Review of Educational Research
February 2018, Vol. 88, No. 1, pp. 87–124
DOI: 10.3102/0034654317743197

A Review of the Literature on Principal Turnover

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Among the many challenges facing public schools are high levels of principal turnover. Given the important role that principals play and are expected to play in the improvement process, concerns about principal turnover have resulted in a growing body of research on its causes and consequences. The purpose of this review is to take stock of what we have learned about the sources and consequences of principal turnover and to identify what gaps remain. The final review included 36 empirical studies. It discusses and categorizes findings relating to the determinants and consequences of principal turnover. The review concludes with a discussion about the implications of those findings and the areas and kinds of research still needed.

Keywords: principal turnover, career paths, school leadership

Among the many challenges facing public schools are high levels of principal turnover. Principal turnover, which in the literature broadly includes principal changes to other schools, districts, or positions as well as exits from the school system all together, varies widely across types of schools and across the country. For example, according to a nationally representative sample of private and public school principals from 2011 to 2012, 6% of principals moved to a new school and 12% left the principalship all together (Goldring, Taie, & Owens, 2014). In Texas, almost 30% of public school principals left their school after 1 year, on average, between 1995 and 2001 (Branch, Hanushek, & Rivkin, 2009). Between 2001 and 2008 in Illinois, almost 21% of principals left their schools each year for different schools, districts, states, positions, or to retirement (DeAngelis & White, 2011). Moreover, levels of principal turnover can be higher than these average rates once schools are disaggregated.

Principal turnover is concerning because of the pivotal role that principals play and are expected to play in leading school improvement and because of the time research indicates that improvement can take—5 to 7 years (Fullan, 2001). In other words, a constant churn of principals can make it hard for schools to implement new policies and programs and to commit to improvement (Holme & Rangel, 2012; Miller, 2013). Research also indicates that principals have an important, if indirect, effect on student learning. Indeed, an effective principal can

help "grow" a student's learning, while an ineffective principal can act as a drag on a student's learning (Branch et al., 2009; Dhuey & Smith, 2014; Grissom, Kalogrides, & Loeb, 2014). Specific ways in which principals indirectly affect student learning include hiring effective teachers (Baker & Cooper, 2005; Brewer, 1993; Burkhauser, Gates, Hamilton, & Ikemoto, 2012), setting the vision and expectations for the school (Brewer, 1993; Day, Gu, & Sammons, 2016; Eberts & Stone, 1988; Hitt & Tucker, 2015; Robinson, Lloyd, & Rowe, 2008), creating a positive organizational culture (Hallinger & Heck, 1996), supporting teachers' professional learning (Printy, 2008), and providing strong instructional (Day et al., 2016; Eberts & Stone, 1988; Hitt & Tucker, 2015; Robinson et al., 2008) and managerial leadership (Grissom & Loeb, 2011). Finally, principal turnover is costly to districts: A 2014 report estimates that it costs districts at least $75,000 to develop, hire, and onboard a single principal (School Leaders Network, 2014).

Concerns about high levels of principal turnover have resulted in a growing body of research on its causes and consequences. There has been no synthesis of this literature to date, however. Indeed, as Farley-Ripple, Solano, and McDuffie (2012) have noted, the literature on principal career paths and turnover suffers from several conceptual and methodological issues that make it difficult to evaluate the literature as a whole. Two key challenges can be attributed to the way that turnover has been defined and operationalized. As Solano, McDuffie, Farley-Ripple, and Bruton (2010) describe in their analysis of the methodological heterogeneity among studies on principal turnover, there are multiple ways that a principal's departure from a school has been conceptualized in the literature. For example, some research has measured turnover as principal retention or tenure in a school (e.g., Baker, Punswick, & Belt, 2010; Fuller & Young, 2009; Papa, 2007; Papa, Lankford, & Wyckoff, 2002), while other research has measured it as a single departure from a school (e.g., Li, 2015; Loeb, Kalogrides, & Horng, 2010; Oberman, 1996), or as a series of career transitions, including retirement (e.g., Farley-Ripple, Raffel, & Welch, 2012; Li, 2015; Solano et al., 2010). Studies also may group principals together with assistant principals and other district-level administrators (e.g., Akiba & Reichardt, 2004; Gates, Ringel, Santibañez, Ross, & Chung, 2003; Lochmiller, Adachi, Chesnut, & Johnson, 2016), making it impossible to understand which factors are relevant for principal turnover, as opposed to the turnover of other campus or central office administrators.

Studies also have sought to answer several different research questions. For example, some research has examined the factors that relate to turnover (e.g., Burkhauser et al., 2012), while other work has investigated those factors related to principal retention (e.g., Baker et al., 2010), principals' mobility intentions (e.g., Tran, 2017), and even differences in turnover behavior between charter school and traditional public school principals (e.g., Sun & Ni, 2016). Though in some cases the research question implies a particular form of measurement, what this review uncovered is that in many cases similar research questions were answered using different measures for turnover.

The purpose of the present synthesis, then, is to build on the work of Farley-Ripple and colleagues (Farley-Ripple, Raffel, et al., 2012; Farley-Ripple, Solano, et al., 2012) by further parsing the research on principal turnover and by

synthesizing key findings. In this way, I seek to improve our understanding of the ways in which principal turnover has been studied, the significant findings that have emerged, and the gaps that remain. Specifically, this review will consider the ways in which turnover has been defined and measured and what we have learned about the sources and effects of principal turnover. To accomplish this, the following broad questions will be answered:

Research Question 1: How has principal turnover been defined and measured in the literature?
Research Question 2: What are the determinants of principal turnover?
Research Question 3: What are the consequences of principal turnover?

Method

The review was constructed by following the conceptual framework set out by Hallinger (2014). Hallinger (2014) uses the following questions to form a conceptual framework for rigorous reviews of research within educational leadership:

1. What are the central topics of interest, guiding questions, and goals?
2. What conceptual perspective guides the review's selection, evaluation, and interpretation of the studies?
3. What are the sources and types of data employed in the review?
4. What is the nature of the data evaluation and analysis employed in the review?
5. What are the major results of the review?

Because this review is the first attempt to provide a systematic review of the literature, it was guided by a desire to understand both the factors that are associated with turnover (determinants or causes) and turnover's consequences for schools and student learning. Each of the components of the framework is discussed in greater detail in the following sections.

Search and Review Methods

The review process used was "exhaustive," which Hallinger (2014) describes as the reviewer combing through "a wide range of possible sources in an attempt to identify all potentially relevant studies" (p. 545). It began with thorough searches of three online search engines (ERIC, Google Scholar, EBSCOhost) using three different key phrases. The search ranged from 1990[1] to 2017 and used the following keywords: "principal turnover," "principal attrition," and "principal mobility," in that order. In EBSCOhost, I searched in "all text." This search identified a total of 1,909 studies and articles, many of which overlapped. Table 1 summarizes the search results for each key phrase and each search engine.

Inclusion and Exclusion Criteria

As there currently are no other published reviews of the research on principal turnover, I included a wide range of mixed methods and quantitative empirical

TABLE 1

Document search results

Type	ERIC	Google Scholar	EBSCOhost
"Principal turnover"			
Yield	57	1,360	46
Retained	9	18	0
"Principal attrition"			
Yield	11	186	5
Retained	2	3	0
"Principal mobility"			
Yield	9	229	6
Retained	2	2	0
Subtotals	13	23	0
Total retained	36		

studies. The key criteria built on Guarino, Santibañez, and Daley's (2006) work, which points to relevance, empirical nature, and scholarship quality. As such, studies were included if they focused primarily on principal turnover (relevance), whether the study separated out principals from other administrators such as assistant principals;[2] whether it reported the results from an original, empirical study (empirical nature); whether the study examined schools in the U.S. context; and whether it met the reporting standards outlined by the American Educational Research Association's (2006) reporting standards (a clear logic of inquiry, clearly described design and methods, appropriate evidence for the research questions, and warrants for any conclusions). These criteria eliminated the vast majority of documents identified through the search. An additional criterion was used to exclude dissertations or theses largely for the sake of space: A search of "principal turnover" returned over 960 theses and dissertations. This is a limitation of this review. Other non–peer-reviewed research reports and working papers (e.g., Cullen & Mazzeo, 2007) were included because such a large proportion of the studies were unpublished. An asterisk next to authors' names in Table 2 indicates that the study was not peer-reviewed and so the results should be interpreted with caution. In total, I conducted nine document searches, three using each search engine, from which I retained 36 unique studies.[3] All the studies reviewed, including details of the turnover measures they use, are summarized in Table 2. A full table including all significant findings can be found in the supplemental appendix (available in the online version of the article).

Organization of Studies

The selected studies were categorized in two ways. First, they were grouped according to where they fell within the conceptual framework: a cause of principal turnover or a consequence of principal turnover. Then the studies were broken down further according to how principal turnover was measured.

