



Understanding the Increase in Assistant Principals: Roles, District Structures, and Diversity

APPENDIX

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Introduction

This appendix is a companion to the report, *Understanding the Increase in Assistant Principals: Roles, District Structures, and Diversity*. It provides more information about how the study was conducted and its findings. Appendix A provides details on the methods used for the study, including the study design, data sources, study sample, measures, and analysis. Appendix B provides additional information to support the key findings in the report.

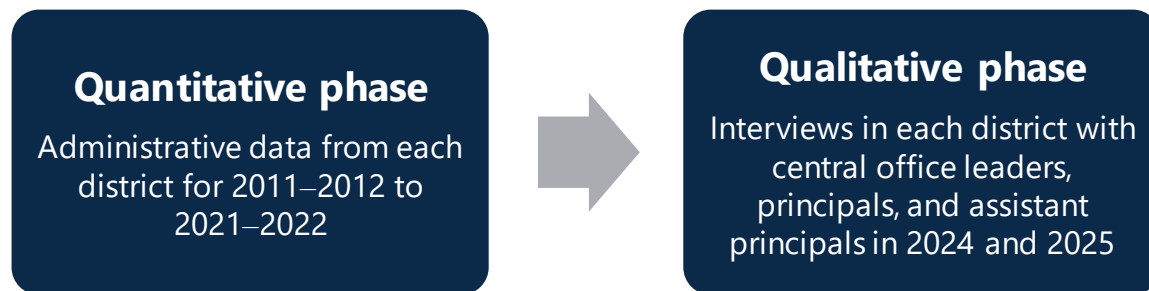
Appendix A

Methods Used for the Study

A. Study design

The study used a sequential mixed-methods design (Exhibit A.1). In the first, quantitative phase, the study team analyzed administrative data to identify initial patterns about assistant principals, including changes in their numbers over time; their allocation to schools; their racial, ethnic, and gender diversity; and differences in career advancement by race and gender. In the second, qualitative phase, the team conducted interviews to help identify potential explanations for these patterns and to add context on assistant principals' roles, hiring, professional development, and support.

Exhibit A.1. Study's sequential mixed-methods design



B. Data sources and study sample

1. Administrative data

The study included data from the following sources covering the 2011–2012 through 2021–2022 school years for each district:

- **Staff data:** All districts provided annual staff data by school year, including staff roles, years of service in each role, highest degree held, gender, race and ethnicity, and school assignment. Central and Discovery provided these data for teachers, assistant principals, and principals; Hillside provided data for assistant principals and principals only (Exhibit A.2). On average, each district had around 10,000 teachers, 300 assistant principals, and 180 principals each year. Central also provided the dates when staff received certification, Discovery only provided data on whether staff held certification, and Hillside provided no data on certification. Evaluation scores were available only for Central, and only for 2014 through 2019.

Exhibit A.2. Counts of educators in the study from the administrative data

School year	Central			Hillside		Discovery		
	Teachers	Assistant principals	Principals	Assistant principals	Principals	Teachers	Assistant principals	Principals
2011–2012	9,931	474	132	152	230	10,115	276	165
2012–2013	9,708	477	131	140	237	10,317	287	171
2013–2014	9,997	497	131	63	229	10,611	309	171
2014–2015	10,361	515	133	61	236	10,670	319	175
2015–2016	10,646	536	136	51	232	10,712	334	172
2016–2017	10,790	535	139	103	232	10,743	328	179
2017–2018	10,908	561	139	140	233	10,828	337	184
2018–2019	11,056	561	140	168	228	10,931	358	188
2019–2020	11,098	588	141	188	225	11,204	376	194
2020–2021	11,013	573	141	185	226	11,217	374	193
2021–2022	11,656	542	141	230	223	11,721	406	187

Source: Administrative data from each district in the study.

Note: Values represent counts of educators in each role and school year. Data for all teachers in Hillside were not available for analysis.

- Publicly available school-level demographic and achievement data from state education agencies.** For each district, the study team collected school-level demographic and achievement data from the relevant state education agency website. Each district then provided a school identifier crosswalk to link schools in the state data to the staff data provided by the district. This approach minimized burden on districts by limiting requests for additional school-level files beyond staff records.

