that, since 2005, has helped improve the skills and effectiveness of hundreds of principals across the state.

Finally, as we discovered in our literature synthesis, mentoring and coaching are critical elements of effective professional development that have been increasing over time. Between 2000 and 2012, the proportion of principals reporting they received such supports increased from 50% to over 60% for urban principals, from 40% to just over 50% for suburban principals, and from about 35% to nearly 50% for rural or small-town principals (Manna, 2015). Updated data analyses we conducted show that these numbers remained stable in 2017–18. As with preservice preparation, this progress is noteworthy while suggesting there is still a long way to go to ensure such supports for all principals.

Pennsylvania’s Focused Approach to Induction Policy

A key area of state principal development policy is principal induction. As of 2016, 20 states had introduced principal induction requirements (Goldrick, 2016), generally mandating that new principals complete these requirements within 2 years of their initial employment. Seventeen states require mentoring for new principals, and 15 require coursework. Of these, three states—Hawaii, Pennsylvania, and South Carolina—require specific coursework.

All school principals are required to participate in the Pennsylvania Inspired Leadership (PIL) program within their first 5 years of employment. The program requires principals to take formal coursework tied to an action research project focused on the state’s leadership standards through the NISL. The coursework provides principals with training to examine school data to identify school, teacher, and individual student needs and with the strategic planning tools to implement a vision of high-quality teaching and learning (Steinberg & Yang, 2020).

A study of this program over an 8-year period from 2008–09 to 2015–16 found that principals' participation—especially during their first 2 years as a principal—was associated with improved student achievement and teacher effectiveness in mathematics, with the strongest relationships concentrated among the most economically and academically disadvantaged schools in Pennsylvania. In addition, teacher turnover declined by approximately 18% in the years following principals' participation in the program (Steinberg & Yang, 2020).

Trends reflected in state plans under the Every Student Succeeds Act

Another glimpse of trends can be seen in states' plans for leadership development in response to the federal Every Student Succeeds Act (ESSA), enacted in December 2015 and implemented in the following year. When ESSA was reauthorized in 2015, all states indicated that they would invest in school leadership under one or more provisions of the law. These provisions include Title I funding for high-poverty schools generally, as well as targeted funds for schools identified for intervention and improvement; Title II funding for professional development, offering states an optional 3% state set-aside for leadership development initiatives; and funding from other titles in the law for leadership development focused on particular kinds of programs.

All 50 states, plus Washington, DC, and Puerto Rico, planned to invest in leadership development, and more than 40 acknowledged the importance of leadership in their plans to improve struggling schools and create a pipeline of diverse principals and more equitable distributions of educators (New Leaders, 2018). (See Figure 6.) These equity-oriented plans are noteworthy because there has been little historic statewide focus on

All 50 states, plus Washington, DC, and Puerto Rico, planned to invest in leadership development, and more than 40 acknowledged the importance of leadership in their ESSA plans to improve struggling schools.

the need for leadership in schools serving the neediest students. More than 40 states proposed to invest in leadership for high-poverty schools, for those targeted for improvement under the law, and for those engaged in turnaround efforts. Some, like Vermont, planned to invest in training for principals to advance equitable access to great teachers. Many also focused on the diversity of the leadership workforce. For example, Montana planned to support Montana State University's Indian Leadership Education Development Project to recruit American Indian educators into leadership positions for schools serving large populations of Indigenous students.

About half of the states planned to use the Title II set-aside for school leadership; more than 20 planned to invest these funds in improved preservice preparation and/or in improved induction for new principals. Smaller numbers (fewer than 12) were planning to invest in principal pipelines by focusing on assistant principals, strengthening school leadership teams, or improving principal supervisor roles or management systems. In Texas, for example, districts can compete for additional Title I dollars to support their high-need schools, including by building the instructional leadership capacity of school leadership teams.

Figure 6
Analysis of Trends in State Policy Plans Under ESSA

1. Prioritizing Excellent Instructional Leadership
• 50 states, including Washington, DC, and Puerto Rico, intend to invest in leadership. • 24 states plan to use the Title II 3% set-aside for school leadership. • 46 states identify, require, or prioritize evidence-based strategies to support school leadership or school improvement.
2. Advancing Diverse, Equity-Focused Leadership
• 8 states plan to upgrade school leadership standards, including to align with or adapt the Professional Standards for Education Leaders. • 41 states acknowledge leadership in their plans to improve the lowest-performing schools; those with large, persistent achievement gaps; or other high-need schools. • 41 states address leadership in educator equity plans.
3. Distributing Leadership and Building a Leadership Pipeline
• 36 states are investing in teacher leadership. • 10 states are focused on strategically rethinking and investing in assistant principals. • 9 states are advancing shared leadership models by strengthening school leadership teams.
4. Strengthening and Innovating Preservice Principal Preparation
• 14 states are investing in promising new principal residencies and academies, including innovative models operated by the state, districts, or nonprofits. • 21 states are expanding high-quality existing preparation programs. • 13 states are upgrading principal certification or licensure.
5. Focusing on and Reimagining On-the-Job Principal Support
• 21 states are investing in induction support for new school leaders. • 16 states will strengthen performance management systems for principals, including by tying evaluation results to tailored, high-quality professional development and support. • 11 states are rethinking and investing in principal supervisor roles and management systems.

Source: New Leaders (2018).

Another analysis of ESSA plans (De Voto & Reedy, 2019) noted that some states proposed efforts to disseminate knowledge about equity-oriented leadership strategies among practitioners and preparation providers. For example, Nebraska has organized an Educational Leadership Learning Council to advance equity-focused conversations and activities across the state, identify levers associated with ensuring equitable opportunity and access, and support school leaders. New York’s plans focused on attracting more diverse, culturally competent, and highly effective leaders; providing opportunities for aspiring leaders to improve their practice over time; and creating communities of practice to share effective leadership skills among peers.

Can Policy Influence Practice?

While common directions can be seen in state leadership development policy, considerable variability still exists in what occurs across states.

Competing guidance and its influence on policy and perceived quality

Part of the reason for variability may be the differences in policy recommendations that have emanated from organizations with different perspectives. Recommendations from researchers and professional organizations, such as UCEA (2015), have emphasized the use of standards, the development of principal pipelines, and the creation of policies to leverage stronger preparation. Meanwhile, recommendations from some think tanks have emphasized market-based perspectives focused on selecting individuals without prior education experience, bypassing or reducing certification requirements, and focusing instead on evaluations that would dismiss those who fail to produce results (e.g., Finn et al., 2003; Fordham Foundation, 2016; Levine, 2005; for responses, see Young et al., 2005).

These differences in perspective show up in state policies: All 50 states are engaged in policymaking to improve principal quality, while most are pursuing *both* stronger requirements for programs and licensing based on new standards *and* alternative pathways that admit individuals who do not encounter these programs or standards on their entry into the profession. Even as a growing number of states are pursuing new leadership standards, licensure requirements, clinical approaches, coaching and mentoring, team training, and academies, the fastest-growing sector is online, often for-profit, training of much lower quality.

On the question of whether these differences matter, evidence suggests that policies may lead to noticeably different principal learning conditions across states, and distinctive state policies produce different perceptions of training quality. For example, as Colorado policies have allowed growing flexibility in whether and how principals are trained prior to entry, a recent survey of school superintendents

about principal training models found that “over half (51%) of Colorado superintendents selected individual enrollment in an exclusively online program as the least effective delivery model,” followed by state-approved alternative certification programs. When asked about the ideal model, 39% of Colorado superintendents selected university-operated cohort-based programs offered in their districts, followed by university–district partnership cohort courses leading to a credential (22%) (Weiler & Cray, 2012, p. 69). In contrast to the wide variability and dissatisfaction in Colorado, an implementation study of the new, more rigorous, and uniform state principal preparation endorsement law in Illinois reported high marks from superintendents about the quality of principal preparation (White et al., 2016).

Evidence suggests that policies may lead to noticeably different principal learning conditions across states, and distinctive state policies produce different perceptions of training quality.

Illinois' Comprehensive Approach to Transforming Preparation

Comprehensive changes in Illinois produced substantial changes in principal preparation program designs, curriculum, and clinical experiences (Hunt et al., 2019; White et al., 2016; Young & Reedy, 2019). Between 2000 and 2015, the state terminated programs leading to a General Administrative Certificate and established a targeted pre-k–12 principal endorsement designed specifically to prepare principals to address the leadership challenges of today's schools. It also requires:

- formal partnerships between principal preparation programs and districts, with both engaging in program design, delivery, and continuous improvement;
- rigorous selection processes that include interviews and portfolios showing previous leadership experiences, interpersonal skills, and impact on student growth;
- alignment with local and national standards for leading pre-k–12, including student subgroups (special education, English learners, gifted, and early childhood);
- a yearlong, performance-based internship designed to provide candidates with authentic leadership experiences in areas shown to improve student learning;
- competency-based assessments of candidate performance aligned with ISLLC standards and Southern Regional Education Board critical success factors;
- collaborative supervision, support, and assessment of candidates by trained and qualified faculty supervisors and mentor principals and established minimum qualifications and training requirements for mentor principals and faculty supervisors; and
- an exam administered to all candidates by the state prior to being awarded the pre-k–12 principal endorsement.

The results of these changes for program designs were substantial. Just a year after the final sunseting of all existing principal preparation programs in Illinois, the Consortium for Chicago School Research and the Illinois Education Research Council conducted an implementation study of the state's new principal preparation law, which documented changes in many areas:

- **Recruitment and enrollment:** Enrollments in preparation programs dropped as programs moved from general administrative training to a principal-specific focus. Many fully online programs chose to discontinue. Stakeholders generally viewed this as a shift from quantity to quality that benefited principal preparation.
- **Partnerships:** The redesign strengthened partnerships between programs and districts.
- **Curriculum:** Programs revamped curricula and internships toward greater instructional leadership, while strong attention to organizational management continued.
- **Attention to diversity:** Special education, early childhood, and English learner student populations received increased coverage in both coursework and internships.
- **Mentoring and internships:** The new internship requirements—including instructional leadership opportunities, more direct leadership, and experiences working with many types of students—were generally viewed as deeper, clearer, and more authentic.

- **Continuous improvement:** An increased focus on continuous improvement highlighted the importance of better data collection and analysis of candidate outcomes (White et al., 2016).

The Illinois story represents a sustained focus over 2 decades on principal preparation and development as a lever to improve student learning outcomes at scale statewide, and it provides a number of implementation lessons (Young & Reedy, 2019).

Stakeholder involvement in the legislative process. By passing an initial joint resolution in the state legislature, principal preparation advocates established the authority, in a state legislative task force, to make recommendations to the legislature. The joint resolution included as members of the task force the State Board of Education and the Board of Higher Education; school principals; education leadership faculty; private and public college and university education deans; teachers; superintendents; school board members; professional teacher and principal organizations; and representatives of student populations, such as special education and preschool from across the state.

Time and process for genuine collaboration. Although the task force finished its recommendations to the state legislature in under a year, it spent an additional year in design teams and public hearings to work out the recommendations in detail.

Evidence base. The task force reviewed a wealth of available research and data on principal preparation programs and generated new data through surveys and other research as needed, which helped with the program redesign policy efforts and to communicate with external audiences.

Resources. As the task force's work progressed and became visible, it was able to attract funding from the state and philanthropic organizations to support innovation and dissemination.

Implementation affects outcomes

Studies have begun to note the ways in which state design and implementation of policies matter. In 2013, the *Journal of Research in Leadership Education* published a special issue focused on university programs' responses to state policy mandates in Alabama, Florida, Georgia, New Jersey, and North Carolina. Each of the states required all university preparation programs to review and redesign their programs. All of the processes emphasized developing university–district partnerships and increasing the amount and intensity of field experiences, and all but Florida's were cooperatively launched. An analysis of the cases noted three factors that were linked to the quality of implementation:

1. The degree of comprehensiveness: More comprehensive reforms that jointly and coherently influenced the many elements of program quality were more successful.
2. The degree of organization in the rollout process: When state agencies were better organized, implementation was stronger and the desired changes more readily achieved.
3. The nature of communication and collaboration: Collaborative approaches with regular, two-way communication between programs and state agencies were more effective (Phillips, 2013).