TABLE 2

Summary of studies included in review

Author(s) and year	Turnover measure	Data and context	*n*
Baker, Punswick, and Belt (2010)	Stability measure: Stability ratio (amount of time principal was in any given school compared to time in data set); highly stable versus unstable principal; mobility multiple paths measure (left principalship, first move to a new school, second move to a new school)	Missouri administrative data (1999–2006); IPEDS data	2,700 principals (1999–2006); 3 cohorts of principals (1999, 2000, 2001)
Battle and Gruber (2010)*	Aggregate measure	PFS (2008–2009) data	7,460 public schools, 130 BIE schools, 1,890 private schools
Béteille, Kalogrides, and Loeb (2012)	Dichotomous measures: Whether campus has a new principal; whether new principal is a first-time principal; whether new principal has experience as a principal in the district	Administrative and student data from Miami-Dade County public schools (2003–2004 to 2008–2009)	516–522 principals
Boyce and Bowers (2016)	Dichotomous measure: Whether principal changed to a new position at a new school, changed to a new school as a principal, moved to central office, or retired	SASS (2007–2008) and PFS (2008–2009) data	7,460 principals
Branch, Hanushek, and Rivkin (2009)*	Mobility multiple paths measure: Same school as principal, same school new position, new school as principal, different position in a new school, central office position, exit public schools	Texas administrative and school performance data (1995–2001)	32,478 principals across all years
Burkhauser, Gates, Hamilton, and Ikemoto (2012)*	Dichotomous measure: Whether principal left school in a given year (operationalized longitudinally)	Administrative and performance data from 6 urban districts with new leaders principals (2008–2009 through 2010–2011); survey data	519 principals
Clotfelter, Ladd, Vigdor, and Wheeler (2006)	Aggregate measure: Rate of turnover for schools across poverty quintiles	North Carolina school-level administrative and school demographics data (1996–2004)	Not reported

(continued)

TABLE 2 (continued)

Author(s) and year	Turnover measure	Data and context	*n*
Cullen and Mazzeo (2007)*	Dichotomous: Whether a campus had a new principal in the next year of the data set; whether principal remains at same campus in following year	Texas administrative and student data (1989–2006)	6,254 campuses; 17,339 principals
DeAngelis and White (2011)*	Aggregate measure: Turnover over time by principal cohort; mobility multiple paths measure: Stayed in same school, principal in new school but same district, principal in a new school and district, new position in Illinois public schools, left Illinois public schools	Administrative and performance data from Illinois (2001–2008)	7,075 unique principals
Farley-Ripple, Raffel, and Welch (2012)	Mobility multiple paths measure: Stayed in same school, moved to new school, moved to new district, moved to central office, returned to teaching, not in system	Delaware administrative data (2003–2009); interview data (2009–2010)	25 principals
Fuller, Young, and Orr (2007)*	Dichotomous mobility measure: Whether a principal became a superintendent or assistant superintendent, returned to being a teacher, became an assistant principal, or stayed as a principal during 10 years; whether a principal remained in the same position at the same school during a 3-year time span	Texas administrative and performance data (1995–1996 to 2005–2006)	6,091 principals; 1,768 principals; 19,290 principals
Fuller and Young (2009)*	Stability measure: Number of years a principal stayed in the same school	Texas administrative and student performance data for newly hired principals (1995–2008)	16,544 principals
Gates et al. (2006)	Mobility multiple paths measure: Leave the system, remain as principal in same school, remain as principal in new school, remain in system new position	North Carolina and Illinois individual-level administrative data (1978–2001); Common Core of Data	Not reported

(continued)

TABLE 2 (continued)

Author(s) and year	Turnover measure	Data and context	*n*
Goldring, Taie, and Owens (2014)*	Aggregate measure	SASS (2011–2012) and PFS (2012–2013)	7,500 public schools, 1,500 private schools
Jacob, Goddard, Kim, Miller, and Goddard (2015)	Dichotomous measure: Whether a principal in a participating school during the baseline year was still in the same school at the end of the third year of the study	Administrative and performance data from 62 treatment schools and 64 control schools in Michigan	122 principals
Hanselman, Grigg, Bruch, and Gamoran (2016)	Dichotomous measure: Whether a school experienced a change in principal from 1 year to the next	Los Angeles Unified School District administrative and school data (2006); survey data (2006, 2008)	73 schools
Kearney, Valdez, and Garcia (2012)	Stability measure: Principal retention/longevity	Texas administrative and performance data (2007–2009)	105 elementary schools, 44 secondary schools
Li (2015)*	Dichotomous mobility measure: Whether a principal moves to a different school in the next year	North Carolina administrative and performance data (1995–2007)	214 principals who switched schools; 383 schools
Loeb, Kalogrides, and Horng (2010)	Mobility measure multiple paths: School changes (stayed, transfer, exit); dichotomous measure (stayed vs. left)	Miami-Dade County public schools administrative and student data (2003–2004 to 2008–2009); administrator survey data (2008); Common Core of Data	326 principals, 583 assistant principals
Mascall and Leithwood (2010)	School stability measure: The number of principals in a school over a 10-year period	Survey data collected across multiple states in United States; student achievement data from state education departments (2003–2005)	80 schools
Miller (2013)	Dichotomous measure: Whether principal left school	North Carolina administrative and performance data; Common Core of Data (1995–2006)	979 elementary schools

(continued)

TABLE 2 (continued)

Author(s) and year	Turnover measure	Data and context	*n*
Mitani (2017)	Dichotomous turnover measure (whether principal returned to school); mobility multiple paths (stayed in school, transferred to a new school, other); mobility multiple paths (stayer, within-district transfer, new district, other)	SASS (2007–2008) and PFS (2008–2009) data, Common Core of Data (2006–2007), and AYP data from 45 SEAs	3,200 principals, 3,110 schools
Noonan and Goldman (1995)*	Dichotomous turnover measure: Whether a campus lost a principal	Teacher survey data (1994) and principal interviews (1994 and 1995)	12 principals, 134 teachers, 2 superintendents
Oberman (1996)*	Dichotomous turnover measure: Whether a campus lost a principal	Chicago Public School administrative (1987–1995) and survey (1992) data; interviews principals in 1993	Surveyed 457 principals (1992), interviewed 61 principals (1995)
Ni, Sun, and Rorrer (2015)	Mobility multiple paths measure: Stay, move to a new school, change positions, leave school system	Utah administrative and student data (2004–2011)	851 principals
Partlow (2007)	Stability measure: The number of principals at a school during a 7-year period	Data from Ohio Department of Education for elementary schools in southwest Ohio (1996/1997–2002/2003)	109 elementary schools
Papa (2007)	Mobility dichotomous measure: Inter- versus intradistrict analyses: Same school (same or different position); different school, same district (principal or different position); different school and district (principal or different position); left system	New York state administrative data for newly hired principals (1991–1999)	816 for interdistrict analysis; 735 for intradistrict analysis
Papa, Lankford, and Wyckoff (2002)*	Mobility multiple paths measure	New York state administrative data (1971–2000)	12,000 principals
Podgursky, Ehlert, Lindsay, and Wan (2016)*	Mobility measure: Same school, new school, not employed in a public school in the state after 5 years	Administrative and performance data from Iowa, Minnesota, and Wisconsin (2005–2006 to 2012–2013)	Iowa: 1,290 principals; Minnesota: 1,706 principals; Wisconsin: 2,313 principals

(continued)

TABLE 2 (continued)

Author(s) and year	Turnover measure	Data and context	*n*
Reames, Kochan, and Zhu (2014)	Intent to retire	Survey of Leadership in Alabama	258 principals in Alabama
Solano, McDuffie, Farley-Ripple, and Bruton (2010)*	Tenure: Length of time in years that an individual has been a principal in state system; number of years principal has served in same school; multiple dichotomous measures: Any departure, principal at a new school, principal in a new district, move to central office, retire, leave Delaware system	Administrative data from Delaware (1995–1996 to 2009–2010)	*n* = 955
Sun and Ni (2016)	Dichotomous measure: Whether principal left school	SASS (2007–2008) and PFS (2008–2009) data	220 charter school principals, 4,750 traditional principals
Tekleselassie and Villarreal (2010)	Dichotomous measure: Intent to transfer away from current school	SASS data (2003–2004)	7,740 principals, 4,550 school districts, 50 states
Tran (2016)	Principal turnover intention: Five responses (not defined)	Survey data from California (Minnesota Satisfaction Questionnaire; Pay Satisfaction Questionnaire), administrative and school performance data from state	156 principals
Tran and Buckman (2017)	Mobility measure, multiple paths: "No movement," "different school," "different district"	Administrative and performance data from Wisconsin (2009/2010 to 2011/2012)	109 elementary schools
Weinstein, Jacobowitz, Ely, Landon, and Schwartz (2009)*	School stability measure: Whether a school experienced a change in principal from one year to the next	Administrative and performance data from New York City (1993–2007)	80 high schools that opened between 1993 and 2002

Note. IPEDS = Integrated Postsecondary Education Data System; PFS = Principal Follow-Up Survey; BIE = Bureau of Indian Education; SASS = Schools and Staffing Survey; AYP = adequate yearly progress; SEAs = state education agencies.
*Indicates that the study was not peer-reviewed.

Types of Data

Given the diverse nature of the studies incorporated, a variety of data was collected. Data collected included data sources (e.g., state organization, years), measures for principal turnover, characteristics of the sample (e.g., size and context[4]), research questions, key variables included in the analysis (either as independent or dependent variables), nature of the research design (e.g., quasi-experimental, correlational, descriptive) and methods, and findings (odds ratios [ORs], coefficients, and standard errors).

Data Evaluation and Analysis

Data collected were analyzed critically, but were not analyzed using meta-analysis. To conduct a meta-analysis, at least two studies must meet the following criteria: They had to answer the same research question, define and measure turnover in the same way, and analyze the same sets of relationships (e.g., math achievement as a predictor of turnover). In total, only three opportunities for meta-analysis were identified due to the lack of overlap in research questions, turnover measurement, and relationships included. Instead of meta-analysis, then, the 36 studies were critically synthesized according to where they fell within the conceptual framework and the ways in which turnover was measured, with the goal of identifying and comparing key findings. As part of this, I report sample sizes, odds ratios, regression coefficients and standard errors in the supplemental appendix, available in the online version of the article.

Finally, it should be noted that almost all the studies, with a few exceptions that will be noted, are observational studies using correlational designs or are descriptive studies. In other words, few of the studies met the criteria set forth by the What Works Clearinghouse (WWC) to identify strong designs that would allow the researchers to make causal claims.[5] For this reason, I do not discuss the quality of the studies' designs, except to note those studies that do use rigorous designs.