From the publicly available data, the study team collected annual measures such as school level, student enrollment, student demographics (race/ethnicity, gender, multilingual learner status, economic disadvantage, special education status), and academic outcomes (math and English language arts proficiency and graduation rates). One district also provided selected measures that were not available publicly (Exhibit A.3).

Exhibit A.3. Availability of school-level measures from public sources, by district

Measure	Central	Hillside	Discovery
Enrollment	Public	Public	Public
Student demographics (race/ethnicity, gender, multilingual learner status, economic disadvantage, special education)	Public	Public	Public
School level	Public	Public	Public
Achievement (math and English language arts proficiency; graduation rates)	Public	Public	Public
School type	Public	Public	District-provided
Attendance	Public	Public	District-provided
Suspension rates	Not available	Public	District-provided
Title I status	Public	Public	District-provided

Note: “Public” indicates the measure was available from state education agency websites. “District-provided” indicates the district provided the measure because it was not publicly available at the time of the study. “Not available” indicates the measure was not available from public sources and was not provided by the district.

2. Interview data

The study team conducted interviews with three groups of staff in each district—assistant principals, principals, and central office leaders (Exhibit A.4). Interviews occurred in late 2024 and early 2025 for Central, spring and fall 2025 for Hillside, and late 2023 and early 2024 for Discovery. District leaders recommended interview participants to ensure diverse perspectives across roles and contexts. For example, central office interviewees included staff from departments such as principal supervision, human resources, and leadership development. Central office leaders also identified assistant principals and principals who could speak to work across school levels and demographic contexts; when feasible, the study team interviewed principal–assistant principal pairs from the same school. Overall, participants represented different school levels (elementary, middle, K–8, and high schools) and racial and gender backgrounds (Exhibit A.5). In each district, at least 50 percent of participants identified as leaders of color, and at least half were women.

Exhibit A.4. Counts of interview participants by role and district

District	Assistant principals	Principals	Central office staff	Total interview participants
Central	6	8	5	19
Hillside	16	11	5	32
Discovery	8	7	5	20
Total	30	26	15	71

Source: Interviews with central office staff, principals, and assistant principals from each district in the study.

Exhibit A.5. Characteristics of interview participants by district

Characteristics	Central	Hillside ^a	Discovery
Elementary school leaders (principals and assistant principals)	6	8	4
Middle school leaders (principals and assistant principals)	3	not applicable	5
High school leaders (principals and assistant principals)	5	19	6
Female district and school leaders (central office administrators, principals, and assistant principals)	11	19	11
Leaders of color (central office administrators, principals, and assistant principals)	12	26	11
Total interview participants	19	32	20

Source: Interviews with central office staff, principals, and assistant principals from each district in the study.

Note: “Leaders of color” refers to staff who identified as a race or ethnicity other than White.

^a In Hillside, the district operated elementary, K–8, and high schools at the time of interviews. K–8 school leaders are included with high school leader counts.

C. Measures

1. Administrative data

The study used several measures to address its research questions (Exhibit A.6). For each district, a key analytic step was assigning each educator to a single primary role and school for each school year. In Central and Hillside, the study team used each educator’s primary role, relying on full-time equivalent (Central) or time in role (Hillside) to resolve rare cases with multiple roles or schools; remaining ties were resolved randomly. In Discovery, the study team used a multi-step rule to assign a primary role when educators held multiple roles or school assignments. To avoid potential overcounts due to within-year turnover, Discovery counts of assistant principals and principals were based on their role as of October 1 (available for 2012–2013 through 2021–2022).

Exhibit A.6. Measures from the administrative data

Measure	Description
Educator role	Indicates staff member as teacher, assistant principal, or principal. One district (Hillside) did not provide data on teachers who were not assistant principals or principals during the study period.
School level	Indicates grade span served by the school. High schools served combinations of grades 8–12; middle schools served combinations of grades 6–9; elementary schools served combinations of prekindergarten to grade 6. One district (Hillside) also had K–8 schools that served combinations of prekindergarten to grade 8.
School leader	Indicates staff member as assistant principal or principal.
Race and ethnicity	Indicates staff member as American Indian or Alaska Native, Asian, Black, Hispanic, Native Hawaiian or Other Pacific Islander, or White. The study team coded these groups as mutually exclusive using the following groups: Hispanic; non-Hispanic White; non-Hispanic Black; and non-Hispanic “other,” which included American Indian or Alaska Native, Asian, Native Hawaiian or Other Pacific Islander. The other group helped avoid disclosure risks due to small sample sizes of teachers from these backgrounds in each district.

