

FREQUENTLY ASKED QUESTIONS

Principal Pipelines: A Major Strategy to Improve Student Achievement Districtwide

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AN OVERVIEW: THE PRINCIPAL PIPELINE INITIATIVE

Q: Why invest in school principals?

Research tells us that school leadership is essential to student learning. A [2004 study](#) found that school leadership is second only to teaching among school-based factors in its effects on student achievement. What's more, leadership's impact is greatest in low-performing schools, where many of the most disadvantaged children are educated. This reinforces the importance of leadership in school improvement. Researchers concluded that there were "virtually no documented instances of troubled schools being turned around without intervention by a powerful leader." This finding was reconfirmed in a [2010 study](#).

A leading researcher also states that "excellent teachers deserve excellent leaders," in a [2007 publication](#), stating: "It is the leader who both recruits and retains high-quality staff — indeed, the number one reason for teachers' decisions about whether to stay in a school is the quality of administrative support — and it is the leader who must develop this organization."

More recently, a [2017 report](#) found that research demonstrates that "principals are important to key teacher outcomes. Teacher turnover is lower in schools led by high-quality principals. More-effective schools retain and hire higher-quality teachers and have teachers who improve faster—and principal practices may contribute to these human resource patterns."

Q: How does The Wallace Foundation define a principal pipeline?

Principal pipelines have **four aligned components**, which research and practice have suggested were essential to shaping effective school leadership districtwide:

- *Rigorous leader standards*, or principal job descriptions, of practice and performance that guide principal preparation, hiring, evaluation and support;
- *High-quality preservice preparation for high-potential candidates*, typically through a combination of in-district programs and partnerships with university preparation programs;
- *Data-informed hiring and placement*, based on candidates' demonstrated skills, to selectively hire and match principal candidates to schools; and
- *Well-aligned on-the-job support and evaluation*, serving to help principals, especially novices, hone their skills, particularly in bolstering instructional leadership.

Districts also implemented **pipeline system supports**, such as:

- *Leader tracking systems*, or electronic record systems that collect and organize key information—demographics, educational qualifications, professional training and prior performance—about aspiring, novice and veteran principals. The systems make data available in user-friendly dashboards, allowing decisionmakers to locate principal candidates with the right set of skills for job openings and to make a good "match"

between principals and the schools they will lead. This has benefitted new principals, most of whom describe their fit with their schools as “excellent.”

- *Principal supervisors*: reshaping the roles of central office administrators who oversee principals—to shift their roles from bureaucratic compliance to support, increasing their focus on coaching, mentoring and evaluating principals. Many districts reduced the number of principals supervisors oversee. With a deeper understanding of the context of each principal’s school, supervisors develop closer relationships and are better able to evaluate principals. In turn, principals report productive relations with supervisors

Q: What was the Principal Pipeline Initiative—and what did it seek to learn?

In the decade up to 2010, Wallace and partners had demonstrated a link between school leadership and student achievement and were able to define: the components of excellent preparation programs ([Preparing School Leadership for a Changing World](#), 2007); what effective principals did ([The School Principal as Leader](#), 2013); how to measure instructional leadership ([Vanderbilt Assessment of Leadership in Education](#), 2008); and other features of effectiveness.

However, there was no one place to observe all these aspects of effective principal policies and practices to see whether collectively they could make a difference for student learning.

In 2011, the foundation set out to test whether principal pipelines—including the four aligned components and system supports—could be strategic levers for districts to raise student achievement. The pipeline concept was designed to determine the effectiveness of high-quality pipeline components, each aligned around leader standards, compared to conventional—and typically more haphazard and disconnected—approaches to career progression.

A six-year, \$85-million Principal Pipeline Initiative aimed to answer the following questions:

- Is it possible for a large district to put in place the four main pipeline components?
- If so, what would it cost and would doing so result in improved student achievement in that district?

Q: What are the six pipeline districts and what characteristics do they have in common?

- Six districts, each with strong records of promoting school leadership to advance reform, are: Charlotte-Mecklenburg Schools, N.C.; Denver Public Schools; Gwinnett County Public Schools, Ga.; Hillsborough County Public Schools, Fla.; New York City Department of Education; and Prince George’s County Public Schools, Md.
- Pipeline districts are among the 50 largest in the United States, with each serving more than 80,000 students and operating more than 130 schools.
- All are “minority-majority” districts, with student populations between 65 and 96 percent minority.
- They have annual budgets ranging from roughly \$1 billion to \$25 billion.