Defining and Measuring Principal Turnover

The logical place to start to understand principal turnover is to identify how it has been defined and measured in existing research, particularly in quantitative research. The most basic definition of principal turnover is that it occurs when a principal does not return to the same school from one year to the next. This definition, however, does not capture any information about the nature of the departure. For example, was the principal satisfied or dissatisfied when he or she left (Boyce & Bowers, 2016)? Was the turnover voluntary or involuntary (i.e., was the principal removed or did she or he leave on her or his own; Farley-Ripple, Raffel, et al., 2012)? Where did the principal go? These differences matter because the specific context and outcome of each decision affect the nature of the relationships we observe as well as the implications for policy makers and practitioners. For example, several studies have found that relatively low salaries are related to principal turnover and that higher salaries lure principals to leave one school or district for another (Baker et al., 2010; Cullen & Mazzeo, 2007; Farley-Ripple, Raffel, et al., 2012; Papa et al., 2002; Solano et al., 2010; Tran, 2017). These studies, however, do not consider whether the departing principals were satisfied with their jobs,

and Boyce and Bowers (2016) found that those principals who were identified as satisfied leavers also reported being satisfied with their salary.

The way principal turnover has been operationalized varies widely across studies. One of the challenges to measuring principal turnover relative to, for example, teacher turnover, is that in any given school, there usually is only one principal who either stays or leaves. In addition, the ways in which turnover has been measured also have varied according to the research question(s) posed as well as the data used. For example, some studies have investigated turnover as principals' actual departure, while others have measured turnover as principals' *intention* to leave (e.g., Tekleselassie & Villarreal, 2010). These differences matter because they affect (and limit) our ability to compare studies and their claims and they also answer different questions and produce findings with different implications.

In this section, I briefly extend the work of Farley-Ripple and colleagues (Farley-Ripple, Solano, et al., 2012) on principal turnover by identifying two general types of turnover, by reviewing the ways in which principal turnover has been operationalized and measured and by identifying the strengths and weaknesses of the different approaches.

Turnover as Mobility

One way to measure principal turnover focuses on the mobility of principals out of schools. Within this broad group, there are three different measures: aggregate measures, dichotomous measures, and multiple paths measures. Aggregate measures locate the unit of analysis at a group level, such as the district level, capturing the movement and distribution of principals across groups or subgroups of schools or districts. Dichotomous and multiple pathway measures are applied at the individual principal level, with dichotomous measures considering two possible outcomes, such as leaving versus staying, and multiple pathway measures considering the various decisions that principals make, such as staying, changing schools, changing districts, and so on. A key difference between the two is that studies using dichotomous measures employ logistic analyses to model the probability of one outcome versus a second outcome, while those using a multiple paths approach use techniques that capture the probabilities associated with each of several (i.e., more than two) outcomes, such as multinomial logistic analysis or, for longitudinal analyses, hazard or survival models.

Turnover as Stability

The second group of measures focuses on stability, or the amount or proportion of time that one principal is at the same school. The first measure, principal retention, captures how long a principal stays in the same school before leaving. The most common way to measure retention is to count the number of years that a principal is at the same school during a particular time period. A second, but less common, way to capture retention is to measure the *proportion* of time that she or he is at one school relative to the full number of years in the data set or in that principal's career. School stability measures differ from principal retention because they are measured at the school level. The dependent variable, then, is a measure of how many principals have been at a single school during a particular time period.

Weighing Different Measures

There are trade-offs involved with how one decides to operationalize and measure principal turnover. Stability measures, for example, provide more information at the school level than mobility measures, and therefore are useful for estimating the impact of a principal and his or her departure on a school and student achievement. Stability measures also can help with the identification of any cumulative effect of turnover.

Most mobility measures center at the principal level and therefore are useful for tracking principals across the trajectory of their careers as they make career moves. Dichotomous mobility measures also allow for the estimation of school effects versus principal effects (e.g., Branch et al., 2009), which is an important step in trying to untangle the two. Aggregate measures are appropriate for describing trends in turnover, whether across schools, districts, or time. They are less useful, however, in those studies that seek to predict individual principal turnover or to explain different principal career pathways. Conversely, the dichotomous and multiple pathway measures are less appropriate for describing trends and are more appropriate for studying and predicting individual decisions.

The relative utility of each approach, therefore, depends on the research question and the policy concern. For example, a district may not be interested in the particular path a principal takes when she or he leaves a school; it simply may want to reduce turnover of any kind. In this case, a stability or a dichotomous mobility measure would be more useful. A different question, however, may ask about the career paths of principals. From the perspective of an education agency such as a district, whether a principal stays in his or her school may be less important than whether the principal stays in the district in some capacity because that career move continues to contribute to the pipeline of administrators needed to manage schools and the district. In that case, a multiple paths mobility measure would be most useful. Similarly, a researcher may be interested in the impact of principal turnover, which ideally would involve the estimation of separate school and principal effects to untangle the two. For this, a dichotomous mobility or a stability measure may be the most appropriate.

Finally, because the measure used is driven by the research question(s) posed, it is important to note that even within one type of measurement, such as dichotomous measures, there are differences. For instance, dichotomous measures include all the following scenarios: whether a principal intends to leave his or her school (e.g., Reames et al., 2014; Tekleselassie & Villarreal, 2010), whether a principal actually leaves his or her school (e.g., Li, 2015; Papa, 2007), or whether a principal leaves after his or her first year or after the second year (Burkhauser et al., 2012). These differences matter both for how we understand and theorize about principal turnover and for how policy makers should think about and try to address turnover.

Weighing Claims About Principal Turnover: Determinants and Consequences

In this section, I will discuss the various claims made about both the determinants and consequences of principal turnover. This section is organized around

the key findings from and turnover measures used in each study. Each section concludes with a critical appraisal of the studies.

Determinants of Principal Turnover

A growing body of research has accumulated on the likely determinants of principal turnover. Most of this work has been exploratory, but two studies employed a quasi-experimental design (Burkhauser et al., 2012; Mitani, 2017), and one an experimental design (Jacob et al., 2015). A wide range of factors associated with principal turnover have emerged as statistically significant, though the studies vary in terms of the specific research questions posed, and the turnover measures and analyses used. The explanatory factors that will be discussed are principal characteristics, school and student characteristics, the nature of the position, and policy.

Principal Characteristics

Researchers have identified several principal characteristics that are related to principal turnover: a principal's sex, race, age, level of experience, education, and level of satisfaction.

Principal sex. Findings related to principal sex were mixed across studies, and the effect of sex on principal turnover often depended on another variable. The first study used a stability measure defined by the number of years that principals stayed in the same school. Fuller et al. (2007) found that among the cohort of principals who started in the year 1996, female principals were 50% less likely than male principals to still be principals 5 years later (OR = 0.52), 60% more likely to have left public education all together after 5 years (OR = 1.61), and 78% more likely than their male counterparts to have left education after 10 years (OR = 1.78). They also found, however, that female principals were 34% more likely male principals to still be principals 10 years later (OR = 1.338).

Three studies used a multiple pathways measure. Gates et al. (2006) found a main effect for principal sex in Illinois, but none in North Carolina. They also found several interactions. For example, principal sex interacted principal age such that female principals at ages 35 and 45 are as likely in Illinois and slightly more likely in North Carolina to drop out of the school system compared with their male counterparts; at ages 55 and 65, males are more likely to drop out in both states. Female principals in Illinois also were more likely to remain in the public school system beyond retirement age, and more likely to leave the system in North Carolina middle and combined schools, while those in combined schools were more likely to switch schools. Among Delaware principals, Solano et al. (2010) found that male principals were 20 times (OR = 20.2) more likely to retire from the state public school system than female principals. Finally, in Utah, males were 22% (OR = 0.78) less likely to move to a new school than female principals, but sex did not matter for position changes or leaving the system (Ni et al., 2015).

Three studies used dichotomous turnover measures. Oberman (1996) found that, in Chicago, more men left the principalship between 1992 and 1994. In Delaware public schools, Solano et al. (2010) found that male principals stayed in

their schools for 0.4 years longer than women and in the public school system for 0.3 years longer. Nationally in 2003–2004, female principals were 21% (OR = 0.79) less likely to intend to switch schools and 19% (OR = 0.81) less likely to intend to leave the principalship in 2003–2004 (Tekleselassie & Villarreal, 2010), and in 2008–2009, female principals still were less likely (OR = 0.71) to have left their schools (Sun & Ni, 2016).

Principal race. Principal race also affects the probability of leaving a school, though the findings were not consistent across studies and depended on the particular geographic context as well as the way turnover was measured. Two studies used stability measures. The first focused on the state of Missouri, where African American and Latino principals were 23% (OR = 0.77) less likely to be stable in their positions over time than White principals (Baker et al., 2010). In Texas, White principals were 50% (OR = 0.503) as likely as principals of other races to still be in the principalship after 5 years, and they also were almost 60% (OR = 1.6) more likely than principals of other races to leave the principalship and become a superintendent (Fuller et al., 2007).

Two studies used dichotomous measures, though the first examined principal's intentions and the second considered their actual behaviors. Nationally, minority principals were found to be 21% (OR = 1.21) more likely to intend to leave the principalship all together as compared with White principals (Tekleselassie & Villarreal, 2010). Oberman's (1996) examination of principal turnover in Chicago Public Schools (CPS) also pointed to race, but found that more White principals left between 1992 and 1994 than principals of other races.

Finally, two studies used multiple pathways measures to define turnover. Gates et al. (2006) found that in Illinois, Latino principals were 29% more likely to change schools and more than two times as likely to leave their position when compared with White principals. Meanwhile, African American principals in urban North Carolina districts had a lower probability of changing to a non–principal position. The authors also interacted principal race with a school's demographic composition, and they found that where a racial match existed, principals were 25% less likely to leave the system and were 13% less likely to change schools when compared with principals whose race did not match the racial majority of a school (Gates et al., 2006). In Delaware, African American principals were 84% (OR = 0.16) less likely than White principals to move to a new position within the same district and were more almost six times as likely to retire earlier (OR = 5.7) as likely to retire (Solano et al., 2010).