While the reforms had noticeable impact, Young (2013) voiced concern about state agencies as drivers of change, as state agency resources were sharply declining due to the Great Recession of 2008: “As state departments of education shrink and their levels of expertise are reduced, it is questionable whether they have the capacity to support, monitor, and evaluate meaningful and sustainable program change” (p. 252). However, state funding grew in the subsequent years of recovery, and evidence has grown about the possibilities for policy-induced improvements as states have increasingly infused research-based professional standards into their systems. Three years later, Young et al. (2016) described how states were using standards “to set expectations, guide improvements, and influence practice” (p. 38). The well-documented research base for what are now the National Educational Leadership Program (NELP) standards and the Professional Standards for Educational Leaders (PSEL) has been a means to infuse knowledge about effective practice into preparation.

While documenting how standards have affected training and practice, Young and colleagues also noted that there are ways that the use of standards could be improved:

From the perspective of program directors, state licensure and accreditation requirements are key levers for promoting program change, particularly in the areas of program mission, curriculum, and assessment. However, program directors did not agree that these sources of pressure were equally influential and beneficial. In fact, whereas accreditation review was identified by 78% of respondents as being influential, only 36% indicated that it was beneficial for promoting program quality. In contrast, 41% identified state licensure requirements as influencing program design, but 65% recognized it as a beneficial source of pressure. (Young et al., 2016, p. 37)

As we noted earlier, state policy has focused more on licensing requirements as drivers for change than on accreditation policy, and few states have yet to incorporate the program features most often identified by research as important, including strong clinical features, into their program approval standards and processes (Anderson & Reynolds, 2015). A more recent study of seven states (Gates et al., 2020) notes that when such infusion has occurred, including through the use of both performance assessments for licensure and induction supports as in California, substantial change can be stimulated.

California’s Overhaul of Principal Licensure

Licensure and accreditation changes in California that occurred between 2011 and 2017 integrated the new national standards and revised state standards into licensure in ways that emphasized educating diverse learners from a whole child perspective, integrating social and emotional learning and restorative practices, developing staff, using data, and involving stakeholders for school improvement. These administrator performance expectations were then translated into program approval standards and new expectations for both preservice training and induction; later, they were translated into an administrator performance assessment, which was piloted for the first time in 2018–19 (Reising et al., 2019).

These changes in expectations guiding program approval and induction were associated with changes in principals’ perceptions of their preparation (Sutcher et al., 2017). Data from a representative sample of more than 400 California principals show that more recently prepared principals felt significantly better prepared than veteran principals in virtually all the areas that were

integrated into the new standards, with very large changes in instructional leadership; the ability to lead school improvement, especially for whole child approaches like social and emotional learning and restorative practices; and the ability to meet the needs of diverse learners. (See Table 11.) Newly graduated principals were also more likely to have experienced problem-based learning approaches and field-based projects that were part of the new program expectations, suggesting that the reforms did indeed affect program designs. As we found in our separate study of California principals (Campoli & Darling-Hammond, 2022), the strength of preparation programs in these areas was, in turn, associated with principals' effectiveness.

The quality of internships in California also appears to be noticeably stronger than those in many other parts of the country (see national data in the section "Access to High-Quality Learning Opportunities"). Of the 68% of California principals who reported having had an internship, the majority had more opportunities to take on administrative responsibilities (74% vs. 52% nationally) and felt their internships adequately prepared them for their first year as a principal (74% vs. 46% nationally).

Table 11
California Principals' Reports of Preparation Experiences

Characteristics of Preparation	CA Veterans Completers (Before 2013)	CA Recent Completers (2013 or later)
Program Characteristics		
Problem-based learning approaches, such as action research or inquiry projects	69%~	78%
Field-based projects in which you applied ideas from your coursework to your experience in the field	76%*	85%
A student cohort—a defined group of individuals who began the program together and stayed together throughout their courses	73%	80%
Instructional Leadership		
Develop students' higher-order thinking skills	54%**	73%
Raise schoolwide achievement on standardized tests	56%**	74%
Select effective curriculum strategies and materials	49%	58%
Lead instruction that supports implementation of new state standards	47%**	64%
Leading and Managing School Improvement		
Use student and school data to inform continuous school improvement	64%**	80%
Lead a schoolwide change process to improve student achievement	69%**	85%
Engage in self-improvement and your own continuous learning	71%**	87%
Create collegial and collaborative work environments	71%*	83%
Work with the school community, parents, educators, and other stakeholders	73%*	86%
Redesign a school's organization and structure to support deeper learning for teachers and students	63%	72%

Characteristics of Preparation	CA Veterans Completers (Before 2013)	CA Recent Completers (2013 or later)
Creating a Positive School Climate		
Lead schools that support students from diverse ethnic, racial, linguistic, and cultural backgrounds	70%*	82%
Lead schools that support students' social-emotional development	53%**	69%
Develop systems that meet children's needs and support their development in terms of physical and mental health	47%*	61%
Create a school environment that develops personally and socially responsible young people and uses discipline for restorative purposes	48%**	70%
Developing People		
Design professional learning opportunities for teachers and other staff	57%	65%
Help teachers improve through a cycle of observation and feedback	64%**	78%
Recruit and retain teachers and other staff	38%	40%
Manage school operations efficiently	63%	60%
Invest resources to support improvements in school performance	51%	60%
Meeting the Needs of All Learners		
Meet the needs of English learners	54%*	68%
Meet the needs of students with disabilities	53%**	75%
Equitably serve all children	62%**	79%

~p < 0.10; *p < 0.05; **p < 0.01; ***p < 0.001.

Note: Comparisons are made between principals who reported completing their preparation between 2013 and 2017, when the survey was fielded, and principals who had completed their preparation before 2013. Principals were asked, "To what extent did your leadership preparation program emphasize [topic area]?" Principals could select "not at all," "to a minimal extent," "somewhat," "to a moderate extent," or "to a great extent." The table shows the percentage of principals who selected "to a moderate extent" or "to a great extent."

Source: California Principal Survey. (2017).

Promising examples of district policy influencing practice

Throughout this section we have highlighted evidence about principal development policies that have influenced practice and outcomes in California, Illinois, North Carolina, and Pennsylvania. Like state policies, local district policies can influence principal development program design and implementation, which can influence principals' practice and school-level outcomes. Below we further highlight local policies that have made a difference.

Chicago Public Schools' comprehensive reforms

Chicago Public Schools (CPS), the nation's third-largest school system, has made a 25-year investment in school principal improvement policy that includes requiring all principal candidates to pass a district principal eligibility assessment, an innovation that required state legislation in 1996. In addition, for almost 20 years, Chicago has partnered with select university programs, such

as those at the University of Illinois at Chicago (UIC) and Northeastern Illinois University, as well as with non-university-based programs, such as New Leaders, which provide intensive clinical training integrated into coursework focused on instructional leadership and school improvement.

During this time of intensive investment in principal preparation and development, CPS has steadily and dramatically improved its student performance measures, including its 3rd-grade reading scores and high-school graduation rates. From 2009 to 2014, CPS posted gains that translate to 6 years of academic growth in 5 years of elementary education. At the same time, the district narrowed and even reversed equity gaps with the rest of the state of Illinois (Reardon & Hinze-Pifer, 2017; Zavitkovsky & Tozer, 2017). Each of CPS's three largest enrollment groups—Latino/a, Black, and white—

outperformed its statewide counterpart both below and above the free or reduced-price lunch mark on state and national achievement measures by 2017. Latino/a students, the largest enrollment group in CPS, surpassed the statewide scores for non-CPS white students on state and national assessments (Zavitkovsky & Tozer, 2017).

During this time of intensive investment in principal preparation and development, Chicago Public Schools has steadily and dramatically improved its student performance measures, including 3rd-grade reading scores and high-school graduation rates.

Observers of CPS's sustained academic improvements assert that the district's investment in school leadership policy is a contributing cause and that CPS's successes were influential in shaping state policy to reflect research findings in strong principal preparation (Rutledge & Tozer, 2019). Over 400 residency-trained principals from redesigned state- and CPS-approved programs have taken positions in CPS, and a disproportionate number of them have attained the highest positions in CPS administration, including, by 2022, the chief executive officer, chief education officer, chief of teaching and learning, and chief of early childhood education. (See also the section "Principal Preparation", where we report evidence from individual schools and from districtwide analyses of the impact of principals from the UIC program and from New Leaders.)

The Principal Pipeline Project

More rigorous examination of the outcomes of a set of similar initiatives is available through two studies of the Principal Pipeline Initiative (PPI) funded by The Wallace Foundation. In 2011, six large urban school districts—Charlotte-Mecklenburg Schools, North Carolina; Denver Public Schools, Colorado; Gwinnett County Public Schools, Georgia; Hillsborough County Public Schools, Florida; New York City Department of Education, New York; and Prince George's County Public Schools, Maryland—set out to develop a principal pipeline strategy aimed at cultivating a steady supply of well-prepared and well-supported new principals. Though the program was implemented differently to fit local contexts, all districts shared the following common strategies:

- adopting standards of practice and performance that would guide principal preparation, hiring, evaluation, and support;
- delivering high-quality preservice preparation to high-potential candidates, typically through a combination of in-district programs and partnerships with university programs;

- using selective hiring and placement, informed by data on candidates' demonstrated skills, to match principal candidates to schools; and
- aligning on-the-job evaluation and support for novice principals with an enlarged role for principal supervisors in instructional leadership (Anderson & Turnbull, 2019).

The initiative is a useful example of what can be done at scale, as the districts are among the 50 largest school districts in the United States, each serving more than 80,000 students and operating more than 130 schools. The districts also serve students from low-income families and between 65% and 96% students of color.

All six cities saw students in schools led by new principals in the initiative outperform those in comparison schools (Gates et al., 2019). After 3 or more years, schools with newly placed principals in PPI districts outperformed comparison schools with newly placed principals by 6 percentage points in reading and 3 percentage points in math. Newly placed principals in PPI districts were 6 percentage points more likely to remain in their schools for at least 2 years and were 8 percentage points more likely to remain in their schools for at least 3 years than newly placed principals in comparison schools—an important contributor to achievement effects given principal turnover is generally accompanied by an increase in teacher attrition and a decline in overall school achievement (Levin & Bradley, 2019). Effects were largest in elementary and middle schools and in schools in the lowest quartile of the achievement distribution. Across PPI districts, novice principals' ratings of their hiring, evaluation, and support experiences also improved between 2013 and 2015.

The reforms appear to work as a package (no single element accounts for the effects) and are viewed by the participating districts as affordable, at a cost of about \$42 per pupil (about 0.5% of the districts' budgets) with strong returns on investment (Gates et al., 2019). Further, to date, the reforms appear sustainable. All six districts are maintaining principal pipelines, continuing to follow the vision of intentionally managing the career progressions of their aspiring principals and current principals. They continue to see principal standards as foundational in shaping the development and support of leaders through preparation programs, job descriptions, evaluation criteria, and coaching or mentoring. And as Anderson and Turnbull (2019) note, "District leaders made it clear that they see benefits from their principal pipelines, particularly in the strengths shown by recently appointed principals and in retention of these principals" (p. 6).

Summary of Principal Development Policy

Several recurring themes emerge from an examination of policy trends and from the limited set of studies that have examined policy outcomes.

First, standards for high-quality leadership practice have increasingly been integrated into local, state, and federal policies. A number of studies emphasized the power of standards to drive change when they are used coherently throughout the principal development system and are translated into tools such as performance assessments. Researchers of the PPI emphasized the relationship between state standards and local progress:

State leader standards can provide a useful starting point for district efforts to develop clear, actionable leader standards. Several of the PPI districts were able to leverage state leader standards in developing their own district standards and/or evaluation systems linked to those standards. (Gates et al., 2019, p. 73)

The same point was made in case studies of program reforms driven by state policies (Young et al., 2016) and in a more recent implementation study of university program redesign as part of the PPI, in which state standards have played a significant role in curriculum redesign (Wang et al., 2018).