During the initiative, between 12 and 23 percent of the schools in the pipeline districts received a newly placed principal each year, whether a novice to the job or a transfer from another school.

Q: What research determined whether pipelines achieved their desired outcomes?

Wallace commissioned Policy Studies Associates (PSA) and the RAND Corp. (RAND) to conduct an independent evaluative study to establish whether and how districts were able to build the pipelines and if the resulting pipelines would make a difference in schools and for students. The study resulted in the following suite of reports:

- [Principal Pipelines: A Feasible, Affordable, and Effective Way for Districts to Improve Schools](#) (RAND, April 2019), examines the impact well-implemented pipelines had on the six districts, “treated” or “pipeline” schools and principals, and students. Lead author: Susan Gates
- [What it Takes to Operate and Maintain Principal Pipelines: Costs and Other Resources](#) (RAND, 2017), estimates the districts’ expenditures in building and operating principal pipelines. Lead authors: Julia Kaufman and Susan Gates
- [The Principal Pipeline in Action](#) offered the culminating implementation findings from a five-volume report series, “[Building a Stronger Principalship](#)” (PSA, 2013- 2016). Lead author: Brenda J. Turnbull
- [Sustaining a Principal Pipeline](#) (PSA, 2019) provides an update on district pipeline activities for two years following Wallace grant funding. Lead authors: Leslie Anderson and Brenda J. Turnbull
- [Leader Tracking Systems: Turning Data Into Information for School Leadership](#) (PSA, 2017) offers “hard-won insights” on pipeline districts building data systems to guide everything from principal training to hiring and matching to schools. Lead author: Leslie Anderson

All reports are available on www.wallacefoundation.org/principalpipeline.

TOP FINDINGS: PIPELINES ARE FEASIBLE, AFFORDABLE AND EFFECTIVE—AND CAN BE SUSTAINED

Q: What are the headlines?

Principal pipelines can be a major strategy to improve student achievement districtwide.

Principal pipelines are effective (from RAND, 2019): On average, students in more than 1,100 pipeline schools outperformed students in more than 6,300 similar comparison schools, in six states. The difference was sizable, meaningful and statistically significant. Principals newly placed in pipeline schools were more likely to stay in their jobs, relative to those in comparison schools.

Main student achievement effect:

- Schools in pipeline districts that received a newly placed principal—both novice and transfer—outperformed comparison schools by 6.22 percentile points in reading and 2.87 percentile points in math after three years.
- Effects on student achievement were widespread—across all districts, across math and reading, for all cohorts of new principals and across grade levels: elementary, middle and, for math, high schools. Notably, effects were positive and statistically significant for schools in the lowest quartile of student achievement.
- “We found no other comprehensive district-wide initiatives with demonstrated positive effects of this magnitude on student achievement,” noted RAND.

Main principal retention effect:

- For every 100 new principals, pipeline districts saw nearly eight fewer losses after three years, compared to new principals in non-pipeline schools.
- Turnover is not only disruptive to teachers and students, but expensive. Each principal replacement costs an estimated \$75,000 (School Leaders Network Study, 2014).

Pipelines are feasible and affordable

- *Feasible*, because each of the districts was able to put into place the four parts of the pipeline either fully or in large part (from PSA, 2013-2019); and
- *Affordable*, because the cost amounted to less than one half of one percent (0.4%) of the districts’ annual budgets (from RAND, 2017).

Pipelines can be sustained (from PSA, 2019)

- *Sustainable*, because two years past external funding, district commitment remains strong, and districts continue working to improve all pipeline components. Additionally, principal supervisors remain critical to the pipeline and their roles have been elevated in the districts. Notably, all districts have institutionalized a high-level position of director of leadership development.

PIPELINES ARE EFFECTIVE: IMPACT ON DISTRICTS, SCHOOLS AND STUDENTS

Student achievement findings

Q: What is the main effect of pipelines on student achievement in the six districts?

The final RAND report shows that a comprehensive, districtwide effort produced statistically significant benefits for districts, schools and students. It found sizeable and meaningful benefits in reading and mathematics for students in schools that received newly placed—novice or transfer—principals in the pipeline districts.

After three years, schools with new principals in the pipeline districts outperformed comparison schools by 6.22 percentile points in reading and 2.87 percentile points in math. Lower-performing schools benefited from the approach.

While effects were stronger in schools with new pipeline principals, there were benefits across all district schools. Districtwide, student achievement in reading and math outperformed achievement in comparison schools with new principals elsewhere in the state (for example, pipeline districts showed a 5 percentile point advantage in reading). Reasons pipelines benefited district schools in general included overall enhanced on-the-job training and supervision for new and veteran school leaders.