Principal age. Research has uncovered inconsistent effects for age on turnover. Some research suggests that the relationship is nonlinear, such that younger and older principals were more likely than middle-aged principals to change schools or positions. For example, using a stability measure, Fuller and Young (2009) found that Texas principals younger than 35 and older than 55 had tenures that were shorter than principals in the middle age group. Using a dichotomous measure and national data, Tekleselassie and Villarreal (2010) found a weak nonlinear effect such that younger and older principals were 1% (OR = 0.99) more likely

to intend to switch schools or leave the principalship than middle-aged principals. The authors also found that older principals were 4% (OR = 0.96) more likely than younger principals to intend to switch or leave the principalship all together. Using a multiple pathways measure, DeAngelis and White (2011) found that in Illinois the likelihood of a principal switching schools in the same district increased with age by 19% (OR = 1.19). When they considered the nonlinear term, however, they found that the relationship diminished as age increased (OR = 0.99). Age was not significant for the other types of moves the authors examined.

In an analysis of principals in Utah that used a multiple pathways measure, the results demonstrated that younger and older principals were 3% (OR = 1.03) more likely to leave the principalship than middle-aged principals (Ni et al., 2015). The authors found a small nonlinear effect for age only for principals leaving the school system (1.03; Ni et al., 2015). Finally, also using a multiple pathways measure, older principals were less likely to move to another school within the same district (OR = 0.90). Not surprisingly, principals who were older also were 65% (OR = 1.65) more likely than younger principals to leave and retire (Solano et al., 2010).

Two studies using dichotomous turnover measures did not control for a nonlinear age effect. Sun and Ni (2016) found among a nationally representative sample of principals that those older than 50 were more likely to have left their position (OR = 1.45). Fuller et al. (2007) operationalized age as a dichotomous variable: In the first set of analyses, principals were coded either as older or younger than 45, and in the second set of analyses, they were coded as older or younger than 50. The authors found that younger principals were 2.6 times (OR = 2.60) more likely to still be principals after 10 years than older principals (there was no difference after 5 years), and they were less likely to have exited the public school system after 5 years (OR = 0.49) and after 10 years (OR = 0.23). Younger principals were more likely to have become a superintendent after 5 years (OR = 1.36) and after 10 years (OR = 3.66) than older principals. Finally, principals older than 50 were less likely to still be in the same position after 3 years (OR = 0.82).

Principal experience. Principal experience also is related to turnover, though the nature of the relationship is inconsistent across studies, contexts, and turnover measures. For example, an analysis using a multiple paths measure found that probability of leaving the state system all together in Illinois was not related to experience, while principals with more experience were 3% (OR = 0.97) less likely to change schools or positions, and the relationship was relatively weak. In North Carolina, the authors found that principals with more experience were 29% (OR = 0.71) less likely to leave the system all together, but were 14% (OR = 1.14) more likely to change schools (Gates et al., 2006). In a separate analysis of principals in Illinois, the effect of principal experience depended on the specific year being considered as well as the move being examined (DeAngelis & White, 2011). For instance, principals with 4 years of experience were 1.88 and 2.58 times as likely as first year principals to move within their district and to move outside of their original district, respectively. These same principals with 4 years of experience also were more likely to change positions within their district

(OR = 1.36) and to leave the Illinois public school system all together (OR = 1.58) than principals in their first year. These same relationships, however, did not hold up across the years of experience that principals might have or across the types of moves they might make. Finally, in a study of Missouri principals that used a multiple pathways measure, those principals with more experience were almost three times as likely to stay in the same position compared with principals who had less total experience (Baker et al., 2010).[6] When the same authors broke down principal moves, however, they found that as principal experience increased, the risk of a first move went down by 28%, while the risk of exits from the system increased by 30%.

Other studies that found principal experience to be a significant predictor used different measures. Tekleselassie and Villarreal (2010) found that principals who had more experience were somewhat less likely to intend to change schools (OR = 0.99); however, experience was not a significant predictor of principals' intentions to leave the principalship (Tekleselassie & Villarreal, 2010). Also using dichotomous measures, Tran and Buckman (2017) found that among principals in Wisconsin, high school principals with more experience were less likely to change schools ($b = -0.27$). In a study of three Midwestern states (Iowa, Minnesota, and Wisconsin), Podgursky et al. (2016) found that more experienced principals were slightly less likely to make intrastate changes in all three states on an annual basis (Iowa [OR = 0.979], Minnesota [OR = 0.967], Wisconsin [OR = 0.954]) and after 5 years (Iowa [OR = 0.962], Minnesota [OR = 0.959], Wisconsin [OR = 0.96]). This finding was the same using two turnover measures: an aggregate measure and a retention measure

In some studies, the type of experience mattered. As an example, in an analysis of a nationally representative sample of principals that used a multiple pathways measure, those principals with more years of *administrative* experience were 4% (OR = 1.04) more likely to leave the profession, but principals with more years of *teaching* experience were 3% (OR = 0.97) less likely to leave (Ni et al., 2015). In Delaware, however, every additional year of teaching experience greatly increased the odds that a principal moved to another school in the same district (OR = 2.7; Solano et al., 2010). But a retention analysis found that for each additional year of nonprincipal administrative experience in Delaware, a principal stayed an extra 0.29 years on average in a particular school and an extra 0.38 years in the state public school system. A multiple paths analysis revealed that principals with more administrative experience were 20% (OR = 0.8) less likely to change schools, 44% (OR = 0.654) less likely to move to another district, almost 90% (OR = 0.1) less likely to move to their district's central office, 47% (OR = 0.53) less likely to leave public education without retiring, and 30% (OR = 0.7) less likely to leave the system and retire compared with principals with less administrative experience (Solano et al., 2010).

Principal education. There is some evidence that principal education is related to turnover. For example, principals with doctoral degrees were 1.5 times (OR = 1.56) as likely as those without doctoral degrees to intend to change schools (Tekleselassie & Villarreal, 2010). Ni et al. (2015) found that among principals

in Utah, those with an MEd were 55% (OR = 0.45) less likely to move to a new school than principals without an MEd. Similarly, for principals in Illinois, having a master's degree made principals 39% less likely to change positions within the public education system (Gates et al., 2006). Among Missouri principals, having a doctorate made principals 1.5 (OR = 1.514) times as likely to leave the system, as did having a bachelor's degree from a more competitive institution (OR = 1.66). Education levels were not significant predictors of first or second moves (Baker et al., 2010).

Principal satisfaction. Two studies found that principal satisfaction was a significant predictor of turnover. Tekleselassie and Villarreal (2010) found three satisfaction-related factors were related to principals' intentions. Those principals who felt the job was worth it were 33% (OR = 0.67) less likely to intend to change schools and 47% (OR = 0.53) less likely to intend to leave the principalship. Those who were enthusiastic were 34% (OR = 0.66) less likely to intend to change schools and 37% (OR = 0.63) less likely to intend to leave the principalship. Finally, satisfied principals were 36% (OR = 0.64) less to intend to change schools and 20% (OR = 0.80) less likely to intend to leave all together. In a more recent analysis also using nationally representative data (2007–2009), Boyce and Bowers (2016) focused on those principals who left their school from one year to the next. Using latent class analysis, the authors concluded that there are two types of leavers: satisfied principals and disaffected principals. Their findings suggest that many principals who chose to leave their school are satisfied with their job, and therefore job satisfaction on its own may not help distinguish between leavers and stayers.

Characteristics of the Position

Research points to three characteristics of the principalship itself as predictors of principal turnover: the degree of autonomy, relationships, and the changing nature of the position. It is important to note that relatively few studies have explored the role that the position itself plays in explaining turnover, making this an area where more research is needed. In those studies that examined the role of principal autonomy, the findings suggest that principals who perceived they lacked autonomy were more likely to leave their position. For instance, Tekleselassie and Villarreal (2010) found that those principals who perceived they had more autonomy were 8% (OR = 0.92) less likely to intend to leave the principalship or their schools. In the qualitative portion of a mixed-methods study of principal turnover in Chicago, Oberman (1996) interviewed principals who had left their positions. Many of them reported that they needed more autonomy in their schools to hire and fire teachers, to create their own budgets, and to make purchases for the schools. Finally, Farley-Ripple and colleagues (Farley-Ripple, Raffel, et al., 2012) spoke to principals in Delaware who reported that having autonomy was a factor that kept them in their positions.

Work relationships also came up in two studies as related to turnover decisions. Principals in Delaware reported that having positive relationships with

their supervisors, peers, and subordinates gave them more autonomy and contributed to their decision to continue to serve as a principal (Farley-Ripple, Raffel, et al., 2012). Principals in Chicago who felt supported by their school districts were more satisfied with their position and less likely to leave, while those who felt unsupported or had a negative relationship with the district were more likely to be dissatisfied and to leave their position. Negative relationships with school councils, parents, and the broader community also were cited in interviews as important factors in principals' decisions to leave because principals perceived that working with them created more work and led to more political conflict (Oberman, 1996).

Finally, one study reported on the changing nature of the principalship as a potential reason for principals to leave their schools. Specifically, the principals Oberman (1996) spoke to explained that the district's decision to move toward site-based management had created more and new work, including new administrative duties and an emphasis on community relations. They also felt overwhelmed with central office demands they could not respond to and that often conflicted with locally articulated priorities and policies.

School and Student Characteristics

Research points to several school and student characteristics as significant predictors of principal turnover. The following general findings will be discussed: school performance, school conditions, school level and size, school urbanicity, student race and ethnicity, student socioeconomic status, and the proportion of special education students at a school.

School performance. Using different measures of turnover, research consistently suggests that, on average, lower performance on standardized tests is related to higher principal turnover. For example, using a dichotomous turnover measure, Cullen and Mazzeo (2007) found that a 1 standard deviation fall in a school's pass rate was associated with a 3.4% (OR = 0.97) increase in turnover among Texas principals. They also found that principals were more likely to leave schools that had lower accountability ratings: Principals at Recognized schools were 1.6 times more likely to leave than principals at Exemplary schools, and those at Acceptable and Low-Performing schools were 4.2 points and 16.3 points more likely to leave, respectively. In a quasi-experimental study of six urban districts and novice principals prepared by the New Leaders program, Burkhauser et al. (2012) reported that new principals at schools that had made gains in mathematics were 97% (OR = 0.03) less likely to leave after 1 year than principals at schools in the matched control group and that principals were 3.5 times (OR = 3.56) more likely to leave after 1 year if the school had not made adequate yearly progress (AYP). Interestingly, their results suggest that the school performance measures were not related to an increased likelihood of departure after 2 years for those novice principals who had survived the first year, suggesting that there is something unique about a principal's first year on the job.