Second, while most states have integrated new standards into licensing and into accreditation and program approval policies, fewer states have adopted the most high-leverage policies, like targeted recruitment of candidates, district participation in selection and program design, clinically rich internships that engage candidates in core leadership responsibilities with an expert mentor for an extended period of time, or performance-based assessments.

Third, a number of studies at both the state and local levels emphasize the importance of comprehensive, systemic change in which such high-leverage practices are adopted and linked to standards that influence recruitment, preparation, induction, and ongoing professional learning. Analysis of the PPI, for example, found that individual components of the districts' change agenda could not account for the gains in principal perceptions of their training and in student achievement:

Our analysis is consistent with the theory that comprehensive efforts to strategically implement pipeline activities across all components and align them with leader standards—which all districts did—are what matter. The component-by-component analysis found limited evidence that any one component or aspect of the pipeline efforts was associated with effects. (Gates et al., 2019, p. 70)

As Manna (2021) outlines, successful principal pipelines are a product of state and local collaboration that involves *standards* that inform licensing and program approval as well as recruitment, preparation, professional development, and evaluation; *high-quality preparation* in partnerships that link theory to practice with strong practical applications; *selective hiring and placement* that values evidence of effectiveness from performance assessments; *evaluation and support* featuring aligned evaluation systems, alongside high-quality professional development and coaching; *principal supervisors* with tools and training for formative and summative support and evaluation; *leader tracking systems* that identify and develop talent; and *system supports* that include funding, political support, and cross-district networks for shared learning.

States that have infused new principal preparation standards with strong field-based training and applied learning experiences (California, Illinois, and North Carolina) have shown increases in principals' perceptions of their preparedness and their likelihood of entering and staying in administrative jobs. Student learning gains and teacher effectiveness increases were associated with Pennsylvania's statewide induction program that combined mentoring with intensive professional development featuring a long-term project supporting instructional improvement.

Finally, while there has been some progress since 2000 in principals' access to important learning opportunities, there is still a long way to go. Less than 60% of principals nationally have reported that they received preservice preparation for their jobs, and just over 50% have said they received mentoring or coaching—one of the most important aspects of learning that improves principals' effectiveness.

Given the results of our literature review and policy scan, it is clear that there is more research needed on the outcomes of efforts in the small number of jurisdictions that have invested in high-leverage policies as well as research on the state policies associated with ongoing professional learning in key areas (e.g., instructional support, school climate construction, development of people, focus on equity, management of change) using productive learning strategies (e.g., extended applied learning opportunities, coaching and mentoring, networks).

Summary and Implications

Research is clear that strong school leadership is critical for shaping engaging learning environments, supporting high-quality teachers and teaching, and influencing student outcomes. There is a growing knowledge base about principal learning opportunities that foster positive educational opportunities. Since the 2007 publication of *Preparing Leaders for a Changing World*, there has been new research on effective principal learning programs, providing deeper insights about the features of high-quality programs.

Major changes in policies have also altered the principal learning landscape. This report combines current knowledge from the research literature and our own analyses to better understand the elements of high-quality programs that have been associated with positive principal, teacher, and student outcomes, ranging from principals' feelings of preparedness and their engagement in more effective practices to stronger teacher retention and improved student achievement. It also examines the extent to which principals have opportunities to participate in programs with those elements and the policies that drive both the development of high-quality programs and access to them. In this concluding section, we summarize key findings and discuss implications of this research for policymakers and researchers.

Summary

A growing body of literature indicates that high-quality principal preparation and professional development programs are associated with positive principal, teacher, and student outcomes.

Many programs have adopted the practices of exemplary leadership programs identified in *Preparing Leaders for a Changing World*, including proactive recruitment; meaningful and authentic learning opportunities that apply learning in practice; a focus on leading instruction, developing people, creating a collaborative learning organization, and managing change; mentoring or coaching, along with feedback and opportunities for reflection; and cohort or networking structures that create a professional learning community. Recent research bolsters earlier findings that principal learning programs that reflect these elements contribute to the development of principals' leadership knowledge and skills as well as to positive teacher outcomes and increased student achievement. The literature illustrates the importance of field-based internships, mentoring and coaching, and problem-based learning opportunities. Through these opportunities, principals can actualize the theories they learn in coursework and practice the many skills and tasks required of today's principals. The efficacy of these opportunities is enhanced when they include an experienced, expert mentor or coach who can provide support and guidance to novice or experienced principals.

Recent literature has also explored programs designed to help principals meet the needs of diverse learners. This topic is particularly salient given the increasingly diverse student population in the United States, the growing attention to equity concerns, and research showing the importance of culturally responsive practices and individualized supports. Recent studies suggest that, through applied learning opportunities (e.g., action research, field-based projects) and reflective projects (e.g., cultural autobiographies, cross-cultural interviews, and analytic journals), aspiring principals

can deepen their understanding of the ways in which biases associated with race, class, language, disability, and other factors manifest in society and schools and how educators can work toward more equitable opportunities and outcomes.

Access to important content in preservice preparation and professional development has been increasing for principals, but access to powerful learning strategies, such as applied learning, internships, and mentoring or coaching, is much lower.

Our analyses of principal surveys found that most principals reported having at least minimal access to important content related to leading instruction, managing change, developing people, shaping a positive school culture, and meeting the needs of diverse learners, and access to this content has increased over time. Principals who were certified in the past 10 years were more likely to report access to comprehensive preparation than earlier-certified principals. Even with these improvements, a minority of principals nationally reported having had access to the authentic, job-based learning opportunities that the research has identified as being important to their development. Only 46% of all principals reported having an internship that allowed them to take on real leadership responsibilities characteristic of a high-quality internship experience. And very few principals reported having access to coaching or mentoring, despite the research showing the strong importance of these types of supports.

Access to high-quality preparation and professional development differs across states and communities. Compared to principals nationally, a greater percentage of California principals reported that they had access to preparation and professional development in nearly every important content area, and a greater percentage reported that they had authentic, job-based learning opportunities in both pre- and in-service contexts. At the same time, North Carolina principals reported having far less access to nearly every kind of professional development, as budgets have been severely cut in that state.

Access to high-quality preparation also varies by school poverty level within states and nationally. Principals in low-poverty schools were much more likely than principals in high-poverty schools to report that they had learning opportunities in a number of important areas, and they were more likely to report that they experienced problem-based and cohort-based preparation. This disparity, however, did not appear among California principals—large majorities of principals in all kinds of schools had access to professional learning, suggesting that policy can influence the availability and distribution of these opportunities.

Access to high-quality preparation varies by school poverty level. Principals in low-poverty schools were much more likely than principals in high-poverty schools to report that they had learning opportunities in a number of important areas. This disparity, however, did not appear among California principals.

Across the country, most principals reported wanting more professional development in nearly all topics, but they also reported obstacles in pursuing learning opportunities, including a lack of time and insufficient money.

Policies that support high-quality principal learning programs can make a difference. In states and districts that have overhauled standards and have used them to inform preparation, clinically rich learning opportunities, and assessment, the evidence suggests that the quality of principal learning has improved.

More state and local policymakers have adopted standards for principal licensing and program accreditation. These are important levers for improvement if they are infused throughout the relevant learning, supervision, and assessment systems. However, few states adopted other high-leverage policies, such as requiring a rigorous selection process, a clinically rich internship, district–university partnerships, or a performance-based assessment for licensure.

All states planned to bolster their efforts to support leadership development through the Every Student Succeeds Act (ESSA), using aspects of the law to strengthen preparation, reimagine on-the-job support, advance equity-focused leadership, distribute leaders more equitably, and build leadership pipelines.

Evidence from several states and districts shows that where leadership policies and implementation are strong, access to high-quality principal learning opportunities increases. In some cases, well-implemented policies have translated into stronger student achievement, such as Chicago’s investments in new forms of initial preparation for principals, Pennsylvania’s induction program for new principals, and six districts’ engagements in a Principal Pipeline Initiative for career-long learning.

Research Implications

Our research syntheses in the sections “Principal Preparation” and “Principal In-Service Professional Development” describe the growing bodies of research that address questions about the features and outcomes of high-quality principal preparation and professional development. At the same time, the syntheses reveal gaps in the available research and methodological weaknesses. Our recommendations for future research include the following.

Broaden the scope of research to include stronger descriptions of program content as well as pedagogical approaches.

As a whole, the current research on principal learning opportunities focuses heavily on the structures for principal learning (for example, workshops, coaching, clinical experiences). This research has been instructive in suggesting the importance of providing aspiring principals with opportunities for quality internships under the tutelage of experienced mentors and providing current principals with coaching and mentoring. It has also shown how aspiring and current principals benefit from applied learning opportunities in which they engage in problem-based learning and field-based projects to apply their learning to authentic school-based situations.

Recent research, however, has focused less extensively on the content of principals’ learning. To what extent and in what ways are principals gaining the knowledge, skills, and dispositions they need to be successful? To what extent are they able to set a clear vision and direction, engage in instructionally focused interactions with teachers that attend to the needs of diverse learners, build a productive school climate, facilitate collaboration and professional learning communities, manage personnel and resources strategically, and manage change and school improvement (Grissom et al., 2021; Leithwood & Louis, 2012)?

Likewise, in what ways can principals learn to meet the needs of diverse learners? Systemic racial and economic inequities plague the education system and are deeply rooted in our history and policies (George & Darling-Hammond, 2019). Principals can counteract the harms of discrimination by creating learning environments that are equitable and racially just, that foster culturally responsive practices, and that recognize student diversity as an asset (Cosner et al., 2015; Darling-Hammond & Cook-Harvey, 2018). While there is emerging literature on preparing principals to serve diverse learners, there is only scant attention to this content in the literature on professional development.

To broaden the field's knowledge about high-quality principal preparation and professional development, future research can examine the content as well as the pedagogy in emerging programs and the extent to which these address the development of important leadership skills. It would be useful for major survey efforts such as the National Teacher and Principal Surveys (previously called the Schools and Staffing Surveys) to include a constant set of survey items on the content of preparation and professional development, much like those featured in our surveys, so that trends can be seen over time and across states and regions. Documenting outcomes associated with particular kinds of preparation and professional development efforts will also be important.

Account for principals' prior experiences, program recruitment and selection criteria, and district contexts.

The current research on principal preparation and professional development rarely takes into account the background or characteristics of program participants. However, research indicates that the backgrounds and experiences of principals, including their prior effectiveness as teachers, are related to their effectiveness as principals (see, for example, Goldhaber et al., 2019). Further, a program's candidate pool is directly related to its recruitment and selection criteria (Wechsler et al., forthcoming). As earlier research found, a common feature of exemplary professional development is vigorous, targeted recruitment and selection (Darling-Hammond et al., 2007). And the design and outcomes of professional learning experiences will be shaped by what candidates already know and believe when they enter. Yet few research studies attend to the characteristics and experiences of program participants or programs' method of selection.

What are the interactions between a professional learning strategy and the pathways to the role of the principalship and principals' prior knowledge and experiences? For example, one randomized controlled trial found that an effort to teach principals how to give teachers evaluative feedback was successful with experienced principals and those with stronger mentors but unsuccessful with most novice principals, who were rated more negatively over the course of the project. What kinds of knowledge and skills do principals need to become good instructional leaders? What is the content of the didactic learning and mentoring that may matter most? How might that interact with prior knowledge and experience? These are the kinds of questions researchers could plumb more deeply to support the design of successful programs.

The context, too, varies considerably across districts, not just in terms of resources and student demographics and achievement but also in important policies that affect what principals are able to do and how they can enact the new knowledge and skills they acquire in preparation and professional development (Wechsler et al., forthcoming). If principal mobility is high or if principals are required to enforce the use of less effective instructional strategies, the potential positive effects of a principal development program may not be realized.

Future research can explore the differences that aspiring and current principals bring to their preservice and in-service programs (e.g., years of successful experience in teaching, mentoring, or administrative roles; race and ethnicity and family experiences; bilingualism) and how their backgrounds affect their experiences with and the outcomes of preparation and professional development. It can also attend to how program elements, such as recruitment and selection processes, and district policies and practices impact who is participating in principal learning programs and how principals are able to enact their new knowledge and skills.

Better define outcome measures, and include a broader spectrum of outcomes.