Q: How comprehensive were these achievement gains?

The magnitude of these effects was positive, as statistically significant, and larger than those of other districtwide interventions. In fact, RAND found no other districtwide initiative with demonstrated positive effects of this magnitude on student achievement.

These positive outcomes were widespread: across the district, across principal cohorts over time, across reading and math, and by level: in elementary, middle and, in math, high school.

- *All schools in pipeline districts outperformed comparison schools.* After three years, schools in pipeline districts outperformed their comparison schools by 5.01 percentile points in reading and 2.29 percentile points in mathematics. Notably, effects were strongest in schools with new principals, and positive and statistically significant for schools in the lowest quartile of student achievement.
- *By district:* Pipeline effects on reading achievement were positive and statistically significant in five of six districts, and the effects on mathematics achievement were positive and statistically significant in three districts. In one district, the pipeline effect on mathematics achievement was negative and statistically significant. In that district, the negative results were concentrated in elementary schools.
- Three districts with less advanced versions of the pipeline in place at the beginning of the Wallace initiative—and hence the most room to grow their pipeline during implementation—had consistently positive and statistically significant effects.

Q: How do these achievement gains break out by grade level? By quartile?

Achievement gains were positive and statistically significant in reading and mathematics for elementary and middle schools across the pipeline districts. For high schools, they were positive and statistically significant after three or more years in math across the districts.

The effects on students' achievement were large for schools in the lowest quartile of the achievement distribution: this is an encouraging finding for districts focusing on turning around their lowest-performing schools. It also points to a need for districts to pay attention to somewhat better-performing schools that remain below the state median.

Principal retention findings

Q: What is the main effect on principal retention in pipeline schools?

Newly placed—novice or transfer—principals in pipeline districts were 5.8 percentage points more likely to remain in their school for two years and 7.8 percentage points more likely to remain in their school for three years than newly placed principals in comparison schools.

That means that for every 100 new principals, pipelines are associated with nearly six fewer losses after two years and nearly eight fewer losses after three years, compared with other districts in the state staffing similar schools.

These findings are important for educational and cost reasons:

- *Educational:* Research suggests that the actions taken by principals to affect student achievement take time to implement and pay off (Coelli/Green, 2012; Rangel, 2018).
- *Cost:* Turnover is not only disruptive for teachers and students, but also expensive. Each principal replacement costs roughly \$75,000 (School Leaders Network, 2014).

Retention effects varied by districts, possibly reflecting differences in depth of candidate pools; local factors influencing principal labor markets; district approaches to principal reassignment; or, whether principals were novices or transfers. They were also larger for later cohorts of principals than for those in the earliest group to emerge from the pipeline. (Retention effects were estimated with less precision given the nature of the retention measures.)

Q: How long did it take for districts to see benefits from the pipeline?

Pipeline benefits kicked in quickly: They were evident for the earliest cohorts of pipeline principals (a cohort is defined as principals who were hired during a single school year). The effects on academic achievement appear to be stable over time for new principals.

Effects on principal retention appear to increase over time, with the effect on retention larger for later cohorts. The three-year retention effect for the 2015 cohort of new principals (at 17 percentage points) was significantly larger (both statistically and substantively) than the three-year retention for the 2013 cohort (at 1 percentage point).

PIPELINES ARE FEASIBLE AND AFFORDABLE FOR LARGE DISTRICTS

Q: What does the [research](#) conclude about the feasibility of building pipelines?

Large districts can successfully build principal pipelines. Six participating districts made pipelines a strategic priority and made continuous progress in implementing pipeline activities. For example, use of rigorous leader standards was a powerful and quickly implemented means of helping districts align their actions and policies to their priorities for school leadership.

During the initiative, district leaders and novice principals reported changes for the better.

- For new principals, pipelines were reported to raise the quality of training, hiring, evaluations and mentoring during their crucial first years on the job. A higher percentage of new principals said new, more rigorous hiring processes allowed them to demonstrate their skills and that their skills were well matched to their schools' needs.
- New principals also gave higher ratings to their principal supervisors, a position districts revamped so supervisors managed smaller caseloads of principals. As districts shifted focus from administrative compliance to supporting principals as instructional leaders, supervisors increased their time and focus on supporting and evaluating principals.
- Pipeline principals expressed enthusiasm about mentors and coaches, describing them as "lifelines" who provided hands-on help vital to their perceived success on the job.
- Another district innovation was the development of leader tracking systems, which captured individual, longitudinal data on aspiring and novice principals' experience, performance and competencies. These data systems helped districts make informed decisions on hiring, placement and succession planning.