Measure	Description
Gender	Indicates staff member as "female" or "not female." Those "not female" were included as "male" in the analysis.
Earned school leader certificate	Indicates whether staff member had a school leader certificate during any part of the study period. Data were available for all staff in Discovery and for approximately 60 percent of staff in Central, and not available for Hillside.
Ever an assistant principal	Indicates whether the staff member served in an assistant principal role in any year of the study period.
Ever a principal	Indicates whether the staff member served in a principal role in any year of the study period.
Experience	<i>For Central</i>, count of the number of years during the study period a staff member served in a teacher, assistant principal, or principal role. <i>For Hillside</i>, experience information is unavailable. <i>For Discovery</i>, count of the number of years during the study period a staff member held a school leader certification, beginning with the school year in which staff received the certificate.
Student characteristic rates	Percentage of students within a school identified by race (Alaska Native, Asian, Black, Hispanic, Native Hawaiian or Other Pacific Islander, or White), gender (female or male), multilingual language learner status, and receipt of special education services.
Free and reduced-price lunch rate	Percentage of students within a school eligible for free or reduced-price lunch during each school year.
Attendance	Attendance data varied between districts. <i>For Central</i>, chronic absenteeism, defined as the percentage of students with more than 15 excused or unexcused absences during a school year. <i>For Hillside</i>, a 95 percent attendance rate, defined as the percentage of students present at least 95 percent of school days during a school year. <i>For Discovery</i>, chronic absenteeism, defined as the percentage of students absent more than 10 percent of days in the school year.
Suspension rates	Percentage of students within a school who were suspended at least once during each school year; not available for Central.
Proficiency rate	Proficiency rate is the percentage of students within a school who scored proficient or above on the state's standardized assessments in mathematics and English language arts. In elementary and middle school grades, proficiency is based on the state's end-of-grade assessments. In high school, proficiency is based on the state's end-of-course assessments aligned to required math and English language arts courses.
Evaluation scores	<i>For Central</i>, evaluation scores were available for 2014–2019. Teacher evaluations used a 0–3 scale (higher values indicate higher performance) on 10 standards (total score range: 0–30). Assistant principal and principal evaluations used a 0–3 scale on eight standards (total score range: 0–24). Educators were also categorized as ineffective, needs development, proficient, or exemplary. <i>For Hillside</i>, evaluation scores were not available. <i>For Discovery</i>, teacher evaluations used a 5-point scale (higher values indicate higher performance) on two available standards—Standard 1 (<i>teachers demonstrate leadership</i>) and Standard 4 (<i>teachers facilitate learning for their students</i>)—which were analyzed separately. Assistant principal and principal evaluations used a 5-point scale (higher values indicate higher performance), averaged across seven executive leadership standards.

D. Analysis

Key findings in the report come from the analyses of administrative and interview data.

1. Administrative data analysis

The study team analyzed the administrative data using descriptive statistics, regression analyses, and survival (time-to-event) analyses.