As previously described, research has identified a range of skills principals need to effect positive outcomes in their schools. For example, effective principals engage in instructionally focused interactions with teachers through their feedback and coaching; support for professional development and professional learning communities; engagement in collaborative decision-making and planning time; teacher evaluations; and engagement in schoolwide planning and change. They manage personnel and resources strategically through hiring, staff assignments and placements, and attention to teacher retention (Grissom et al., 2021). Yet much of the current research on principal preparation and professional development tends to focus on broad, ill-defined measures, such as principals' "readiness to lead" or their "leadership abilities."

Future research can use more specific outcomes and measure them in multiple ways. For example, in addition to asking aspiring principals and current principals if they feel prepared or better equipped to lead in general, studies can focus more explicitly on principals' attainment of the important leadership skills. Researchers could ask, what kinds of feedback and support do principals give to teachers, and with what effects? What strategies do principals enact to retain teachers? Also, rather than merely asking principals in surveys or interviews what their perceptions are of their knowledge and skills, researchers can also examine actual practice through observations, document review, or other such means. Further, rather than relying only on principals' accounts of their knowledge and skills, researchers could ask similar questions of those who work directly with the principal, especially those who have observed principals before and after their participation in professional learning opportunities, including teachers; other school staff; students; district leadership; and coaches, mentors, and supervisors.

Relatedly, a new body of research shows that principals can impact student achievement, teacher retention, and other school outcomes, such as student attendance and exclusionary discipline (Grissom et al., 2021). The ways in which these outcomes are achieved deserves study, as do those related to teacher retention, instructional practices, and collaboration. Further, research can broaden measures related to students beyond achievement to include relationships between principal preparation and practices on graduation and attendance rates, students' sense of belonging, and students' social-emotional well-being.

A new body of research shows that principals can impact student achievement, teacher retention, and other school outcomes, such as student attendance and exclusionary discipline. The ways in which these outcomes are achieved deserves study.

Take a longitudinal view.

Many current studies look at outcomes only once, generally right after a specific class or program. However, we know from other research that it often takes about 3 years for a principal's effect to become measurable in terms of school-level changes (Pham et al., 2018). Future research should seek, whenever possible, to measure program outcomes over time. Doing so not only will allow potential effects to become visible but will also provide a better understanding of the mechanisms by which principals' knowledge and skills translate into behaviors and practices and then into influences on staff and students.

Pay attention to how programs are implemented.

Another important consideration in examining the features of high-quality principal learning opportunities and their outcomes is the extent to which the program was implemented as intended. Simply looking at outcomes may result in inaccurate interpretation of the findings. Although most studies of principal preparation and in-service professional development describe the program studied, including various program components and expectations for participants, fewer studies delve deeply into the integrity of the program's implementation. Program integrity relies on adherence to the program plan, including whether the dosage (i.e., the amount of time and treatment provided) matches the program design; the quality of program delivery; and engagement of participants (e.g., whether participants attend all sessions and complete assignments). Knowledge of the extent to which program implementation varies on any of these dimensions can inform our understanding of study findings and might also point to the feasibility of the program to be implemented as intended.

Use mixed methods skillfully to deepen the understanding of program processes and their effects, especially those that link program features to outcomes.

Finally, most of the current research uses descriptive methodologies and relies on surveys and interviews with participants or graduates of a single program. While some studies use comparison groups and correlational analyses, very few studies use randomized controlled trials, quasi-experimental designs, or other designs that use controls. And those that do often fail to fully describe the program under study, the nature of its implementation, or the nature of the comparison group, which means that findings can be misinterpreted or uninterpretable.

Future research can employ a wider range of methodologies and can employ chosen methodologies more carefully. For example, experimental or quasi-experimental designs, if properly designed and conducted with sufficient information about the program, its implementation, and the comparison group's experiences, could strengthen researchers' ability to make causal claims about preparation or in-service programs and to contribute useful information to program selection and development. In-depth case studies that extend over time and combine interviews, close observations of practices, and surveys of participants and staff with outcome data could provide the details about what programs offer and how they develop principals' knowledge and skills.

Policy Implications

Because of the importance of strong principals for student achievement and teaching quality and because state and local policies are important levers in improving the quality of principal learning, policymakers have good reason to invest in the preparation and ongoing professional development of principals. Our analyses of high-quality principal learning programs and the policies that foster such programs inform the following policy recommendations.

Develop and better use state licensing and program approval standards to support high-quality principal preparation and development.

Over the past 2 decades, many states have developed policies that align with the research on effective principal development. All states and Washington, DC, have adopted standards to guide principal licensure, and many have developed new requirements for principals, such as having a valid educator license, experience in an educational setting, completion of a preparation program, and passage of an assessment. Yet only a few states have fully used the standards to guide performance-based approaches to licensing or intensive approaches to preparation program accreditation or approval that would result in stronger program models. Likewise, only a few states have adopted high-leverage program approval policies, such as requiring clinically rich internships and university–district partnerships. Because policy shifts have not taken on the most critical strategies in the most powerful ways, considerable variability still exists in terms of principals’ opportunities for high-quality preservice learning across the country.

The stronger use of licensure and program approval standards can help ensure that programs include the features of high-quality programs identified in this report. They can help align the content of professional learning opportunities with the knowledge principals need to produce positive school outcomes, such as leading instruction, shaping a positive school culture, and developing people. Importantly, they can also focus on meeting the needs of diverse learners, creating inclusive and supportive environments, and fostering learning environments that support whole child development.

The structure of professional learning opportunities is also critically important, and standards—as well as their implementation in program approval—can emphasize the types of opportunities that matter according to the research. Especially important are quality internships for aspiring principals and applied learning opportunities accompanied by coaching and mentoring for practicing principals under the auspices of an experienced, expert principal.

It is important that standards be uniformly applied to all programs once they are adopted. As Manna (2021, p. 15) notes, it may be helpful for state policy to allow a variety of *providers*, so long as they implement programs held to demanding standards. “In contrast,” he notes, “state policy that incorporates alternative *programs*, which could allow providers to prepare principals while deviating from high-quality state standards, runs the risk of approving weaker pre-service preparation routes” (p. 15), which has long-term negative consequences for candidates and the field.

Invest in a statewide infrastructure for principal professional learning.

ESSA provides federal funds that states can leverage to support the development of school leaders. ESSA permits states to set aside 3% of their Title II formula funds to strengthen the quality of school leaders, including by investing in principal recruitment, preparation, induction, and

development. In addition, states can leverage other funds under Titles I and II of ESSA to invest in school leadership as a means to strengthen both teacher and school leader quality and, ultimately, to improve schools. These funds were dramatically expanded by the American Rescue Plan Act of 2021 and can be used to prepare principals to support students' social-emotional and learning needs during and beyond the COVID-19 pandemic.

Using ESSA funds and other investments, states are in a position to ensure principals have coordinated, high-quality, and sustained professional learning. Financial support is essential because it makes possible the features of high-quality programming, including continuity in learning opportunities and robust clinical experiences. Leadership academies can provide some of this deep, coherent training, along with training and support for mentors and coaches who work with leaders over time. Paid internships for leadership preparation, like those offered in Illinois and North Carolina, can enable high-quality candidates to enter school leadership without going into debt. They also make it feasible for candidates to take the necessary time for intensive clinical placements. Support for clinical partnerships between programs and districts can ensure that internships, along with mentoring opportunities for novice principals and coaching for veterans, become universal and sustainable.

Encourage greater attention to equity.

Surveys of principals nationally and in North Carolina reveal that principals' access to high-quality learning opportunities varies by school poverty level, an indicator that also tends to reflect the racial demographics of a school. Principals in low-poverty schools were much more likely than principals in high-poverty schools to report that they had learning opportunities in a number of content areas associated with effective leadership, and they were more likely to report that they experienced problem-based and cohort-based preparation. Improving the quality of principal learning programs and increasing access for all principals across settings to access high-quality programs would be especially beneficial to children who are currently furthest from opportunity. This can be done by directing professional development resources to those schools or districts and by offering funding to underwrite high-quality preparation for prospective principals who will work in those schools.

Programs, too, can include more content and applied learning opportunities that focus on issues of equity and culturally responsive leadership. The principal preparation research has shown that a specific focus on equity-oriented leadership has the potential to develop aspiring principals' knowledge and skills for meeting the needs of diverse learners. Such a focus was lacking in the research on in-service professional development, however. Both preparation and in-service professional development programs can purposefully build principals' knowledge, for example, to foster equitable school environments, deploy resources equitably, support culturally responsive curriculum, create welcoming and authentic partnerships with families, and develop hiring and induction policies that support a diverse teacher workforce.

Undertake comprehensive policy reforms at the local level to build a robust pipeline of qualified school principals and a coherent system of development.

Encourage districts, through competitive grants and/or technical assistance, to launch pipeline programs such as those described in this report that have proven effective at finding teachers with leadership potential and carrying them along a pathway to becoming a principal. Pipelines

for leadership candidates start before preparation with the targeted recruitment of qualified candidates. Deliberate and dynamic recruitment can identify teachers who have the potential and dispositions to engage in the leadership behaviors that research has shown to be important for producing school outcomes. It also gives schools and districts the opportunity to pick candidates who will meet their local needs, who are known to be dynamic teachers and instructional leaders, and who better represent historically underserved populations.

Following recruitment, pipelines incentivize and support ongoing learning for leaders, starting with preparation and induction and running through high-quality, shared learning opportunities for veteran leaders. Pipelines help keep strong principals engaged and build local capacity. They also contribute to the capacity of schools and districts by creating opportunities for collaboration between leaders in the pipeline and other staff, such as mentor principals and principal supervisors engaged in supporting the different aspects of the pipeline. In these ways, pipelines not only improve the practice of individuals and create a supply of qualified leaders for school and district positions, but they also contribute to coherence in practice that supports systemic change and increased student learning.

Conclusion

Looking across all the evidence, we conclude that comprehensive principal preparation and professional development programs are positively associated with benefits for principals, teachers, and students. Especially important are clinical experiences, mentoring, and applied learning opportunities. However, few principals have had access to the kinds of comprehensive programs or learning structures that support their success, and access is variable across states due to differences in policies and available resources. Policy shifts appear to influence outcomes, and there is much that states and districts can do to foster and support high-quality principal learning. The field has moved a great deal over the past 2 decades, embracing many of the lessons identified in *Preparing Leaders for a Changing World*, but it still has a way to go. Moving forward, improved research can continue to build the field's knowledge about how to best develop high-quality principals, and enhanced policies can create a principal learning system that, as a whole, will better serve principals and, ultimately, all children.