Using different retention measures, studies have found similar results. Fuller and Young's (2009) descriptive analysis of Texas principals found this relationship, and then Fuller et al. (2007) employed logistic regression to produce similar

findings: Principals in high-performing schools (schools rated either exemplary or recognized by the state) were about 20% (OR = 1.197) more likely than principals in low-performing schools (schools rated low-performing or acceptable) to remain at the same school during a 3-year period (1995–1998). Solano et al. (2010) found that in Delaware, a principal's tenure in his or her position increased by 0.02 years for every 1-point increase in school math scores. Similarly, they found that principals serving in schools with higher math performance were about 10% (OR = 0.9) less likely to move to a new position in the district central office (Solano et al., 2010). Finally, in an analysis of public elementary schools in southwest Ohio, the author found that as math achievement declined by one unit, the number of principals at a school during that time period increased by just over a quarter of a standard deviation (B = −0.26; Partlow, 2007).

Findings regarding school performance and principal turnover also were similar in studies using multiple paths measures. As an example, research in Miami-Dade County Public Schools (MDCPS) found that principals who transferred to new schools within the district went to schools with fewer low-achieving students and that principals at schools in the bottom quartile for achievement in mathematics and reading were 58% (OR = 1.58) and almost two times more likely (OR = 1.92), respectively, to leave their position within the district (Loeb et al., 2010). Using the same data but asking different questions, Béteille et al. (2012) found that principals in MDCPS expressed a preference for schools with fewer low-performing students when compared with the schools to which they were assigned. Similarly, principals in Illinois public schools with higher mean achievement were 28% (OR = 0.72) less likely to move to a new district and were 19% less likely to take a nonprincipal position (OR = 0.81) or to leave education all together (OR = 0.81; DeAngelis & White, 2011). In Utah, a 1 standard deviation increase in math test scores was related to a 36% decline in the odds (OR = 0.64) of moving to another school and a 44% decline in the odds (OR = 0.56) of leaving the system all together (Ni et al., 2015). Podgursky et al. (2016) found that the likelihood of an intrastate principal move in Minnesota (OR = 0.988) and Wisconsin (OR = 0.97) declined as achievement increased. Switching to a retention measure, the same authors found that the likelihood that a principal had left a public school after 5 years also was lower in Minnesota (OR = 0.99) and Wisconsin (OR = 0.988) in schools with higher performance. Finally, Tran and Buckman (2017) found that among a small sample of Wisconsin principals, principals' interdistrict moves were related to lower reading scores ($b = -0.11$).

School conditions. School conditions, however defined, consistently were related to less stability and more mobility among principals. For instance, Tekleselassie and Villarreal (2010) found that a one-unit increase in reported disciplinary incidents was related to a 9% (OR = 1.09) increase in principals' intentions to change schools. They also found that an increase in work hours did not help explain principals' intentions to leave the profession, but that it did slightly increase their intentions of switching schools (OR = 1.01). Similarly, using a *t* test to compare MDCPS principals' current assignment to their preferred assignment, Béteille et al. (2012) found that principals prefer schools with fewer student discipline problems, among other school characteristics. Using a dichotomous measure, Sun

and Ni (2016) also found that the risk of leaving a traditional public or charter school increased by 23% (OR = 1.23) as the number of reported instances of teacher abuse and disrespect increased. Finally, Burkhauser et al. (2012) found through a descriptive analysis that those principals in their sample who had left at the end of their first or second years reported lower levels of staff cohesiveness and of collaboration among school staff than those principals who stayed.

School level and size. Several studies found that principal turnover is related to both school level and size. As school size in Illinois increased, the likelihood a principal would change schools (1%), change positions (6%), or leave the public education system (3%) declined. Similarly, in North Carolina schools, principals were slightly less likely to change schools at larger schools (−0.04; Gates et al., 2006). Using a multiple paths measure, Baker et al. (2010) uncovered that principals at larger schools in Missouri were 47% (OR = 0.53) less likely to make a second move, but 34% (OR = 0.66) less likely to leave the system over an 8-year period. In an analysis of principals in New York state that used a dichotomous turnover measure, increases in student enrollment was associated with a 9.2% (OR = 0.92) decrease in the likelihood a principal leaves his or her school (Papa, 2007). Finally, in Iowa, principals were less likely (OR = 0.91) to have left a larger school after 5 years than a smaller school (Podgursky et al., 2016).

School level also seems to matter, though the evidence is inconsistent across studies. For instance, in an analysis of Texas principals, secondary school principals were 32% (OR = 0.68) less likely to have left the principalship 10 years after certification. Similarly, elementary school principals were 52% (OR = 1.52) more likely as other principals to remain at the same school during a 3-year period (Fuller et al., 2007). Using data from Missouri and a retention measure, Baker and colleagues' (Baker & Cooper, 2005; Baker et al., 2010) truncated regression models[7] indicated that middle school principals were 33% (OR = 0.67) less likely to be most stable and 48% (OR = 1.48) more likely to be least stable, a finding supported by their hazard model analysis, which found that middle school principals were about 30% (OR = 0.7) less likely to leave the system compared with elementary school principals. They also found that high school principals were 2.5 (OR = 2.52) times as likely to make a second move during the 8-year period they examined (Baker et al., 2010). In Utah, high school principals were 1.66 (OR = 1.66) times more likely to change positions than elementary school principals, but were 49% (OR = 0.51) less likely to move to a new school (Ni et al., 2015).

School urbanicity. Principal turnover varies according to whether a school is in an urban, suburban, or rural area. In some cases, findings even were specific to certain cities. For example, Chicago principals were 30% less likely to leave the system all together and about 44% less likely to change positions than rural principals, though they were 25% more likely to change schools within the same district when compared with principals in suburban and rural districts in Illinois (Gates et al., 2006). A more recent study of principal turnover in Illinois that also used a multiple paths measure produced similar findings: Principals in CPS were 41% (OR = 0.59) less likely to make moves within the district and were 98%

(OR = 0.02) less likely to make moves outside of the district when compared with suburban principals in Illinois. CPS principals also were 46% (OR = 0.54) less likely to leave public education in Illinois all together relative to suburban principals (DeAngelis & White, 2011). In both studies, the same relationships did not hold for principals in other cities in Illinois, where being in an urban school was not related to turnover. This finding is not surprising when one considers that a district, particularly a large district such as CPS, is its own job market: With so many schools, principals looking for a change do not have to look far for options.

Urbanicity also mattered for principal turnover beyond large cities such as Chicago, though not in ways that were consistent across studies. As an example, principals in suburban Chicago were 23% less likely to change schools and 17% less likely to change positions when compared with principals in rural Illinois schools (Gates et al., 2006). In North Carolina, principals in urban schools were overall more mobile: They were 32% more likely to leave education all together and 31% more likely to change schools compared with rural principals. They were, however, 20% less likely than rural principals to change positions within the same district (Gates et al., 2006). DeAngelis and White (2011) also found that rural principals in Illinois were 24% more likely than suburban principals to change positions in the same district. In Utah, principals in suburban schools were 37% (OR = 0.63) less likely to move to a new school compared with urban principals, and rural principals were 59% (OR = 1.59) more likely than urban principals to change positions (Ni et al., 2015). Podgursky et al. (2016) found that in Wisconsin, principals were 1.4 (OR = 1.44) times as likely to leave a school in a nonurban district from one year to the next, and after 5 years at a school, principals were 1.6 (OR = 1.61) times as likely to have left an urban school. Finally, considering a nationally representative sample of principals, urban principals were 32% (OR = 0.68) less likely to intend to switch schools compared with suburban principals (Tekleselassie & Villarreal, 2010).

Student characteristics. Findings across the studies reviewed were somewhat mixed regarding the relationship between principal turnover and school-level (i.e., aggregate) student characteristics. What's more, there were some studies where the racial and socioeconomic makeup of a principal's school was not a statistically significant predictor of turnover, even though the study had controlled for it. The following student characteristics will be discussed: student race and ethnicity, socioeconomic status, and special education status.

The evidence on student socioeconomic status and race/ethnicity is somewhat consistent: Principals are more likely to leave schools with higher proportions of minority[8] and low-income students. For example, a descriptive analysis of North Carolina schools uncovered the same trends: High-poverty schools have higher rates of principal turnover than low-poverty schools. Their analysis also indicated that when principals moved from their first school, they moved into schools with significantly less poverty, which suggests that poorer schools also take the brunt of principal inexperience (Clotfelter et al., 2006). Gates et al. (2006) found that in Illinois, a 1-point increase in the percent of minority students at a school was related to a 28% increased probability of changing schools and a 52% increase in

the probability of changing positions. In North Carolina, a 1-point increase in the percent of minority students at a school was related to an even larger increase in the probability that a principal will change schools (97%), and a 2.6 times increase in the probability a principal will change positions. This large effect was moderated by the principal's own race: If the principal was the same race as the majority of students in the school then the probability of leaving the system was 25% lower, and the risk of changing schools was 13% lower (Gates et al., 2006). According to a more recent study of Illinois, the relationship was somewhat more complex: Higher percentages of low-income students in a school had a small but positive effect on the odds that a principal would switch to a new school (these principals were 1% [OR = 1.01] more likely to switch). But principals at schools with larger proportions of low-income students were 1% (OR = 0.99) less likely to leave the state system all together than principals at schools with lower proportions of low-income students (DeAngelis & White, 2011).