- **Descriptive analyses.** The team calculated annual descriptive statistics (for example, means and percentages) for educator and school characteristics to document trends in the number of assistant principals, assistant principal allocation to schools, and career pathways.
- **Linear regressions.** The study team used linear regression models to examine associations between educator and school characteristics and evaluation scores. To make scores comparable across years, annual evaluation scores were standardized into z-scores. Teacher models related standardized teacher evaluation scores to educator role, years of teaching, race and ethnicity, gender, school level, and school percentage of economically disadvantaged students. Separate school leader models related standardized leader evaluation scores to leaders' race and ethnicity, gender, and other covariates, including years observed as an assistant principal or principal, school level, and school socioeconomic context.
- **Logistic regression.** The study team used logistic regression models to examine whether assistant principals with higher standardized leader evaluation scores were more likely to become principals in the subsequent year. Models accounted for years as an assistant principal, school level, race and ethnicity, gender, and school percentage of economically disadvantaged students.
- **Survival analysis.** The study team used survival (time-to-event) analyses to estimate educators' rate of advancement to assistant principal and principal roles, accounting for career paths not fully observed within the study period (right-censoring). Because data availability differed by district, the study team estimated different transitions across districts: all three districts supported analyses of time from assistant principal to principal and two supported analyses of time from teacher to assistant principal (Exhibit A.7). The study team estimated hazard ratios using Cox proportional hazards models and examined differences by race, ethnicity, and gender groups (Black men, Black women, White men, and White women); results for these models are reported in Appendix B. For sensitivity checks, the study team also estimated the hazard ratios using models that included covariates for school characteristics, educators' levels of education, or evaluation scores, as available. Some models restricted the sample to subsets of years in the study period to account for temporal trends. Given the small sample sizes, this method avoided the unnecessary loss of variation from using school or year fixed effects. Results were generally robust to these model variations, and findings using race, ethnicity, and gender groups only are reported for parsimony.

Exhibit A.7. Survival analyses by district

District	Teacher to assistant principal	Assistant principal to principal
Central	Yes	Yes
Hillside	No	Yes
Discovery	Yes	Yes

2. Interview data analyses

The study team coded and analyzed recordings and transcripts of interviews with central office staff, principals, and assistant principals to address the study’s research questions. Interviews were coded thematically to reflect topics of interest. Throughout the interview process, study team members iterated on and revised their codes to accurately capture themes from the data. Finally, the study team analyzed interviews and themes by trends and patterns based on leadership roles (assistant principals, principals, central office) and subgroups based on participant background (gender, years of experience, race and ethnicity), assistant principal–principal pairs within a school, and school characteristics (level, student populations served).