References

- Adams, J. E., & Copland, M. A. (2005). *When learning counts: Rethinking licenses for school leaders*. Center on Reinventing Public Education.
- Alsbury, T. L., & Hackmann, D. G. (2006). Learning from experience: Initial findings of a mentoring/induction program for novice principals and superintendents. *Planning and Changing*, 37, 169–189.
- Anderson, E., & Reynolds, A. L. (2015). The state of state policies for principal preparation program approval and candidate licensure. *Journal of Research on Leadership Education*, 10(3), 193–221. <https://doi.org/10.1177/1942775115614292>
- Anderson, L. M., & Turnbull, B. J. (2019). *Sustaining a principal pipeline*. Policy Studies Associates. <https://www.wallacefoundation.org/knowledge-center/Documents/Sustaining-a-Principal-Pipeline.pdf>
- Augustine, C. H., Gonzalez, G., Ikemoto Schuyler, G., Russell, J., Zellman, G. L., Constant, L., Armstrong, J., & Dembosky, J. W. (2009). *Improving school leadership: The promise of cohesive leadership systems*. RAND Corporation.
- Augustine-Shaw, D., & Jia, L. (2016). Embracing new realities: Professional growth for new principals and mentors. *Educational Considerations*, 43(3), 10–17. <https://doi.org/10.4148/0146-9282.1016>
- Ballenger, J., Alford, B., McCune, S., & McCune, D. (2009). Obtaining validation from graduates on a restructured principal preparation program. *Journal of School Leadership*, 19(5), 533–558. <https://doi.org/10.1177/105268460901900502>
- Barnes, C. A., Camburn, E., Sanders, B. R., & Sebastian, J. (2010). Developing instructional leaders: Using mixed methods to explore the black box of planned change in principals' professional practice. *Educational Administration Quarterly*, 46(2), 241. <https://doi.org/10.1177/1094670510361748>
- Bartanen, B. (2020). Principal quality and student attendance. *Educational Researcher*, 49(2), 101–113. <https://doi.org/10.3102/0013189X19898702>
- Bartee, R. D. (2012). Recontextualizing the knowledge and skill involved with redesigned principal preparation: Implications of cultural and social capital in teaching, learning, and leading for administrators. *Planning and Changing*, 43(3–4), 322.
- Bastian, K. C., & Fuller, S. C. (2016). *The North Carolina Principal Fellows Program: A comprehensive evaluation*. University of North Carolina at Chapel Hill Education Policy Initiative at Carolina.
- Batagiannis, S. C. (2011). Promise and possibility for aspiring principals: An emerging leadership identity through learning to do action research. *The Qualitative Report*, 16(5), 1304–1329. <https://doi.org/10.46743/2160-3715/2011.1300>

- Beard, K. S. (2018). Toward a theory of engaged school leadership: Positive psychology and principal candidates' sense of engagement and their preparedness to lead engagement. *Journal of School Leadership*, 28(6), 742–771. <https://doi.org/10.1177/105268461802800603>
- Bengtson, E., Airola, D., Peer, D., & Davis, D. (2012). Using peer learning support networks and reflective practice: The Arkansas leadership academy master principal program. *International Journal of Educational Leadership Preparation*, 7(3).
- Berry, B., Bastian, K. C., Darling-Hammond, L., & Kini, T. (2019). *How teaching and learning conditions affect teacher retention and school performance in North Carolina*. Learning Policy Institute. https://learningpolicyinstitute.org/sites/default/files/product-files/Leandro_Working_Conditions_REPORT.pdf
- Béteille, T., Kalogrides, D., & Loeb, S. (2012). Stepping stones: Principal career paths and school outcomes. *Social Science Research*, 41(4), 904–919. <https://doi.org/10.1016/j.ssresearch.2012.03.003>
- Borden, A. M., Preskill, S. L., & DeMoss, K. (2012). A new turn toward learning for leadership: Findings from an exploratory coursework pilot project. *Journal of Research on Leadership Education*, 7(1), 123–152. <https://doi.org/10.1177/1942775112443929>
- Boren, D. M., & Hallam, P. R. (2019). Examining a university-multiple district sponsored academy from the perspective of principal supervisors. *AASA Journal of Scholarship & Practice*, 16(1), 4. <https://link.gale.com/apps/doc/A587261719/AONE?u=anon~cbfd044a&sid=googleScholar&xid=6a28be2c>
- Boren, D. M., Hallam, P. R., Ray, N. C., Gill, C. L., & Li, K. (2017). Examining effective principal professional development through a university-district sponsored principals academy. *Educational Practice and Theory*, 39(2), 87–106. <https://doi.org/10.7459/ept/39.2.06>
- Braun, D., Billups, F. D., & Gable, R. K. (2013). Transforming equity-oriented leaders: Principal residency network program evaluation. *NCPEA Education Leadership Review*, 14(1), 161–181. <https://files.eric.ed.gov/fulltext/EJ1012950.pdf>
- Brody, J. L., Vissa, J., & Weathers, J. M. (2010). School leader professional socialization: The contribution of focused observations. *Journal of Research on Leadership Education*, 5(14), 611–651. <https://doi.org/10.1177/194277511000501401>
- Brown, K. M. (2005). Social justice education for preservice leaders: Evaluating transformative learning strategies. *Equity & Excellence in Education*, 38(2), 155–167. <https://doi.org/10.1080/10665680590935133>
- Camburn, E. M., Goldring, E., Sebastian, J., May, H., & Huff, J. (2016). An examination of the benefits, limitations, and challenges of conducting randomized experiments with principals. *Educational Administration Quarterly*, 52(2), 187–220. <https://doi.org/10.1177/0013161X15617808>
- Campoli, A., & Darling-Hammond, L. (with Levin, S. & Podolsky, A.). (2022). *Principal learning opportunities and school outcomes: Evidence from California*. Learning Policy Institute.

- Cardichon, J., Darling-Hammond, L., Yang, M., Scott, C., Shields, P. M., & Burns, D. (2020). *Inequitable opportunity to learn: Student access to certified and experienced teachers*. Learning Policy Institute. <https://learningpolicyinstitute.org/product/crdc-teacher-access-report>
- Carraway, J., & Young, T. (2015). Implementation of a districtwide policy to improve principals' instructional leadership: Principals' sensemaking of the Skillful Observation and Coaching Laboratory. *Educational Policy*, 29(1) 230–256. <https://doi.org/10.1177/0895904814564216>
- Casey, P. J., Starrett, T. M., & Dunlap, K. (2013). Residual effects of a professional development project for aspiring school leaders. *Academy of Educational Leadership Journal*, 17(2), 81–93.
- Castro, J. I. (2004). Promoting leadership development and collaboration in rural schools. In J. H. Chrispeels (Ed.), *Learning to lead together: The promise and challenge of sharing leadership* (pp. 327–341). SAGE Publications, Inc. <https://doi.org/10.4135/9781452232416.n13>
- Clark, D., Martorell, P., & Rockoff, J. (2009). *School principals and school performance* [Working paper 38]. CALDER, The Urban Institute.
- Clayton, J. K., Sanzo, K. L., & Myran, S. (2013). Understanding mentoring in leadership development: Perspectives of district administrators and aspiring leaders. *Journal of Research on Leadership Education*, 8(1), 77–96. <https://doi.org/10.1177/1942775112464959>
- Coelli, M., & Green, D. A. (2012). Leadership effects: School principals and student outcomes. *Economics of Education Review*, 31(1), 92–109. <https://doi.org/10.1016/j.econedurev.2011.09.001>
- Coggshall, J. (2015). *Title II, Part A: Don't scrap it, don't dilute it, fix it*. American Institutes for Research. <https://www.air.org/resource/brief-title-ii-part-dont-scrap-it-dont-dilute-it-fix-it>
- Copland, M. A. (2000). Problem-based learning and prospective principals' problem-framing ability. *Educational Administration Quarterly*, 36(4), 585–607. <https://doi.org/10.1177/00131610021969119>
- Corcoran, R. P. (2017). Preparing principals to improve student achievement. *Child & Youth Care Forum*, 46(5), 769–781. <https://doi.org/10.1007/s10566-017-9399-9>
- Corcoran, S. P., Schwartz, A. E., & Weinstein, M. (2012). Training your own: The impact of New York City's Aspiring Principals Program on student achievement. *Educational Evaluation and Policy Analysis*, 34(2), 232–253. <https://doi.org/10.3102/0162373712437206>
- Cosner, S., De Voto, C., & Rah'man, A. (2018). Drawing in the school context as a learning resource in school leader development: Application-oriented projects in active learning designs. *Journal of Research on Leadership Education*, 13(3), 238–255. <https://doi.org/10.1177/1942775118763872>
- Cosner, S., Tozer, S., & Smylie, M. (2012). The Ed.D. program at the University of Illinois at Chicago: Using continuous improvement to promote school leadership preparation. *Planning and Changing*, 43(1–2), 127. <https://files.eric.ed.gov/fulltext/EJ977551.pdf>

- Cosner, S., Tozer, S., Zavitkovsky, P., & Whalen, S. P. (2015). Cultivating exemplary school leadership preparation at a research intensive university. *Journal of Research on Leadership Education*, 10(1), 11–38. <https://doi.org/10.1177/1942775115569575>
- Darling-Hammond, L. (2019). *Investing in student success: Lessons from state school finance reforms*. Learning Policy Institute. <https://learningpolicyinstitute.org/product/investing-student-success-school-finance-reforms-report>
- Darling-Hammond, L., Bastian, K., Berry, B., Carver-Thomas, D., Kini, T., Levin, S., & McDiarmid, W. (2019). *Educator supply, demand, and quality in North Carolina: Current status and recommendations*. Learning Policy Institute. <https://learningpolicyinstitute.org/product/leandro-educator-supply-demand-brief>
- Darling-Hammond, L., & Cook-Harvey, C. M. (2018). *Educating the whole child: Improving school climate to support student success*. Learning Policy Institute. <https://doi.org/10.54300/145.655>
- Darling-Hammond, L., Flook, L., Cook-Harvey, C., Barron, B., & Osher, D. (2020) Implications for educational practice of the science of learning and development. *Applied Developmental Science*, 24(2), 97–140. <https://doi.org/10.1080/10888691.2018.1537791>
- Darling-Hammond, L., LaPointe, M., Meyerson, D., Orr, M. T., & Cohen, C. (2007). *Preparing school leaders for a changing world: Lessons from exemplary leadership development programs*. Stanford University, Stanford Educational Leadership Institute. <https://www.wallacefoundation.org/knowledge-center/Documents/Preparing-School-Leaders.pdf>
- Darling-Hammond, L., Meyerson, D., LaPointe, M., & Orr, M. T. (2010). *Preparing principals for a changing world*. Jossey-Bass.
- Darling-Hammond, L., & Oakes, J. (2019). *Preparing teachers for deeper learning*. Harvard Education Press.
- De Voto, C., & Reedy, M. A. (2019). Are states under ESSA prioritizing education leadership to improve schools? *Journal of Research on Leadership Education*, 16(3), 175–199. <https://doi.org/10.1177/1942775119890637>
- Della Sala, M. R., Klar, H. W., Lindle, J. C., Reese, K. L., Knoeppel, R. C., Campbell, M., & Buskey, F. C. (2013). Implementing a cross-district principal mentoring program: A human resources approach to developing midcareer principals' leadership capacities. *Journal of School Public Relations*, 34(4), 162–192. <https://doi.org/10.3138/jspr.34.2.162>
- DeMoss, K., Wood, C., & Howell, R. (2007). Eliminating isolation to foster learner-centered leadership: Lessons from rural schools and research universities. In A. B. Danzig, K. M. Borman, B. A. Jones, & W. F. Wright (Eds.), *Learner-centered leadership: Research, policy, and practice* (pp. 149–170). <https://doi.org/10.4324/9781315091945-7>
- Dodson, R. L. (2014). Which field experiences best prepare future school leaders? An analysis of Kentucky's principal preparation program. *Educational Research Quarterly*, 37(4), 41–56. <https://files.eric.ed.gov/fulltext/EJ1061927.pdf>

- Dodson, R. L. (2015). What makes them the best? An analysis of the relationship between state education quality and principal preparation practices. *International Journal of Education Policy & Leadership*, 10(7), 1–21. <https://doi.org/10.22230/ijepl.2015v10n7a634>
- Donmoyer, R., Yennie-Donmoyer, J., & Galloway, F. (2012). The search for connections across principal preparation, principal performance, and student achievement in an exemplary principal preparation program. *Journal of Research on Leadership Education*, 7(1), 5–43. <https://doi.org/10.1177/1942775112440631>
- Duncan, H. E., & Stock, M. J. (2010). Mentoring and coaching rural school leaders: What do they need? *Mentoring & Tutoring: Partnership in Learning*, 18(3), 293–311. <https://doi.org/10.1080/13611267.2010.492947>
- Ermeling, B., Tatsui, T., & Young, K. (2015). Virtual coaching for instructional leaders: A multi-method investigation of technology-enabled external assistance. *Teachers College Record*, 117(11). <https://doi.org/10.1177/016146811511701108>
- Finn, C. E., Broad, E., Meyer, L., & Feistritzer, E. (2003). *Better leaders for America's schools: A manifesto*. Fordham Institute; The Broad Foundation. <https://fordhaminstitute.org/national/research/better-leaders-americas-schools-manifesto>
- Friedland, H. A. (2005). Leading leaders: Lessons from the field. *Academic Exchange Quarterly*, 9(2), 109–114.
- Gates, S. M., Baird, M. D., Doss, C. J., Hamilton, L. S., Oppen, I. M., Master, B. K., Prado Tuma, A., Vuollo, M., & Zaber, M. A. (2019). *Preparing school leaders for success: Evaluation of New Leaders' Aspiring Principals Program, 2012–2017*. RAND Corporation. <https://doi.org/10.7249/RR2812>
- Gates, S. M., Hamilton, L. S., Martorell, P., Burkhauser, S., Heaton, P., Pierson, A., Baird, M., Vuollo, M., Li, J. J., Lavery, D. C., Harvey, M., & Gu, K. (2014). *Preparing principals to raise student achievement: Implementation and effects of the New Leaders program in ten districts*. RAND Corporation. <https://doi.org/10.7249/RR507>
- Gates, S. M., Woo, A., Xenakis, L., Wang, E. L., Herman, R., Andrew, M., & Todd, I. (2020). *Using state-level policy levers to promote principal quality: Lessons from seven states partnering with principal preparation programs and districts*. RAND Corporation. <https://doi.org/10.7249/RRA413-1>
- George, J., & Darling-Hammond, L. (2019). *The federal role and school integration: Brown's promise and present challenges*. Learning Policy Institute. <https://learningpolicyinstitute.org/product/federal-role-school-integration-browns-promise-report>
- George W. Bush Institute & American Institutes for Research. (2016, October). *Following the leaders: An analysis of graduate effectiveness from five principal preparation programs*. George W. Bush Institute. <https://gwbcenter.imgix.net/Resources/gwbi-grad-effectiveness-principal-prep.pdf>