Districts considered their pipelines a work in progress. Each district planned and carried out its work according to its particular priorities and circumstances, showing that the pipeline is an approach that can be successfully adapted to the local context of a large district.

Q: Which pipeline component led to the best outcomes?

Neither the initiative nor the study was designed to examine the benefits of individual pipeline components. Instead, the pipeline was designed as a set of systematic, mutually reinforcing reforms to the way districts manage the preparation, placement and support of new principals.

Q: What does the research conclude about the affordability of building pipelines?

Building principal pipelines is affordable. RAND's report on expenditures found pipelines account for a small share of district spending: less than one half of one percent (0.4 percent) of the districts' annual expenditures. Districts spent about \$42 per pupil per year to operate and enhance their pipelines. For every \$100 spent per student over five years, the RAND report found that student achievement increased by 1.5 percentile points in reading and 2/3 of a percentile point in math.

Q: What is academic return on investment (ROI) and how is it calculated?

To develop an approximate measure of academic ROI from pipeline activities, RAND used estimates of pipeline impacts on achievement outcomes, in combination with comprehensive cost analysis done for five of the six pipeline districts as [part of a separate resources and expenditure study](#).

Academic ROI is calculated as the ratio of dollars spent per student for the pipeline to the average academic effects that students in schools with new principals experienced. It provides a useful comparison point regarding the cost-effectiveness of pipeline reforms relative to that of other educational interventions that influence students' academic performance. It could also be described as an analysis of the *cost-effectiveness* of the intervention.

Q: What was the estimated academic ROI for students in pipeline schools?

The academic ROI for students in schools with new pipeline principals was found to be \$373 per student. The total cost of pipeline-related reforms over the five-year period was \$210 per student. This means that for every \$100 spent per student over five years on pipeline-related reforms, RAND estimates student achievement increased by 1.5 percentile points in reading and about 2/3 of a percentile point in math.

PIPELINES CAN BE SUSTAINED: KEY FINDINGS AFTER WALLACE FUNDING ENDED

Q: What was the status of the pipeline two years past Wallace funding?

Two years past funding, district commitments remain strong, and districts keep working to strengthen all pipeline components, for example:

- *Leader standards* remained foundational to principals' development.
- *Hiring reforms*—such as talent pools and demonstrations of skills—continued. Districts kept up their use of leader tracking systems for data on individuals' skills and schools' needs for new principals.
- *Principal supervisors* remain part of the pipeline and their roles have been elevated in the districts. Notably, too, all districts have institutionalized a high-level position of director of leadership development.
- In collaboration with districts, *preservice preparation programs* continued to improve, with increased emphasis on leading instructional improvement. The most recently prepared principals reported on surveys that they felt more prepared as instructional leaders.
- Some districts reported fewer principal vacancies over time, suggesting reduced turnover. Most new principals continued to describe their fit with their schools as "excellent."

Q: How were the pipelines sustained?

Efforts to ensure the work would be sustainable began before the external funding ended:

- Districts distinguished between expenditures for one-time "innovation and development" investments (e.g., building a leader tracking system) and "ongoing" costs to maintain pipelines. During the initiative, about 30% of funding came from Wallace, mostly for one-time investments in system supports. These costs, in a limited time frame, were subsequently sustained by the district through ongoing local funding.

Other findings about districts' continued efforts to strengthen pipelines:

- Pipelines caused "ripple effects" of changes, such as: cutting back on enrollment in preparation programs because the district has a strong talent pool; or finding other meaningful roles for assistant principals or other emerging leaders because principal retention is up and vacancies are dwindling.
- Other "ripples" included: some districts used standards for other leadership roles, including assistant principals, team leaders within buildings and central-office staff.
- Each district adapted its work according to its own priorities and circumstances. There was no one "district to watch," because "every district put effort into designing and implementing its own way of carrying out each component of the pipeline" (PSA).

RECOMMENDATIONS FOR DISTRICTS, UNIVERSITIES AND STATES

Q: What is significant about these findings for school districts contemplating pipelines?

For large districts, comprehensive principal pipelines are feasible, affordable and effective. Pipelines can help move the needle in improving schools and raising student achievement, without requiring substantial outside funding. To do so means district leadership commits to improving all four pipeline components.

Pipelines also improved principal retention relative to comparison schools, reducing expenditures to replace school leaders.