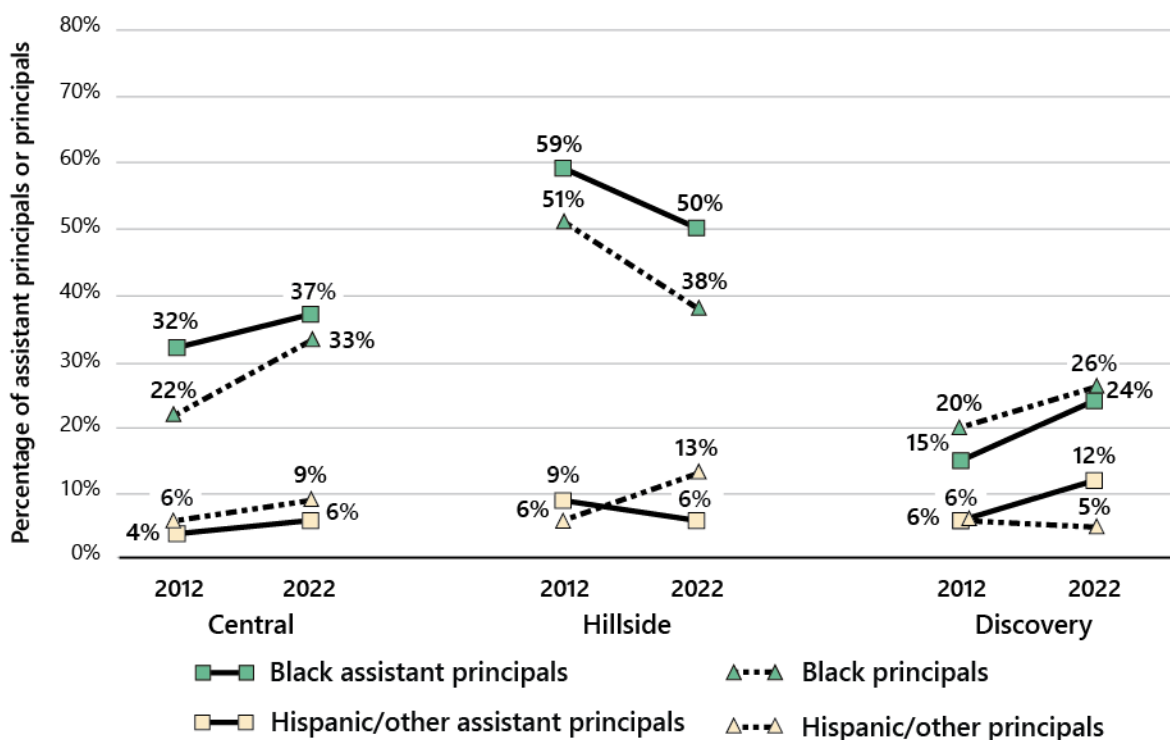
Appendix B

Additional Findings from the Analyses

A. Support and additional findings for diversifying the pathway to the principalship

Across districts, principal diversity trends generally tracked assistant principal diversity trends. Central increased the shares of Black and Hispanic principals, and Discovery increased the share of Black principals (Exhibit B.1). Hillside's share of Black principals declined but remained higher than in Central and Discovery; Hillside also increased the share of Hispanic/other race or ethnicity principals. Overall, these results suggest that gains in assistant principal diversity, together with promotions and external hiring, were associated with increased diversity among principals within districts. Trends for women were mixed: the share of female principals declined in two districts but increased in the third (Exhibit B.2).

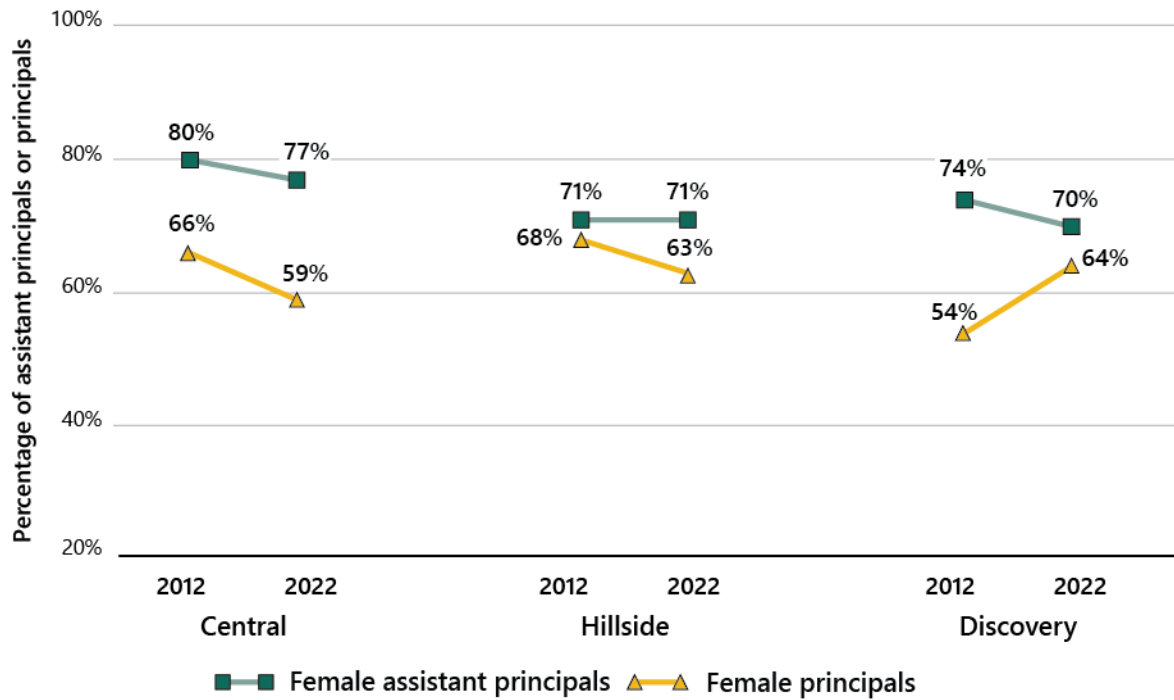
Exhibit B.1. Two districts increased their shares of Black and other principals of color



Source: Administrative data from each district in the study.

Note: "Other principals of color" refers to principals who identified as a race or ethnicity other than White. In the graph, "Hispanic/other" refers to "Hispanic/other race or ethnicity," and includes staff identified as American Indian or Alaska Native, Asian, Hispanic, Native Hawaiian or Other Pacific Islander, and two or more races. Due to the small numbers of non-Black or non-White staff in each district, these groups are combined for reporting to ensure groups of at least 10 for each district; at least 60 percent of staff in the combined groups are Hispanic for each district.