- Gilbert, K. A. (2017). Innovative leadership preparation: Enhancing legal literacy to create 21st century ready principals. *Academy of Educational Leadership Journal*, 21(1), 1–17. <https://files.eric.ed.gov/fulltext/EJ875408.pdf>
- Goff, P., Guthrie, J. E., Goldring, E., & Bickman, L. (2014). Changing principals' leadership through feedback and coaching. *Journal of Educational Administration*, 52(5), 682–704. <https://doi.org/10.1108/JEA-10-2013-0113>
- Goldhaber, D., Holden, K., & Chen, B. (2019). *Do more effective teachers become more effective principals?* [Working paper no. 215-0119-1]. CALDER. <https://files.eric.ed.gov/fulltext/ED600819.pdf>
- Goldrick, L. (2016). *Support from the start: A 50-state review of policies on new educator induction and mentoring*. New Teacher Center. <http://68.77.48.18/RandD/Other/50-State%20Review%20of%20New%20Teacher%20Induction%20-%20NTC.pdf>
- Goldring, E. B., Clark, M. A., Rubin, M., Rogers, L. K., Grissom, J. A., Gill, B., Kautz, T., McCullough, M., Neel, M., & Burnett, A. (2020). *Changing the principal supervisor role to better support principals: Evidence from the Principal Supervisor Initiative*. Vanderbilt University; Mathematica Policy Research. <https://www.wallacefoundation.org/knowledge-center/pages/changing-the-principal-supervisor-role-to-better-support-principals.aspx>
- Goldring, E., Rubin, M., & Herrmann, M. (2021). *The role of assistant principals: Evidence and insights for advancing school leadership*. The Wallace Foundation. <https://www.wallacefoundation.org/knowledge-center/pages/the-role-of-assistant-principals-evidence-insights-for-advancing-school-leadership.aspx>
- Gordon, S. P., & Ronder, E. A. (2016). Perceptions of culturally responsive leadership inside and outside of a principal preparation program. *International Journal of Educational Reform*, 25(2), 125–153. <https://doi.org/10.1177/105678791602500202>
- Grissom, J. A. (2011). Can good principals keep teachers in disadvantaged schools? Linking principal effectiveness to teacher satisfaction and turnover in hard-to-staff environments. *Teachers College Record*, 113(11), 2552–2585. <https://doi.org/10.1177/016146811111301102>
- Grissom, J. A., Egalite, A. J., & Lindsay, C. A. (2021). *How principals affect students and schools: A systematic synthesis of two decades of research*. The Wallace Foundation. <https://www.wallacefoundation.org/knowledge-center/pages/how-principals-affect-students-and-schools-a-systematic-synthesis-of-two-decades-of-research.aspx>
- Grissom, J. A., & Harrington, J. R. (2010). Investing in administrator efficacy: An examination of professional development as a tool for enhancing principal effectiveness. *American Journal of Education*, 116(4), 583–612. <https://doi.org/10.1086/653631>
- Grissom, J. A., Kalogrides, D., & Loeb, S. (2015). Using student test scores to measure principal performance. *Educational Evaluation and Policy Analysis*, 37(1), 3–28. <https://doi.org/10.3102/0162373714523831>

- Grissom, J. A., & Loeb, S. (2011). Triangulating principal effectiveness: How perspectives of parents, teachers, and assistant principals identify the central importance of managerial skills. *American Educational Research Journal*, 48(5), 1091–1123. <https://doi.org/10.3102/0002831211402663>
- Guerra, P. L., Nelson, S. W., Jacobs, J., & Yamamura, E. (2013). Developing educational leaders for social justice: Programmatic elements that work or need improvement. *Education Research and Perspectives*, 40, 124–149.
- Gümüş, E. (2015). Investigation regarding the pre-service trainings of primary and middle school principals in the United States: The case of the state of Michigan. *Educational Sciences: Theory & Practice*, 15(1), 61–72. <https://doi.org/10.12738/estp.2015.1.2052>
- Gümüş, E. (2019). Investigation of mentorship process and programs for professional development of school principals in the U.S.A.: The case of Georgia. *International Journal of Educational Leadership and Management*, 7(1), 2–41. <https://doi.org/10.17583/ijelm.2019.3718>
- Hafner, A. L., Allison, B., Jones, A., & Herrera-Stewart, I. (2012). Assessing the development of apprentice principals in traditional and residency programs. *Procedia – Social and Behavioral Sciences*, 69, 1134–1141. <https://doi.org/10.1016/j.sbspro.2012.12.043>
- Harper, A. (2017, October 23). Shuffling principals can sometimes improve overall school district effectiveness. *K-12 Dive*. <https://www.k12dive.com/news/shuffling-principals-can-sometimes-improve-overall-school-district-effectiv/507865/>
- Heller, R., Wolfe, R. E., & Steinberg, A. (2017). *Rethinking readiness: Deeper learning for college, work, and life*. Harvard Education Press.
- Herrmann, M., Clark, M., James-Burdumy, S., Tuttle, C., Kautz, T., Knechtel, V., Dotter, D., Wulsin, C. S., & Deke, J. (2019). *The effects of a principal professional development program focused on instructional leadership* [NCEE 2020-0002]. National Center for Education Evaluation and Regional Assistance; Institute of Education Sciences; U.S. Department of Education.
- Hess, F. M., & Kelly, A. P. (2007). Learning to lead: What gets taught in principal-preparation programs. *Teachers College Record*, 109(1), 244–274. <https://doi.org/10.1177/016146810710900105>
- Hewitt, K. K., Davis, A. W., & Lashley, C. (2014). Transformational and transformative leadership in a research-informed leadership preparation program. *Journal of Research on Leadership Education*, 9(3), 225–253. <https://doi.org/10.1177/1942775114552329>
- Hines, M. T. (2007). The effect of leadership style on preservice concerns about becoming a principal. *Educational Leadership and Administration*, 19, 103–149. <https://files.eric.ed.gov/fulltext/EJ819952.pdf>
- Hoogstra, L., Hinojoso, T., Drill, K., Swanlund, A., Brown-Sims, M., Oliva, M., Manzeske, D., & Zajano, N. C. (2008). *Final report on the evaluation of the Texas Principal Excellence Program (TxPEP)*. Learning Point Associates. http://www.air.org/sites/default/files/downloads/report/TxPEP_Final_Narrative_and_Appendices_0.pdf

- Houchens, G. W., Hurt, J., Stobaugh, R., & Keedy, J. L. (2012). Double-loop learning: A coaching protocol for enhancing principal instructional leadership. *Qualitative Research in Education*, 1(2), 135–178. <https://doi.org/10.4471/qre.2012.08>
- Howley, C., Howley, A., Yahn, J., VanHorn, P., & Telfer, D. (2019). Inclusive instructional leadership: A quasi-experimental study of a professional development program for principals. *Mid-Western Educational Researcher*, 31(1), 3–23. <https://www.mwera.org/MWER/volumes/v31/issue1/V31n1-Howley-FEATURE-ARTICLE.pdf>
- Huang, T., Beachum, F. D., White, G. P., Kaimal, G., FitzGerald, A. M., & Reed, P. (2012). Preparing urban school leaders: What works? *Planning and Changing*, 43(1/2), 72–95. <https://files.eric.ed.gov/fulltext/EJ977548.pdf>
- Hughes, A. L., Matt, J. J., & O'Reilly, F. L. (2015). Principal support is imperative to the retention of teachers in hard-to-staff schools. *Journal of Education and Training Studies*, 3(1), 129–134. <https://doi.org/10.11114/jets.v3i1.622>
- Humada-Ludeke, A. (2013). *The creation of a professional learning community for school leaders: Insights on the change process from the lens of the school leader*. Sense Publishers. <https://doi.org/10.1007/978-94-6209-320-1>
- Hunt, E., Haller, A., Hood, L., & Kincaid, M. (Eds.). (2019). *Reforming principal preparation at the state level: Perspectives on policy reform from Illinois*. Routledge.
- Jacob, R., Goddard, R., Kim, M., Miller, R., & Goddard, Y. (2015). 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*, 37(3), 314–332. <https://doi.org/10.3102/0162373714549620>
- Jacobs, J., Yamamura, E., Guerra, P. L., & Nelson, S. W. (2013). Emerging leaders for social justice: Negotiating the journey through action research. *Journal of School Leadership*, 23(1), 91–121. <https://doi.org/10.1177/105268461302300104>
- James-Ward, C. (2011). The development of an infrastructure for a model of coaching principals. *International Journal of Educational Leadership Preparation*, 6(1), 1–12. <https://files.eric.ed.gov/fulltext/EJ972967.pdf>
- James-Ward, C. (2013). The coaching experience of four novice principals. *International Journal of Mentoring and Coaching in Education*, 2(1), 21–33. <https://doi.org/10.1108/20466851311323069>
- James-Ward, C., & Salcedo-Potter, N. (2011). The coaching experience of 16 urban principals. *Journal of School Public Relations*, 32(2), 122–144. <https://doi.org/10.3138/jspr.32.2.122>
- Keiser, K. A. (2009). Educational administration candidates' diversity dispositions: The effect of cultural proficiency and service learning. *CAPEA Education Leadership and Administration*, 21, 59–71. <https://files.eric.ed.gov/fulltext/EJ965156.pdf>

- Korach, S. (2011). Keeping the fire burning: The evolution of a university–district collaboration to develop leaders for second-order change. *Journal of School Leadership*, 21(5), 659–683. <https://doi.org/10.1177/105268461102100502>
- Korach, S., & Agans, L. J. (2011). From ground to distance: The impact of advanced technologies on an innovative school leadership program. *Journal of Research on Leadership Education*, 6(5), 216–233. <https://doi.org/10.1177/194277511100600508>
- Lackritz, A. D., Cseh, M., & Wise, D. (2019). Leadership coaching: A multiple-case study of urban public charter school principals’ experiences, *Mentoring & Tutoring: Partnership in Learning*, 27(1), 5–25, <https://doi.org/10.1080/13611267.2019.1583404>
- Lashway, L. (1999). Preparing school leaders. *Research Roundup*, 15(3). <http://files.eric.ed.gov/fulltext/ED440468.pdf>
- Leithwood, K., & Jantzi, D. (2006). Transformational school leadership for large-scale reform: Effects on students, teachers, and their classroom practices. *School Effectiveness and School Improvement*, 17(2), 201–227. <https://doi.org/10.1080/09243450600565829>
- Leithwood, K., & Louis, K. S. (2012). *Linking leadership to student learning*. Jossey-Bass.
- Leithwood, K., Riedlinger, B., Bauer, S., & Jantzi, D. (2003). Leadership program effects on student learning: The case of the Greater New Orleans School Leadership Center. *Journal of School Leadership*, 13(6), 707–738. <https://doi.org/10.1177/105268460301300606>
- Leithwood, K., & Riehl, C. (2005). What we know about successful school leadership. In W. Firestone & C. Riehl (Eds.), *A new agenda: Directions for research on educational leadership* (pp. 22–47). Teachers College Press.
- Leithwood, K., Seashore Louis, K., Anderson, S., & Wahlstrom, K. (2004). *How leadership influences student learning*. The Wallace Foundation. <https://www.wallacefoundation.org/knowledge-center/pages/how-leadership-influences-student-learning.aspx>
- Levin, S., & Bradley, K. (2019). *Understanding and addressing principal turnover: A review of the research*. National Association of Secondary School Principals; Learning Policy Institute. <https://learningpolicyinstitute.org/product/nassp-understanding-addressing-principal-turnover-review-research-report>
- Levine, A. (2005). A race to the bottom: The nation’s school leadership programs are not producing the educational administrators we need. *National CrossTalk*, 13(3). <https://files.eric.ed.gov/fulltext/ED524422.pdf>
- Lindle, J. C., Della Sala, M. R., Reese, K. L., Klar, H. W., Knoepfel, R. C., & Buskey, F. C. (2017). A logic model for coaching experienced rural leaders: Lessons from year one of a pilot program. *Professional Development in Education*, 43(1), 121–139. <https://doi.org/10.1080/19415257.2015.1037927>