Q: What is significant about pipelines for university principal preparation programs?

Training providers—both university and nonprofit—can support district pipelines by engaging directly and candidly with the school districts that employ their graduates. They can focus their discussions on the districts' leader standards, which guide both principals and districts; and the districts can provide valuable feedback on the areas of strength and weakness of the program's graduates. These candid discussions are actionable for universities and other training providers and will differ depending on the districts' hiring needs and the preparation programs' quality.

Q: What is significant about the new pipeline research for states?

States and districts together can promote pipelines as a key ingredient in statewide plans under the federal Every Student Succeeds Act or ESSA, especially as a lever to school improvement under Title I. States also have a role in setting state leader standards, building data systems on school leaders and creating information-sharing opportunities.

The researchers also recommend that states consider ways in which state efforts can support principal pipelines in smaller districts that lack the infrastructure to undertake major efforts on their own.

And, pipelines can be paid for by ESSA. A just-released [technical review](#) by Abt Associates shows that the [RAND report](#) meets the research standards necessary for funding of pipelines under Title I and other ESSA sections. The Abt analysis determined that the RAND research is of sufficient quality to meet Tier II for its student achievement findings and Tier III for its findings on principal retention. This establishes the eligibility of pipeline work for funding under Title I and other relevant ESSA sections.

RESEARCH DESIGN OF THE PIPELINE EVALUATION STUDY

Q: What did the pipeline evaluative study set out to learn?

The Policy Studies Associates and RAND-conducted study on the principal pipeline examined the efforts of six large school districts to put in place systematic processes for the strategic management of school leaders. It looked at what they were able to accomplish, what the changes cost, and what happened in schools as a result.

Q: How were the final effects analyses designed to answer the research questions?

RAND used a research design that compared changes in achievement and other outcomes in pipeline schools with changes in matched, non-pipeline schools that received new principals in the same year. The researchers adjusted for schools' differences in student achievement and demographics.

The researchers used statewide data to identify schools in non-pipeline districts that are similar to the treated pipeline schools: they received a new principal in the same school year, were the same school type in terms of grade level and had similar characteristics at the baseline year with respect to achievement and student demographics. Outcomes were examined after two years after placement of a new principal, starting with the 2012-2013 school year.

The changes in outcomes in more than 1,100 pipeline schools were compared to changes in outcomes in 6,300 similar non-pipeline schools located in the six states.

Q: Why are the findings noteworthy?

The findings on effects are noteworthy for two reasons.

- First, the magnitude of the effects on student achievement is sizable. Schools with new principals in pipeline districts outperformed comparison schools by 6.22 percentile points in reading and by 2.87 percentile points in math after three or more years. That means a school that received a new principal and whose students would have otherwise been at the median in reading achievement was instead at the 56th percentile.
- Second, the researchers found no other districtwide initiative with demonstrated positive effects of this magnitude on student achievement. Narrower and more targeted interventions in a smaller subset of schools only rarely achieved effects as large as those found for the pipeline.

Q: What are the limitations of this study?

The study analyzes the pipeline as a districtwide initiative implemented at a specific point in time. In fact, participating districts were selected in part because they already had some pipeline activities in place and continued to modify their approach to activities throughout the

initiative. That means that the study does not fully capture the effects of other improvement efforts or initiatives going on in the districts during the same time frame, which may have contributed to the effects. While it is not possible to definitively attribute effects to this and not some other initiatives, researchers found no other common district factors that would have explained the effects in this timeframe.

To estimate pipeline effects, researchers compared the changes in outcomes in schools in pipeline districts with new principals with the changes in outcomes in similar non-pipeline district schools that also received a new principal. They judge that, absent the pipeline initiative, outcomes of schools in pipeline districts would have followed a similar trajectory to those of similar schools in non-pipeline districts.

Q: Why are implementation findings important and how do they support effects findings?

The evidence on the pipeline initiative’s effects on student achievement and principal retention are closely tied to the in-depth evidence documenting how the districts implemented pipelines.

The main findings in the RAND report—that the pipeline initiative resulted in higher student achievement in reading and math than would have occurred without the pipeline, and that the pipeline resulted in greater retention of new principals—reflect the in-depth evidence on the application of the pipeline components in the six districts, and survey reports of the operations of the pipeline. The timing of the effects corresponds to and follows the timing of the districts’ introduction of the components.