Research in different states has turned up similar results. Fuller et al. (2007) found that in Texas, principals at those schools where at least 50% of the students were economically disadvantaged were 16% (OR = 0.84) less likely to remain at the same school after 3 years compared with schools with fewer economically disadvantaged students. Similarly, a study of MDCPS reported that principals were 51% (OR = 1.51) more likely to leave schools that had large low-income and Latino and African American student populations (Loeb et al., 2010). Indeed, results from a survey of principals in MDCPS found that principals prefer schools with fewer lower income and minority students because, the authors argued, schools with high percentages of these students often have negative school climates and are more likely to face state and federal accountability sanctions (Béteille et al., 2012; Loeb et al., 2010). Principals at high-poverty and high-minority schools in MDCPS also are more likely to leave in the middle of the year and to be replaced by district-placed temporary principals, who in turn tend to transfer to different schools relatively quickly (Loeb et al., 2010). In Minnesota, turnover at low-income schools also was slightly more likely, both after 1 year (OR = 1.01) and after 5 years (OR = 1.02; Podgursky et al., 2016).

Two studies, however, produced different results. Branch et al.'s (2009) longitudinal study of turnover in Texas found a different pattern. A key difference is that they disaggregated principal turnover according to the relative effectiveness of the principals in their sample. The authors estimated principals' effectiveness using value-added models and then described the distribution of principal moves according to their effectiveness. They found that the highest quality principals were more likely to be in the same school after 4 years than lower quality principals, except in low-poverty schools. Indeed, their descriptive analysis suggests that 76.55% of high-quality principals were still on the same high-poverty campus after 4 years compared with 62.67% and 71.57% of high-quality principals at lower poverty campuses. What's more, their analysis indicates that the least effective principals in high-poverty schools were less likely to still be at the campus after 4 years than their counterparts on campuses with lower levels of poverty. A shortcoming of this study, however, is that their analysis of principal turnover was descriptive and did not control for other factors that might help explain principal

turnover. In his analysis of principals in New York state, Papa (2007) found that principals were 1.2% (OR = 0.98) less likely to make an intradistrict or interdistrict move with a larger non-White student population. They also were 4% (OR = 0.96) less likely to leave schools with a larger population of English language learners.

A final student characteristic that some studies have linked to principal turnover is the percent of students at a school qualifying for special education services. In an analysis of Delaware principals that used a multiple paths measure, principals were 26% (OR = 1.26) more likely to switch schools in the same district and 70% (OR = 1.7) more likely to move to the central office for every 1-point increase in the percentage of special education students at their campus (Solano et al., 2010). In Utah, the effect was not as strong but was still present: Principals at schools with larger special education student populations were 3% (OR = 1.03) more likely to change schools than those at schools with smaller special education populations (Ni et al., 2015).

Policy

Several policy issues have been found to be related to principal turnover, though unlike the factors discussed in the previous two sections, policy-related factors have not been examined by many studies. The policy issues for which some evidence links them to turnover include principal salary, accountability policy, the challenges of hiring and firing teachers, district expenditures, teachers, school type, district retirement incentives, and professional development.

Principal salary. Of all the policy issues to be reviewed, principal salary is the most researched. The relationship depended on the way turnover was measured, and it is important to keep in mind that, as with the other predictors discussed here, not all research that has controlled for salary has found that it is related to different kinds of principal turnover (e.g., Ni et al., 2015). As an example, a study of principal turnover in Texas that used a dichotomous measure found that principals in Texas who moved to a new school experienced an increase in their salaries. Specifically, principals who switched positions experienced an increase in their salary, on average, by 3.8%, and for those who switched to a new district that increase, on average, was 5.9% (Cullen & Mazzeo, 2007).

A study of principal moves in Missouri produced similar results. In their analysis of principal turnover, which used a multiple paths measure, the authors found that principals' first move to a new school was negatively related to having a higher salary. The authors went on to explore the salary changes principals experience when they move to a new school, which amounted to, on average, a 5% boost in salary (Baker et al., 2010). This finding parallels the Cullen and Mazzeo (2007) finding for principals in Texas, suggesting that principals can leverage school changes to increase their salaries. Baker et al. (2010) also examined predictors of principal *stability*, finding that having a salary that is higher relative to those of peers in the same job market was related to greater stability in the same school ($b = 0.127$). In New York state, salary also may induce turnover: A $1,000 increase in salary was related to 8% (OR = 1.08) increase in the likelihood of a

principal making a move to a new school district and a 12% (OR = 1.12) increase in the likelihood of an intradistrict move in New York state (Papa, 2007).

In Delaware, the effect of salary depended on the type of turnover measure. Unlike the Baker et al. (2010) study, Solano et al. (2010) found that salary was not a significant predictor of principal *tenure* in the same school or in the public school system. They did find, however, that it was a significant predictor of several of the different career decisions principals made (each of which was measured dichotomously). Specifically, their analysis suggests that an increase of $1,000 in annual salary was negatively related to any move (OR = 0.96), to a move to a new school in the same district (OR = 0.44), to a move to another school in a new district (OR = 0.82), and to a move to the central office in the same district (OR = 0.68).

Two additional studies found a relationship between salary and turnover. Within a nationally representative sample of principals, a $10,000 increase in salary reduced principals' intentions of switching schools by 13% (OR = 0.87) and of leaving the profession (OR = 0.88; Tekleselassie & Villarreal, 2010). Finally, a more recent study of 109 elementary school principals in Wisconsin found that higher salaries helped explain principals' interdistrict (but not intradistrict) moves. Specifically, Tran and Buckman (2017) found that moving to a new district was associated with a salary increase of $3187.42.

Two recent studies complicated the relationship between salary and turnover by considering the role that satisfaction played. In a study of 156 California principals measuring their intention to leave their school, Tran (2017) was interested in principals' satisfaction with their salaries. He found that principals' pay satisfaction was related to the relative salary of principals in their own and in neighboring districts and that those who were more satisfied with their pay were less likely to intend to resign from their position ($\beta = -0.49$). Boyce and Bowers (2016) had a different focus in their study, which identified two types of principal leavers: satisfied and dissatisfied leavers. They found that for those principals who left but were satisfied with their job, salary likely was not related to their decision to leave their position. This finding suggests that relationship between salary and turnover may be more complicated than what is captured in previous studies that do not consider the conditions under which the principals left their positions.

Accountability policy. Research also suggests that accountability policy is related to principal turnover. Li (2012) examined patterns of principal effectiveness and turnover and student achievement in North Carolina schools after the implementation of the state's new accountability system under No Child Left Behind (NCLB). Using a dichotomous turnover measure, she found that the implementation of the new accountability system led principals with options (i.e., those in urban areas where there are lots of schools) at low-performing schools or those at schools that were "shocked" by the new system (i.e., they were passing under the old state system but under NCLB were labeled as failing) to leave their schools and move to higher performing schools. Similar findings emerged from a descriptive study of aggregate teacher and principal turnover rates in North Carolina. The

study described how principal turnover rates, which already were higher in low-income schools, increased after the introduction of the new state accountability system (Clotfelter et al., 2006).

Mitani (2017) used national data from several sources, including the Schools and Staffing Survey (2007–2008), the Principal Follow-Up Survey (2008–2009), the Common Core of Data (2006–2007), and AYP data from 45 state education agencies to test for a relationship between being sanctioned for the first time and principal turnover. Using two different measures of turnover, a dichotomous measure and a multiple paths measure, Mitani (2017) conducted two analyses: a logistic regression analysis that found that principals were 1.63 (OR = 1.63) times as likely to leave a school facing sanctions for the first time and a second analysis using multinomial logistic regression that found that principals at schools facing first-time sanctions were 2.5 (OR = 2.5) times as likely to transfer to a new school and 1.2 (OR = 1.2) times as likely to leave for a new district. Finally, DeAngelis and White (2011) produced similar results in their analysis of principals in Illinois using a multiple paths measure: They found that principals in schools that made their AYP goals under NCLB were 25% (OR = 0.75) less likely to change schools in the same district and were 18% (OR = 0.82) less likely to leave the public school system than those principals at schools that did not make AYP.

District expenditures. Only one study among those reviewed identified the level of district expenditures as relating to turnover, and its relative effect was quite small. Solano et al. (2010) found that in Delaware, higher expenditures were not only associated with more principal stability but also with a higher risk of changing to certain positions. For example, in terms of principal tenure, they found that for every $1,000 increase in district per pupil spending, the average principal stayed for one fifth of a year longer ($b = 0.0002$). In terms of career moves to the central office in the same district, the authors found the relationship was the opposite, but quite small: Principals in districts that spend more per pupil were slightly more likely (OR = 1.0) to move to a central office position. Conversely, higher per pupil spending at the district level was associated with a slightly decreased risk (OR = 0.99) of leaving the principalship and retiring from the state system (Solano et al., 2010).

Challenges hiring and firing teachers. Some research suggests that the struggle to hire and fire teachers is related to principal dissatisfaction and turnover. For example, the Chicago principals Oberman (1996) interviewed reported a need for more flexibility from the district central office to hire and fire teachers. Using nationally representative data and a dichotomous turnover measure, Sun and Ni (2016) found that charter school principals faced lower barriers to firing poor-performing teachers than did traditional public school (TPS) principals (OR = 0.99).

Teachers. Teacher characteristics also are related to principal turnover. In one study, teacher certification was found to be related to principal turnover, though the effect was relatively weak. Specifically, DeAngelis and White (2011) found that in Illinois, principals at schools with a larger proportion of non–highly

qualified teachers, as defined by NCLB, were 2% more likely to move out of the districts and 2% (OR = 1.02) more likely to leave the public school system all together. Other research controlled for this variable, but did not find that it was related to principal turnover (e.g., Sun & Ni, 2016). A separate teacher variable for which there is some evidence is the percent of new teachers at a school: The higher the percent, the higher the likelihood that a principal will leave his or her school (OR = 1.04; Sun & Ni, 2016).