- Lochmiller, C. R. (2014). Walking the line between employee and intern: Conflict in an administrative internship. *Journal of Cases in Educational Leadership*, 17(1), 72–83. <https://doi.org/10.1177/1555458913518536>
- Lochmiller, C. R. (2018). Coaching principals for the complexity of school reform. *Journal of School Leadership*, 28(2), 144–172. <https://doi.org/10.1177/105268461802800201>
- Lochmiller, C. R., & Chesnut, C. E. (2017). Preparing turnaround leaders for high needs urban schools. *Journal of Educational Administration*, 55(1), 85–102. <https://doi.org/10.1108/JEA-11-2015-0099>
- Louie, B. Y., Pughe, B., Kuo, A. C., & Björling, E. A. (2019). Washington principals' perceptions of their professional development needs for the spike of English learners. *Professional Development in Education*, 45(4), 684–697. <https://doi.org/10.1080/19415257.2018.1506353>
- Mann, D., Reardon, R. M., Becker, J. D., Shakeshaft, C., & Bacon, N. (2011). Immersive, interactive, web-enabled computer simulation as a trigger for learning: The next generation of problem-based learning in educational leadership. *Journal of Research on Leadership Education*, 6(5), 272–287. <https://doi.org/10.1177/194277511100600511>
- Manna, P. (2015). *Developing excellent school principals to advance teaching and learning: Considerations for state policy*. The Wallace Foundation. <https://www.wallacefoundation.org/knowledge-center/pages/developing-excellent-school-principals.aspx>
- Marshall, J. M., & Hernandez, F. (2013). “I would not consider myself a homophobe”: Learning and teaching about sexual orientation in a principal preparation program. *Educational Administration Quarterly*, 49(3), 451–488. <https://doi.org/10.1177/0013161X12463231>
- Master, B. K., Schwartz, H. L., Unlu, F., Schweig, J., Mariano, L. T., & Wang, E. L. (2020). *Effects of the Executive Development Program and aligned coaching for school principals in three U.S. states: Investing in Innovation study final report*. RAND Corporation. https://www.rand.org/pubs/research_reports/RRA259-1.html
- McCotter, S. M., Bulkley, K. E., & Bankowski, C. (2016). Another way to go: Multiple pathways to developing inclusive, instructional leaders. *Journal of School Leadership*, 26(4), 633–660. <https://doi.org/10.1177/105268461602600404>
- Militello, M., Gajda, R., & Bowers, A. J. (2009). The role of accountability policies and alternative certification on principals' perceptions of leadership preparation. *Journal of Research on Leadership Education*, 4(3), 30–66. <https://doi.org/10.1177/194277510900400301>
- Miller, R. J., Goddard, R. D., Kim, M., Jacob, R., Goddard, Y., & Schroeder, P. (2016). Can professional development improve school leadership? Results from a randomized control trial assessing the impact of McREL's Balanced Leadership program on principals in rural Michigan schools. *Educational Administration Quarterly*, 52(4), 531–566. <https://doi.org/10.1177/0013161X16651926>
- New Leaders. (2018). *Prioritizing leadership: An analysis of state ESSA plans*. <https://files.eric.ed.gov/fulltext/ED591503.pdf>

- New Leaders for New Schools. (2011). *The EPIC Leadership Development Program evaluation report* [Research brief]. <https://files.eric.ed.gov/fulltext/ED533493.pdf>
- Ni, Y., Hollingworth, L., Rorrer, A. K., & Pounder, D. (2016). The evaluation of educational leadership preparation programs. In M. D. Young & G. M. Crow (Eds.), *Handbook of research on the education of school leaders* (pp. 285–307). Routledge.
- Ni, Y., Rorrer, A. K., Pounder, D., Young, M., & Korach, S. (2019). Leadership matters: Preparation program quality and learning outcomes. *Journal of Educational Administration*, 57(2), 185–206. <https://doi.org/10.1108/JEA-05-2018-0093>
- Nunnery, J. A., Ross, S. M., Chappell, S., Pribesh, S., & Hoag-Carhart, E. (2011). *The impact of the NISL Executive Development Program on school performance in Massachusetts: Cohort 2 results*. The Center for Educational Partnerships at Old Dominion University. <https://files.eric.ed.gov/fulltext/ED531042.pdf>
- Nunnery, J. A., Ross, S. M., & Yen, C. (2010). *The effect of the National Institute for School Leadership's Executive Development Program on school performance trends in Pennsylvania*. The Center for Educational Partnerships at Old Dominion University. <https://files.eric.ed.gov/fulltext/ED531041.pdf>
- Nunnery, J. A., Yen, C., & Ross, S. M. (2011). *Effects of the National Institute for School Leadership's Executive Development Program on school performance in Pennsylvania: 2006–2010 pilot cohort results*. The Center for Educational Partnerships at Old Dominion University. <https://files.eric.ed.gov/fulltext/ED531043.pdf>
- Orphanos, S., & Orr, M. T. (2014). Learning leadership matters: The influence of innovative school leadership preparation on teachers' experiences and outcomes. *Educational Management Administration & Leadership*, 42(5), 680–700. <https://doi.org/10.1177/1741143213502187>
- Orr, M. T. (2011). Pipeline to preparation to advancement: Graduates' experiences in, through, and beyond leadership preparation. *Educational Administration Quarterly*, 47(1), 114–172. <https://doi.org/10.1177/0011000010378612>
- Orr, M. T., & Barber, M. E. (2006). Collaborative leadership preparation: A comparative study of partnership and conventional programs and practices. *Journal of School Leadership*, 16(6), 709–739. <https://doi.org/10.1177/105268460601600603>
- Orr, M. T., & Hollingworth, L. (2018). How Performance Assessment for Leaders (PAL) influences preparation program quality and effectiveness. *Journal of School Leadership and Management*, 38(5), 496–517. <https://doi.org/10.1080/13632434.2018.1439464>
- Orr, M. T., & Hollingworth, L. (2020). *Designing performance assessments for school leader readiness: Lessons from PAL and beyond*. Routledge.
- Orr, M. T., King, C., & LaPointe, M. (2010). *Districts developing leaders: Lessons on consumer actions and program approaches from eight urban districts*. Education Development Center, Inc. <https://www.wallacefoundation.org/knowledge-center/documents/districts-developing-leaders.pdf>

- Orr, M. T., & Orphanos, S. (2011). How graduate-level preparation influences the effectiveness of school leaders: A comparison of the outcomes of exemplary and conventional leadership preparation programs for principals. *Educational Administration Quarterly*, 47(1), 18–70. <https://doi.org/10.1177/0011000010378610>
- Ovando, M. N. (2005). Building instructional leaders' capacity to deliver constructive feedback to teachers. *Journal of Personnel Evaluation in Education*, 18(3), 171–183. <https://doi.org/10.1007/s11092-006-9018-z>
- Parylo, O., Zepeda, S. J., & Bengtson, E. (2012). The different faces of principal mentorship. *International Journal of Mentoring and Coaching in Education*, 1(2), 120–135. <https://doi.org/10.1108/20466851211262860>
- Perez, L. G., Uline, C. L., Johnson, J. F., Jr., James-Ward, C., & Basom, M. R. (2011). Foregrounding fieldwork in leadership preparation: The transformative capacity of authentic inquiry. *Educational Administration Quarterly*, 47(1), 217–257. <https://doi.org/10.1177/0011000010378614>
- Pettus, A. M., & Allain, V. A. (1999). Using a questionnaire to assess prospective teachers' attitudes toward multicultural education issues. *Education*, 119(4), 651. <https://link.gale.com/apps/doc/A55409983/AONE?u=anon~c7f5e087&sid=googleScholar&xid=7ce4bc52>
- Pham, L., Henry, G. T., Zimmer, R., & Kho, A. (2018). *School turnaround after five years: An extended evaluation of Tennessee's Achievement School District and Local Innovation Zones*. Tennessee Education Research Alliance. https://peabody.vanderbilt.edu/TERA/files/School_Turnaround_After_Five_Years_FINAL.pdf
- Phillips, J. C. (2013). Revisioning a school administrator preparation program: A North Carolina case study. *Journal of Research on Leadership Education*, 8(2), 191–211. <https://doi.org/10.1177/1942775113491412>
- Reardon, S. F., & Hinze-Pifer, R. (2017). *Test score growth among Chicago public school students, 2009–2014*. Stanford Center for Education Policy Analysis. <https://cepa.stanford.edu/content/test-score-growth-among-chicago-public-school-students-2009-2014>
- Reising, A., Orr, M. T., & Sandy, M. V. (2019). Developing beginning leadership performance assessments for statewide use: Design and pilot study results. *Planning and Changing*, 49 (1/2), 93–114.
- Rutledge, D., & Tozer, S. (2019). Policy transfer from local to statewide: Scaling evidence-based principal preparation practices in Illinois. In E. Hunt, A. Haller, L. Hood, & M. Kincaid (Eds.), *Reforming principal preparation at the state level: Perspectives on policy reform from Illinois* (pp. 62–88). Routledge.
- Saleh, A., McBride, J., & Henley, J. (2006). Aspiring school leaders reflect on the internship. *Academic Exchange Quarterly*, 10(3), 126–134.