In this way, the effects findings of the evaluation (RAND, 2019) reflect the in-depth implementation evidence documented in its five implementation reports (PSA, 2013-2016). For example, those reports noted the rapid implementation of strengthened leader standards for principals, which was followed by the introduction of selective hiring and placement of new principals. Improved pre-service training programs, however, take longer to gain traction, and the results of better training are likely felt more slowly than the other components.

In sum, the evaluation team found that the districts’ overall approach to strategically managing the pipeline—through all four, mutually reinforcing components—produced the positive outcomes for schools, principals and students.

‘EXPLORATORY ANALYSES’ IN RAND’S FINAL REPORT

Q: What did the researchers examine in these exploratory analyses?

RAND conducted two types of exploratory analyses as part of the evaluation of effects.

- The first type examined the relationship between the pipeline and the following outcomes for which data were available from some but not all districts: science and social studies achievement scores; attendance, graduation, non-suspension and non-expulsion rates; participation in career and technical education (CTE); percentage of teachers with certifications and teacher diploma rates; principal and teacher climate ratings and principal ratings of overall school climate; and teacher retention metrics.
- The second type analyzed the relationship between the size of pipeline effects and school characteristics and the implementation of specific pipeline components.

Q: Why did the researchers conduct these analyses?

Exploratory analyses provide tentative insights about interesting topics, but the methods used have significant limitations not present in methods used to produce the main findings. Results provide clues about how the pipeline initiative played out and may suggest directions for future research without providing conclusive evidence. They should be interpreted with caution.

Q: What did this analysis show about the effects of individual pipeline components?

Pipeline components appear to have worked as a cohesive whole, much as intended. The study found little or no evidence that individual components were correlated with larger or smaller effect sizes.

Q: Did outcomes vary depending on school demographics?

RAND found that within pipeline districts—serving predominantly high-needs student populations—pipeline effects tended to be smaller in schools serving lower proportions of white students or higher proportions of students eligible for free and reduced-price lunch.

These findings are consistent with findings from subgroup analyses focused on schools serving high proportions of non-white students (more than 50 percent and more than 75 percent non-white), as well as analyses of schools serving a high proportion of students eligible for free and reduced-price lunch. This suggests that schools in pipeline districts serving more-disadvantaged student populations had smaller, but still positive, effects, compared with schools in pipeline districts that served less-disadvantaged student populations. However, the differences across these subgroups were not statistically significant.

Q: What was the impact on school climate and teacher retention?

In the exploratory research (using data from a subset of the districts), the pipeline initiative had a favorable effect on principals' ratings of overall school climate by the second, third or later years after a school gets a new principal. Pipelines had an unfavorable effect on teacher ratings of school climate two years after a school received a new principal, but that effect disappeared after three or more years.

In the exploratory research, there were also findings of higher rates of teacher turnover for teachers with fewer than five years of experience, and lower rates of overall teacher turnover three or more years after the placement of a new principal.

FURTHER RESOURCES ON PRINCIPAL PIPELINES

Q: What other resources on the principal pipeline are available?

Other resources that describe and summarize findings and offer analysis and commentary from educators and policymakers on principal pipelines:

- **Perspective:** Wallace's 2017 [Building Principal Pipelines: A Job That Urban Districts Can Do](#) incorporates findings from preliminary studies on the implementation and costs of principal pipelines. It concludes that other large districts can build pipelines based on the experiences of the pipeline districts. Author: Pamela Mendels. *A revised Perspective, incorporating impact and sustainability findings, will be released June 2019.*
- **Podcasts:** Wallace has released six episodes of [The Principal Pipeline Podcast](#) exploring key aspects of the pipelines and related research findings and implications on implementation and cost. *In May 2019, five new episodes will cover recent findings on the pipeline's effectiveness and sustainability.*
- **Interactive infographic:** The foundation's interactive [infographic](#) guides users to learn about pipelines and the research's key findings.
- **Recorded livestream presentation and discussion:** A [livestream event](#), recorded and archived on the Wallace [website](#), includes remarks by *Will Miller*, president, The Wallace Foundation; and *Susan Gates*, senior economist, RAND Corporation, and co-principal investigator of the evaluation. This is followed by a discussion, moderated by *Sonja Santelises*, CEO, Baltimore City Public Schools, with: *Richard A. Carranza*, chancellor, New York City Department of Education; *Monica Goldson*, interim CEO, Prince George's County Public Schools; *Jeff Eakins*, superintendent, Hillsborough County Public Schools; and *Alvin Wilbanks*, superintendent, Gwinnett County Public Schools.

For all pipeline resources, visit www.wallacefoundation.org/principalpipeline.