School type. Another policy-related factor that two studies have linked to principal turnover is school type, specifically whether a school is a TPS or a charter school. Ni et al. (2015) compared turnover in charter and TPS schools in Utah and found that while charter school principals were no more likely than TPS principals to move to a new school, they were 2.3 times as likely to change positions within the district and almost 3 times as likely (OR = 2.94) to leave the profession all together. Sun and Ni (2016) also found a statistically significant difference in principal turnover from charter schools (28.7%) and TPS (20.6%) among a nationally representative sample of principals. The authors went on to examine the potential contributors to this gap, finding that being a female principal contributed to closing the gap between TPS and charter school principal turnover by 4.9%, while principal leadership, and the percent of new teachers at a school contributed to the gap by 3.67% and 24.48%, respectively.

District retirement incentives. Oberman (1996) examined principal turnover in CPS between 1987 and 1995. She found that the majority of principals who left (52%) during the years 1992 to 1994 did so to take advantage of a district incentive plan to encourage early retirement. None of the other studies identified for this review examined the role of district retirement incentives or plans.

Professional development initiatives. One study examined the relationship between principal professional development and turnover. Jacob et al. (2015) designed a randomized controlled trial to test the impact of the McREL Balanced Leadership program on principal turnover, among other outcomes, on a sample of 122 principals in rural Michigan. They found that principal turnover declined among those principals who participated in the program ($\beta = -.23$). As with the previous section, no other studies to date have examined the relationship between principal professional development and turnover.

What Determinants Matter?

Before discussing the relative explanatory value of the determinants discussed above, it is important first to point out that all but two of these findings come from studies whose designs do not permit the attribution of causality. Second, it should be noted that several of the findings were inconsistent across and even within studies, depending on the turnover measure used. For example, among principals in Delaware, salary was not predictive of tenure, but it was predictive of specific kinds of principal career moves (Solano et al., 2010). Other findings that were inconsistent across contexts and turnover measures were all of the principal

characteristics, school level, school poverty level, and urbanicity. The lack of strong designs together with the inconsistency of the relationships suggest that these findings are relatively weak and that we need more research to understand the relationships better.

In contrast, other findings were consistent across studies, contexts, and measures, such as school performance, school conditions, some student demographics, accountability policy, and the challenges of hiring and firing teachers. These findings can be considered somewhat stronger by virtue of that consistency, though, again, few of them were produced by studies with strong designs that would permit the attribution of causality. For these factors, the relationships ranged from relatively small (e.g., differences in school performance being related to a 3% change in the likelihood of principal turnover) to relatively large (e.g., differences in school performance being related to a 350% change in the likelihood of turnover), with the differences due in part to the various contexts of the study, the ways the independent variables were measured (across different studies, school performance was measured as achievement in mathematics, achievement in reading, and as a particular accountability rating, for example), and the way turnover was measured. If we consider the effect sizes (odds and risk ratios) among the consistent findings, three stand out: school performance, accountability policy, and professional development.

That said, two studies reviewed here call into question most of the findings discussed. Specifically, Branch et al. (2009) and Boyce and Bowers (2016) both disaggregate principals, the former according to effectiveness and the latter according to satisfaction. These two studies are important because they point out that principals, whether they leave or stay, are not monolithic or interchangeable; rather, principals vary in terms of the conditions under which they leave and in terms of how effective they are at improving student achievement.

Consequences of Turnover for Schools and Student Learning

Until recently, much of the literature assumed that principal turnover was bad for schools and student achievement, though little work empirically tested this assumption. The following outcomes will be reviewed below: student achievement, student graduation rates, teacher turnover, and school climate, culture, and resources.

Student Achievement

Several studies suggest that principal turnover can have a negative impact on student achievement. For example, Branch et al. (2009) found in their analysis of all principals in Texas (1995–2001) that principals become slightly more effective with experience, and so the departure of a principal and the arrival of a new principal was associated with a slight but meaningful decrease (two hundredths of a standard deviation less in the first year of a new principal) in student learning. Béteille et al. (2012) produced similar findings in their analysis of approximately 400 schools in MDCPS over a 5-year period. Specifically, their results suggested that when a school had a new principal, their students made smaller achievement gains (smaller by 0.007 standard deviations) in mathematics compared with similar schools without a new principal. The relationship was stronger at schools

where the new principal also was a novice and when students also had a novice classroom teacher.

Mascall and Leithwood (2010) found that principal turnover was negatively related to student achievement, but that relationship was explained by changes to school culture (turnover is negatively related to school culture, −0.37) and classroom instruction (−0.06). Miller (2013) also found a temporary negative relationship between turnover and student achievement in North Carolina elementary schools. She found that student scores on average fell 0.21 standard deviations below the baseline level during the 4 years leading up to a principal's departure, and continued to decline another 0.025 standard deviations during the first 2 years of the new principal's tenure before achieving the original baseline level again. Miller's study, however, did not control for additional covariates in her analysis and so in the end it is unclear whether other factors might partially explain the relationship she identified. Furthermore, the results reported here are from a sample of elementary schools only.

Kearney et al. (2012) estimated the impact of principal stability on student achievement in a small sample of schools in Texas. They found that for elementary schools, each additional year that a principal was at the same school during the time period under investigation was related to a 0.227 standard deviation increase in school performance. For secondary schools, the effect was even stronger: Each additional year of principal longevity was related to a 0.375 standard deviation increase in school performance.

Finally, Burkhauser et al.'s (2012) quasi-experimental, mixed-methods study of the New Leaders for Schools program in six urban school districts also uncovered a negative relationship. Specifically, their descriptive analysis showed that of the schools that experienced a principal transition, 50% of them also experienced a decline in achievement in the first year of the new principal.

Graduation Rates

Weinstein et al. (2009) considered whether experiencing a first and then a second principal change at newly created high schools in New York City (1993–2007) was related to the percent of students graduating. They found that there was no effect for the first principal change, but there was a significant negative effect for a second principal change ($b = -3.06$). Principal turnover was not, however, a significant predictor of student achievement, enrollment, or dropping out.

Teacher Turnover

The research reviewed suggests that principal turnover is related to higher teacher turnover, which in turn has been linked to lower student achievement (Ronfeldt, Loeb, & Wyckoff, 2013). Béteille et al. (2012) specifically asked about the effects principal turnover on teacher turnover, in addition to its effect on student achievement. Because they included a value-added measure of teacher effectiveness, the authors also were able to investigate the effect of different teachers' leaving. While they found that teachers with higher value-added were, on average, less likely to leave their schools, their results also indicated that the average teacher in terms of value-added was 19% (OR = 1.19) more likely to leave at the end of the year when there was a new principal and that every 1 standard deviation

increase in the value-added of a teacher above that average increased the likelihood of that teacher leaving at the end of a new principal's first year by 32% (OR = 1.134). In short, principal turnover was related to an increase in teacher turnover among the most effective teachers.

Miller (2013) examined teacher turnover as a potential mechanism underlying the relationship between principal turnover and achievement. Her results suggested that in the year before a principal left a school, teacher turnover increased by 1.3% ($b = -1.221$) on average, and in the year after the principal's departure, teacher turnover increased by an additional 1.6% on average ($b = -1.407$). After those 2 years, though, the level of teacher turnover returned to the preprincipal departure level.

School Culture, Climate, and Resources

Several studies examined the relationship between principal turnover and school culture, climate, and social resources. Mascall and Leithwood (2010) addressed the first of these, school culture, defined as "shared values, norms, and contexts" (p. 369). They found that there was a direct and negative relationship between principal turnover and school culture ($b = -0.37$) and that school culture was a significant mediator between turnover and student achievement. They also drew on qualitative evidence from a subsample of four schools (three elementary and one middle) with high levels of principal turnover, finding that two of the schools were able to effectively distribute leadership so that when a principal did leave "the supportive cultures developed in these schools continued to thrive" (p. 379). Burkhauser et al.'s (2012) descriptive analysis found that principal succession often was followed by challenges to school culture (which they do not define). Specifically, school staff were concerned about the organization instability that turnover often led to because new principals introduced too many changes at once, including changes to policies and practices that staff, in many cases, perceived as successful.

Noonan and Goldman's (1995) descriptive study of 12 elementary schools in an urban school district compared components of school climate in six schools that were scheduled to lose their principal to the climate in six schools that were not losing their principal. The authors define school climate as "the extent to which staff share perceptions of behavior in the school" (p. 2). Collecting survey data on climate from teachers in the schools, the authors found that teachers perceived an increase in some components of school climate, such as principal directive behavior, over the course of a year in those schools that experienced principal turnover. They also found, however, that teachers' perceptions of their interactions with each other did not vary between the two groups. As with the Burkhauser et al. (2012) study, Noonan and Goldman (1995) attributed the changes to the new principals' efforts to establish their own direction and goals for the school.

Finally, a recent study examined the effect of principal turnover on school resources. Hanselman et al. (2016) were interested in the impact of turnover on the relationships between teachers and principals, which they call "social resources." They analyzed survey data about school organizational and working conditions, principal leadership, and teacher community from 73 schools in the

L.A. Unified School District. Using a dichotomous measure that captured whether a school experienced a change in principal from one year to the next over a period of 2 years, the authors found that when interacted with the initial level of principal leadership (measured in 2006), principal turnover had a negative effect (−0.776) on subsequent principal leadership (measured in 2008).

Making Sense of the Findings

Relatively fewer studies have examined the consequences of principal turnover for student achievement and schools, and all of this research was either correlational or descriptive. What this means for our understanding of the impact of turnover is that while we have some ideas about what some of those consequences might be, we have little evidence about the nature of those relationships. That said, for those findings that were investigated by more than one study, the relationship was consistent: Principal turnover was negatively related to student achievement, teacher turnover, and school culture, climate, and resources. There are some caveats to those findings, though, as some evidence suggests that relationship between principal turnover and student achievement and teacher turnover may be time-limited (Miller, 2013). Moreover, none of these studies examined the consequences of different kinds of principal turnover, presenting a challenge similar to the one facing the literature on the determinants of turnover.