- Sappington, N., Baker, P. J., Gardner, D., & Pacha, J. (2010). A signature pedagogy for leadership education: Preparing principals through participatory action research. *Planning and Changing*, 41(3/4), 249–273. <https://files.eric.ed.gov/fulltext/EJ952390.pdf>
- Sciarappa, K., & Mason, C. Y. (2014). National principal mentoring: Does it achieve its purpose? *International Journal of Mentoring and Coaching in Education*, 3(1), 51–71. <https://doi.org/10.1108/IJMCE-12-2012-0080>
- Shields, T., & Cassada, K. (2016). Examination of access and equity by gender, race, and ethnicity in a non-traditional leadership development programme in the United States. *School Leadership & Management*, 36(5), 531–550. <https://doi.org/10.1080/13632434.2016.1247050>
- Silver, M., Lochmiller, C. R., Copland, M. A., & Tripps, A. M. (2009). Supporting new school leaders: Findings from a university-based leadership coaching program for new administrators. *Mentoring & Tutoring: Partnership in Learning*, 17(3), 215–232. <https://doi.org/10.1080/13611260903050148>
- Simmons, J., Grogan, M., Jones Preis, S., Matthews, K., Smith-Anderson, S., Walls, B. P., & Jackson, A. (2007). Preparing first-time leaders for an urban public school district: An action research study of a collaborative district–university partnership. *Journal of School Leadership*, 17(5), 540–569. <https://doi.org/10.1177/105268460701700501>
- Soland, J., & Thum, Y. M. (2019). *Effect sizes for measuring student and school growth in achievement: In search of practical significance* [EdWorkingPaper 19-60]. <https://doi.org/10.26300/b5as-wr12>
- Spillane, J. P., Pareja, A. S., Dorner, L., Barnes, C., May, H., Huff, J., & Camburn, E. (2010). Mixing methods in randomized controlled trials (RCTs): Validation, contextualization, triangulation, and control. *Educational Assessment, Evaluation and Accountability*, 22(1), 5–28. <https://doi.org/10.1007/s11092-009-9089-8>
- Steinberg, M. P., & Yang, H. (2020). *Does principal professional development improve schooling outcomes? Evidence from Pennsylvania's Inspired Leadership induction program* [EdWorkingPaper 19-190]. https://www.edworkingpapers.com/sites/default/files/ai19-190_0.pdf
- Stevenson, C., & Cooner, D. (2011). Mapping the journey toward the principalship: Using standards as a guide. *Planning and Changing*, 42(3/4), 288–301. <https://files.eric.ed.gov/fulltext/EJ975997.pdf>
- Sutcher, L., Podolsky, A., & Espinoza, D. (2017). *Supporting principals' learning: Key features of effective programs*. Learning Policy Institute. <https://learningpolicyinstitute.org/product/supporting-principals-learning-key-features-effective-programs-report>
- Sutcher, L., Podolsky, A., Kini, T., & Shields, P. M. (2018). *Learning to lead: Understanding California's learning system for school and district leaders* [Technical report]. Getting Down to Facts II. Policy Analysis for California Education, PACE.
- Thessin, R. A., & Clayton, J. (2013). Perspectives of school leaders on the administrative internship. *Journal of Educational Administration*, 51(6), 790–811. <https://doi.org/10.1108/JEA-12-2011-0113>

- Tingle, E., Corrales, A., & Peters, M. L. (2019). Leadership development programs: Investing in school principals. *Educational Studies*, 45(1), 1–16. <https://doi.org/10.1080/03055698.2017.1382332>
- Tucker, P. D., & Dexter, S. (2011). ETIPS leadership cases: An innovative tool for developing administrative decision making. *Journal of Research on Leadership Education*, 6(5), 250–271. <https://doi.org/10.1177/194277511100600510>
- University Council for Educational Administration. (2008). *Advancing from preparation to leadership positions: The influence of time, institution & demographics*. <http://3fl71l2qoj4l3y6ep2tqpwa.wpengine.netdna-cdn.com/wp-content/uploads/2017/01/ImplicationsFeb2008.pdf>
- University of North Carolina Division of Academic and University Programs. (2015). *Great teachers and school leaders matter*. <http://ncfpf.northcarolina.edu/wp-content/uploads/2016/09/UNC-Academic-and-University-Programs-Annual-Report-2015.pdf>
- U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. (2019). *Education demographic and geographic estimates*. Retrieved April 6, 2022, from <https://nces.ed.gov/programs/edge/Geographic/LocaleBoundaries#:~:text=The%20NCES%20locale%20framework%20classifies,of%20Town%20and%20Rural%20assignments>
- Versland, T. M. (2016). Exploring self-efficacy in education leadership programs: What makes the difference? *Journal of Research on Leadership Education*, 11(3), 298–320. <https://doi.org/10.1177/1942775115618503>
- Vogel, L. R., Weiler, S., & Armenta, A. (2014). Pushing back and forging ahead: Making principal preparation responsive to state and national changes. *Planning and Changing*, 45(1/2), 210–227.
- Wang, E. L., Gates, S. M., Herman, R., Mean, M., Perera, R., Berglund, T., Whipkey, K., & Andrew, M. (2018). *Launching a redesign of university principal preparation programs: Partners collaborate for change*. RAND Corporation. <https://doi.org/10.7249/RR2612>
- Wang, E. L., Schwartz, H. L., Mean, M., Stelitano, L., & Master, B. K. (2019). *Putting professional learning to work: What principals do with their executive development program learning*. RAND Corporation. <https://doi.org/10.7249/RR3082>
- Wechsler, M. E., Wojcikiewicz, S., Adams, J., Carver-Thomas, D., Cook-Harvey, C., Espinoza, D., Gardner, M., Hyler, M., & Podolsky, A. *Leadership preparation for deeper learning* [Forthcoming]. Learning Policy Institute.
- Weiler, S. C., & Cray, M. (2012). Measuring Colorado superintendents' perceptions of principal preparation programs. *Educational Considerations*, 39(2). <https://doi.org/10.4148/0146-9282.1116>
- WestEd, Learning Policy Institute, & Friday Institute for Educational Innovation at North Carolina State University. (2019). *Sound basic education for all: An action plan for North Carolina*. WestEd. <https://www.wested.org/wp-content/uploads/2020/03/Sound-Basic-Education-for-All-An-Action-Plan-for-North-Carolina.pdf>

- White, B. R., Pareja, A. S., Hart, H., Klostermann, B. K., Huynh, M. H., Frazier-Meyers, M., & Holt, J. K. (2016). *Navigating the shift to intensive principal preparation in Illinois: An in-depth look at stakeholder perspectives* [IERC 2016-2]. Illinois Education Research Council at Southern Illinois University. <https://files.eric.ed.gov/fulltext/ED567016.pdf>
- White, E. D., Hilliard, A., & Jackson, B. T. (2011). Intentions and feedback from participants in a leadership training program. *Journal of College Teaching and Learning*, 8(11), 51–58. <https://doi.org/10.19030/tlc.v8i11.6508>
- Williams, S., Secatero, S., & Perrone, F. (2018). Preparing and developing leaders for indigenous-serving schools via the holistic blessing of POLLEN’s leadership tree. *Journal of American Indian Education*, 57(3), 27–50. <https://doi.org/10.5749/jamerindieduc.57.3.0027>
- Wise, D., & Cavazos, B. (2017) Leadership coaching for principals: A national study. *Mentoring & Tutoring: Partnership in Learning*, 25(2), 223–245. <https://doi.org/10.1080/13611267.2017.1327690>
- Wise, D., & Hammack, M. (2011). Leadership coaching: Coaching competencies and best practices. *Journal of School Leadership*, 21(3), 449–477. <https://doi.org/10.1177/105268461102100306>
- Yirci, R. & Kocabas, I. (2010, April–June). The importance of mentoring for school principals: A conceptual analysis. *International Journal of Educational Leadership Preparation*, 5(2).
- Young, M. D. (2013). Is state-mandated redesign an effective and sustainable solution? *Journal of Research on Leadership Education*, 8(2), 247–254. <https://doi.org/10.1177/1942775113491260>
- Young, M. D., Crow, G., Orr, M. T., Ogawa, R., & Creighton, T. (2005). An educative look at “Educating School Leaders.” *UCEA Review*. <http://3fl71l2qoj4l3y6ep2tqpwwa.wpengine.netdna-cdn.com/wp-content/uploads/2013/11/Spring2005.pdf>
- Young, M. D., Mawhinney, H., & Reed, C. J. (2016). Leveraging standards to promote program quality. *Journal of Research on Leadership Education*, 11(1), 12–42. <https://doi.org/10.1177/1942775116641086>
- Young, M. D., & Reedy, M. A. (2019). Statewide collaborations for improvement. In E. Hunt, A. Haller, L. Hood, M. Kincaid, & A. Duncan (Eds.), *Reforming principal preparation at the state level* (pp. 231–243). Routledge.
- Zavitskovsky, P., & Tozer, S. (2017). *Upstate/downstate: Changing patterns of achievement, demographics, and school effectiveness in Illinois public schools under NCLB*. Center for Urban Education Leadership. <https://urbanedleadership.org/wp-content/uploads/2020/02/UPSTATE-DOWNSTATE-FINAL-w-Appendices-06.16.17.pdf>
- Zepeda, S. J., Parylo, O., & Bengtson, E. (2014). Analyzing principal professional development practices through the lens of adult learning theory. *Professional Development in Education*, 40(2), 295–315. <https://doi.org/10.1080/19415257.2013.821667>

About the Authors

Linda Darling-Hammond is Founding President of the Learning Policy Institute and is the Charles E. Ducommun Professor of Education Emeritus at Stanford University. Darling-Hammond is past president of the American Educational Research Association and recipient of its awards for Distinguished Contributions to Research, Lifetime Achievement, and Research-to-Policy. She is also a member of the American Association of Arts and Sciences and of the National Academy of Education. Among her more than 600 publications are a number of award-winning books, including *The Right to Learn*, *Teaching as the Learning Profession*, *Preparing Teachers for a Changing World*, and *The Flat World and Education: How America's Commitment to Equity Will Determine Our Future*. She received an Ed.D. from Temple University (with highest distinction) and a B.A. from Yale University (magna cum laude).

Marjorie Wechsler is the Principal Research Manager at Learning Policy Institute and is co-lead of LPI's Educator Quality team. She leads mixed-methods research studies related to teacher and leader quality and early childhood learning. Her work at LPI focuses on supporting and documenting systems change to advance equity. Wechsler was the lead author of the book *On the Road to High-Quality Early Learning: Changing Children's Lives*. Wechsler received her doctorate in Education Administration and Policy Analysis from Stanford University, a Master of Education in Education Policy from Harvard University, and a teaching credential and bachelor's degree in Psychology from Brandeis University.

Stephanie Levin is a Research Manager at Learning Policy Institute, where she co-leads the Equitable Resources and Access team and is a member of the Educator Quality team. Her current work centers on school finance, resource equity, and school leadership. Levin has over 15 years of experience as a mixed-methods researcher and project manager focusing on educational equity; school finance and budgeting; the impact of federal, state, and district policies on teacher effectiveness and student outcomes; and teacher and school leader professional learning opportunities. Prior to her work in education research, Levin was a consultant, policy analyst, and budget analyst addressing issues shaping the experiences of children and families in urban settings. Levin received a Ph.D. in Education Policy from the University of Pennsylvania's Graduate School of Education, an M.P.P. from Harvard's Kennedy School of Government, and a B.S. in Architecture from the Massachusetts Institute of Technology.

Melanie Leung-Gagné is a Research and Policy Associate at the Learning Policy Institute, where she is a member of the Educator Quality and the Equitable Resources and Access teams. She is co-author of the LPI reports *Elementary School Principals' Professional Learning: Current Status and Future Needs* and *Supporting a Strong, Stable Principal Workforce: What Matters and What Can Be Done*. Prior to joining LPI, she was a reporter covering youth and education issues in Hong Kong and has worked as an elementary school teacher in a school serving migrant workers' children in mainland China. She holds an M.A. in International Education Policy Analysis from Stanford University and a B.Sc. in Journalism and Communication from the Chinese University of Hong Kong.

Steve Tozer is Professor Emeritus and past University Scholar in Educational Policy Studies at the University of Illinois Chicago (UIC), where he was Founding Director of the UIC Center for Urban Education Leadership. He began his career as a teacher and then Director of Community-Based Early Childhood Centers in Uptown Chicago. He chaired the Department of Curriculum and

Instruction at University of Illinois Urbana-Champaign; the Department of Educational Policy Studies at UIC; the Governor's Council on Educator Quality in Illinois; and a Legislative Task Force establishing a new Illinois principal certificate. He is lead author of *School and Society, Historical and Contemporary Perspectives*, 8th edition, and editor of *The Handbook of Research in Social Foundations of Education*. He has degrees from Dartmouth College, Erikson Institute, and University of Illinois Urbana-Champaign.



learningpolicyinstitute.org

The Learning Policy Institute conducts and communicates independent, high-quality research to improve education policy and practice. Working with policymakers, researchers, educators, community groups, and others, the Institute seeks to advance evidence-based policies that support empowering and equitable learning for each and every child. Nonprofit and nonpartisan, the Institute connects policymakers and stakeholders at the local, state, and federal levels with the evidence, ideas, and actions needed to strengthen the education system from preschool through college and career readiness.



wallacefoundation.com

Based in New York City, The Wallace Foundation is a national philanthropy focusing on the arts, school leadership, and youth development. Its mission is to foster equity and improvements in learning and enrichment for young people, and in the arts for everyone. In all of its efforts, the foundation seeks to benefit its direct grantees as well as the fields in which it works by developing and broadly sharing relevant, useful knowledge that can improve practice and policy. For more information, please visit the foundation's Knowledge Center at <https://www.wallacefoundation.org/>.