Exhibit B.2. The share of female principals declined in two districts and rose in the third district



Source: Administrative data from each district in the study.

Across all three districts, assistant principals of color were more likely to serve in schools enrolling larger shares of students who had the same racial and ethnic backgrounds. These schools also tended to have higher suspension and chronic absenteeism rates and lower math and reading proficiency (Exhibit B.3).

Exhibit B.3. Select student behavior and achievement measures by assistant principal race and ethnicity, 2022

Assistant principal race	Percentage of students suspended ^a	Percentage of students chronically absent or with 95 percent attendance rate ^b	Average math and reading proficiency	Number of assistant principals
Central				
Black	–	19	39	199
Hispanic/other race or ethnicity	–	21	43	43
White	–	17	51	300
Hillside				
Black	8	30	23	113
Hispanic/other race or ethnicity	8	22	18	13
White	7	33	27	102
Discovery				
Black	12	28	56	151
Hispanic/other race or ethnicity	10	24	59	19
White	11	25	61	236

Source: Administrative data from each district in the study.

Note: Data shown for 2021–2022, the most recent year of the study; patterns are similar for earlier school years. “Hispanic/other race or ethnicity” includes assistant principals identified as American Indian or Alaska Native, Asian, Hispanic, Native Hawaiian or Other Pacific Islander, and two or more races. Due to the small numbers of non-Black or non-White assistant principals in each district, these groups are combined for reporting to ensure groups of at least 10 for each district; at least 60 percent of assistant principals in the combined group are Hispanic for each district.

^aSuspension rate includes in-school and out-of-school suspensions for Discovery and out-of-school suspensions only for Hillside. Discipline data not available for reporting from Central.

^bFor Central and Discovery, values represent the percentage of students who were chronically absent. For Hillside, values represent the percentage of students who achieved a 95 percent attendance rate; see Exhibit A.6.

Survival (time-to-event) analyses showed clearer and more consistent differences in advancement to the assistant principal role than to the principal role across race and gender groups. Rates of advancement from the assistant principal to principal role generally did not differ significantly across groups (Exhibit B.4). There was one exception: in Central, White women advanced more slowly than White men. In the two districts with available data on advancement from teacher to assistant principal, Black men advanced to the assistant principal role at faster rates than White men—about 1.8 times as quickly in Central and 2 times as quickly in Discovery (Exhibit B.5). Patterns for Black women were less consistent: in Central, Black women advanced at about the same rate as White men, whereas in Discovery, they advanced more slowly. White women advanced more slowly than White men in both districts. The analyses did not examine rates of advancement for Hispanic educators or other race or ethnicity educators because their sample sizes were too small.

Exhibit B.4. Survival (time-to-event) analyses for assistant principal advancement to the principal role, by district

Advancement to the principal role; likelihood ratio for			
District	Black men	Black women	White women
Central	0.34	0.48	0.11*
Hillside	1.23	0.92	0.76
Discovery	1.62	1.57	2.13

* indicates significance at the .05 level.

Source: Administrative data from each district in the study.

Note: The exhibit provides the group's likelihood of advancing from the assistant principal role to the principal role compared to White men, expressed as a ratio from the results of a Cox proportional hazards model. For example, for Central, White women's likelihood of advancing to the principal role was 0.11 times that of White men (values above 1 represent faster advancement, values below 1 represent slower advancement).

Exhibit B.5. Survival (time-to-event) analyses for teacher advancement to the assistant principal role, by district

Advancement to the assistant principal role; likelihood ratio for			
District	Black men	Black women	White women
Central	1.80*	1.18	0.46*
Discovery	1.98*	0.67*	0.68*

* indicates significance at the .05 level.

Source: Administrative data from each district in the study.

Note: The exhibit provides the group's likelihood of advancing from the teacher role to the assistant principal role compared to White men, expressed as a ratio from the results of a Cox proportional hazards model. For example, for Central, Black men's likelihood of advancing to the assistant principal role was 1.80 times that of White men (values above 1 represent faster advancement, values below 1 represent slower advancement). For Discovery, the sample was limited to those with a school leader certificate. Data not available for Hillside.

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