Discussion

The purpose of this review of the research was to take stock of what we have learned about principal turnover during the past few decades. The review was guided by three questions about how principal turnover has been defined and measured, what the causes of turnover are, and what the consequences of it are. In this final section, the findings will discussed in relation to the original research questions and future directions for research.

What can we take away from the results of this review as it relates to the guiding questions about the determinants and consequences of principal turnover? The broad conclusion is that when we consider all the studies and the significant findings, it is clear that our understanding of principal turnover remains relatively weak. There are a couple of key reasons for this that have been mentioned previously: The different ways in which turnover has been measured across studies; the lack of studies and replication studies on potentially important determinants, such as salary and professional development, and consequences, such as student achievement and teacher turnover; the lack of consistency for many of the findings; the lack of more rigorous study design; and the treatment of potentially diverse principal, in terms of types and effectiveness, as similar. Based on existing research, the determinants that are most strongly related to turnover are school performance, accountability policy, and professional development. That said, either there were weaknesses within those studies or there was relatively little evidence. The consequences that appear most closely related to turnover are student achievement and teacher turnover, but in general there were few studies that examined turnover's potential consequences.

Limitations

As with any study, this review has limitations. First, my inclusion and exclusion criteria meant that studies, including all unpublished dissertations and theses, were left out of the review. This may lead to publication bias in the results, but I tried to mitigate that by including unpublished research reports. Another limitation is that I restrict my discussion to significant findings, which means that I do not address systematically when a hypothesized relationship was not significant and what this might mean for the literature as a whole. A final limitation is that I did not conduct a meta-analysis. I have argued that meta-analysis was not appropriate given the lack of consistency among studies in terms of the research questions posed and the measures used, but the result still is that this review produces no single measure capable of comparing across studies.

Directions for Future Research

The weaknesses in the literature and in this review can be addressed in a couple of ways through future research. First, there is a need for replication studies across the same and new contexts. Second, researchers working in this area should capitalize on the discussion of different turnover measures here and elsewhere (e.g., Farley-Ripple, Solano et al., 2012) and build consensus around a set of common turnover measures and the conditions under which each should be used. Third, researchers should seek to employ more rigorous design (e.g., using matched control groups). Fourth, we should take seriously work by Boyce and Bowers (2016) and Branch et al. (2009) that disaggregates principals instead of viewing them all as the same in the context of turnover. Fifth, research needs to explore the role of interactions and potential moderators. Finally, we need much more research on the effects of policy on turnover and on the consequences of turnover, and the latter should leverage our current understanding of how principals affect student learning and schools more generally.

The first, and most basic, way to improve our understanding of principal turnover is to replicate existing studies. There often is little appetite to replicate existing work to investigate whether the posited relationships hold up under scrutiny and in different contexts (Makel & Plucker, 2014). The challenge of this approach to science (and social science) is that findings may be artifacts of a particular sample or context and may not be generalizable or even replicable. While we should not put aside the effort to push the barriers of our understanding of turnover by asking new questions and adopting novel designs and methods, we should not do these to the detriment of the important work of replication.

A second way to improve the quality of research on principal turnover is for researchers to seek consensus on how to measure it. Because it can be challenging to measure principal turnover, multiple measures have cropped up. While I am not suggesting that research should adopt one measure to the exclusion of others, I do argue that researchers should justify their use of certain measures over others in light of the strengths and weaknesses of each, as I discuss above, and in light of their research questions (are they interested in a one-time decision, or in the multiple career choices of principals?). Moreover, when possible, researchers should

use more than one measure in their work (e.g., a dichotomous measure and a stability measure) because the relationships can vary across measures.

Adopting more rigorous research designs is yet another way to improve the quality of research on and our understanding of principal turnover. Of the 36 studies reviewed here, only three used designs that the WWC considers at least moderate: Burkhauser et al. (2012) and Mitani (2017) created a control group using propensity score matching, and Jacob et al. (2015) used an experimental design with random assignment of participants to sample groups. As with any educational study, there are logistical and ethical challenges to conducting experimental research, but without it, it is hard to isolate the impact of any particular factor on turnover, or to isolate the impact of turnover on an outcome of interest. When it is not possible or desirable to create an experiment, researchers also can seek natural experiments, such as policy changes, as a way to investigate the determinants and consequences of turnover. When that is not possible, researchers should take care to use matched samples, control for other possible explanations for observed outcomes and then to drill down further into findings to search for the mechanisms that underpin key relationships (e.g., Béteille et al., 2012; Li, 2015; Miller, 2013).

Another area ripe for future research builds on the two studies that suggest that not all principals, and therefore principal turnover, is the same. Indeed, a similar argument recently was put forward about different kinds of teacher turnover (Holme, Jabbar, Germain, & Dinning, 2017). Researchers need to replicate both studies—Boyce and Bowers (2016) and Branch et al. (2009)—and then extend and apply the findings in new ways. For example, are there substantive differences between satisfied and disaffected principals in terms of conditions and achievement at the schools they lead? And, if less effective principals are more likely to leave their schools, where are they moving to and in what ways does the move affect their effectiveness? Researchers also need to consider and then investigate other ways that principals and principal turnover might be meaningfully different, and what those differences might mean for the factors that predict turnover and the consequences of turnover. For instance, does the effect of turnover vary depending on whether the turnover was voluntary or involuntary? Some research in the management literature suggests there are meaningful differences in other sectors (e.g., Shaw, Delery, Jenkins, & Gupta, 1998), so education researchers should explore whether the voluntary nature of turnover matters for schools and school leadership.

A fifth area for future research is examining additional interactions that might help us better understand the determinants of turnover. For example, Gates et al. (2006) highlight several interaction effects, including between principal race and student demographics, that shed light on the conditions under which principal turnover is more or less likely. Béteille et al. (2012) similarly examine the interaction between district placement policies and principal preferences. Future research should consider additional potential interactions, both within and between levels of analysis. These might include, for instance, the interaction between different district policies and school characteristics and conditions. As part of the search to understand potential moderators, research is needed to explore whether principal turnover *always* is harmful, or whether there are conditions under which principal turnover may be neutral or even beneficial for schools and student achievement.

The issue of moderators points to the role that context appears to play in shaping the relationship between certain determinants and turnover, and between turnover and certain outcomes. The need to better understand the role of context becomes clear when we consider that work on principal turnover generally has tended to focus on a handful of states. For example, of the nine studies investigating the consequences of turnover, only a handful of states or cities are represented: California, North Carolina, Miami, Texas, and New York. The decision to use data from these contexts may make sense because of data quality, but this is a weakness in the literature, and the impact is that we cannot be confident about the generalizability of findings to other states. The role of context in moderating relationships can be seen more clearly in the research on the determinants of turnover, which draws from data from many more states (e.g., Texas, North Carolina, Illinois, Missouri, Minnesota, Iowa, Utah, Wisconsin, Delaware, New York, etc.). Specifically, findings often differed across (e.g., Gates et al., 2006) and within (DeAngelis & White, 2011) states, which suggests that the dynamics of principal turnover also may vary across (and also within) states.

Finally, more research is needed on the relationship between policy and turnover and on the consequences of turnover for schools and students. Relatively little research examines the effect of different policies on turnover. This is an area ripe for additional research because policy, unlike some other determinants, can be manipulated should it instigate or mitigate principal turnover. As for the consequences of turnover, this is another area where more research is needed. To date, there is limited research on the impact on student achievement, teacher turnover, and school culture and climate. This research is limited in the ways that already have been explained, but it also is limited in that very little work seeks to flesh out the mechanisms that underpin the relationships that have been identified. For example, we do not fully understand the relationship between turnover and student achievement: What about turnover affects student learning? Some research has attempted to address questions about causal mechanisms (e.g., Miller, 2013), but those studies are the exception and not the rule. One way forward would be to focus on the ways in which we currently believe that principals affect student learning—hiring and retaining effective teachers, creating a vision for the school as well as a positive culture, supporting teachers' professional learning, and providing strong instructional and managerial leadership. If these activities do in fact mediate the relationship between principals and student learning, then how does principal turnover affect each, either positively or negatively, and under what conditions does the relationship appear or change?

Conclusion

Recent work on principal turnover has begun to shed light on what helps explain patterns of turnover and the extent to which turnover is bad for schools and student achievement. This review contributes to the ongoing conversation about principal turnover in two key ways. First, it summarizes and synthesizes recent research on the determinants and consequences of principal turnover, focusing on the different ways in which turnover is measured. Second, the review highlights where research is needed and what kinds of research are needed.

Notes

The author acknowledges and thanks the anonymous reviewers for their excellent feedback; the manuscript was much improved because of their thoughtful and constructive feedback.

[1]The search started in 1990 because only one report was found prior to 1990 using the search methods described in this section. That report is *Principal Turnover by Kansas Rural School Administrators from 1978–1984* (Wilson & Heim, 1984).

[2]Some studies examined principals as well as other administrators, analyzing them separately. Several did not analyze them separately, however, and therefore were excluded from this synthesis. This decision was based on research suggesting that administrators at different levels face different labor markets and incentives, and therefore make decisions for different reasons (Gates et al., 2003).

[3]There were several studies that appeared in the searches that documented turnover in other contexts, such as Canada and the United Kingdom.

[4]In most of the studies where the sample comprised the population of teachers from an entire state (e.g., Texas) or large school district (e.g., Miami-Dade County Public Schools), the authors did not provide a sample size.

[5]The WWC considers four designs as eligible for review: randomized controlled trials, quasi-experimental designs, regression discontinuity, and some single-case designs. Of these, only randomized controlled trials are eligible to be considered as meeting WWC standards without reservations. Studies that do not use random sampling can meet the WWC's standards with reservations if they establish the baseline equivalency of the groups in the sample. Only one study (Jacob et al., 2015) reviewed here met this standard without reservations.

[6]The authors tested the log of total experience.

[7]Truncated regression means that observations with values on the dependent variable that are below or above a certain threshold are excluded from the sample.

[8]Studies using the term *minority* students usually were referring to African American and Latino students.

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