A Call for Data on the Principal Pipeline

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Abstract

In this policy forum commentary, we call for improved national and state-level data collection and access relevant to the principal pipeline. We focus specifically on how access to quality data can inform, has informed, and is critical to policy and practice across three segments of the principal pipeline—principal preparation, licensure, and labor markets—as well as the essential issue of diversity itself and across each pipeline segment. We also outline and explain the types of data collection, storage, and access that would enable more informed and relevant principal pipeline research, policy, and preparation. We then call for action at the state and the federal levels, including reauthorization of the Higher Education Act to expand Title II educator data collection to include principal preparation programs as it does teacher preparation programs. Finally, we conclude with cautions against potential data misuse.

Keywords: educational policy; principals; leadership; research methodology

Despite our growing understanding of the influence of principals on educational outcomes, the body of research on the principal pipeline (i.e., preparation, quality, employment, retention) pales in comparison to that on the teacher pipeline. This lack of research is especially problematic given the prominent role principals play in educational quality and equity. For example, principals influence student achievement (e.g., Grissom et al., 2021; Leithwood et al., 2004) and play prominent roles in myriad other educational outcomes and conditions, such as school environment (e.g., Branch et al., 2013), student attendance (e.g., Bartanen, 2020), student matriculation (Sorensen et al., 2021), and teacher turnover (e.g., Boyd et al., 2011). Further, evidence suggests the ability of principals to positively influence these outcomes is influenced by the preparation of the principal (e.g., Gates et al., 2014; Orr & Orphanos, 2011).

A major impediment to developing a greater understanding of the principal pipeline is the lack of access to data. Relative to the teacher pipeline, researchers and policymakers are often unable to access basic information about the principal pipeline that can be used for multiple research purposes to understand each segment of the principal pipeline, including preparation programs, licensure, and labor markets. More specifically, access to principal pipeline data could allow researchers to determine: (a) the number of individuals, disaggregated by race/ethnicity and gender, licensed for principal positions by principal preparation programs (PPPs) across states; (b) placement, turnover rates, and mobility patterns of principals disaggregated by race/ethnicity, gender, school characteristics, program, and state; (c) the distribution of principals by experience and effectiveness across schools with different student characteristics and in different locales; (d) the knowledge and skills possessed by individuals; and (e) measures of leader effectiveness. This lack of basic information severely hampers the ability of policymakers at both the state and PPP level,[1] as well as the ability of school districts, to make important

decisions about addressing issues of preparation, supply, distribution, retention, and effectiveness.

This disparity in our understanding between the teacher and principal pipelines is driven primarily by differences in access to and usefulness of teacher and principal databases at the state and national levels. Most states already collect educator employment data that include principals but do not make this data accessible in a way that allows researchers to analyze relationships or for policymakers to make informed decisions. Some states do make data on the principal pipeline available to researchers. For example, the state education agencies (SEAs) in Missouri, North Carolina, Tennessee, and Texas provide individual-level data that allow a researcher to track teachers into PPPs and then into positions within public education in the state. However, to our knowledge, no state collects and makes accessible all the data we describe in the remainder of this paper. At the national level, the issue is a lack of national data collection, and federal efforts to improve K-12 data systems have traditionally prioritized teacher and student data over, or even to the exclusion of, school leader data.

Given the principal's roles in teacher and student outcomes, the inability to understand and appropriately influence the principal pipeline leaves policymakers without the tools necessary to ensure every child has access to quality teachers and principals (Fuller, et al., 2019; Grissom, Bartanen, & Mitani, 2019). Thus, in this paper, we call for states and the U.S. Department of Education (USDoE) to invest in the development of robust data systems that provide researchers and policymakers access to a wide array of data aligned with all sections of the principal pipeline—from entry to licensure programs to exiting from the profession—that would allow researchers to answer essential questions about the principal pipeline.

In the remainder of this essay, we first discuss the data we recommend be collected. We then follow with a discussion of three areas in which data could be used to inform policy and practice—preparation quality, licensure, and principal labor market. Within each of these three areas, we provide more detail about the types of data we believe should be collected, review prior research in the area using available data, and then discuss research that could be conducted along with the policy areas that could be impacted if there was greater access to robust data on the principal pipeline. Next, we examine policy avenues to collect data on the principal pipeline. We conclude with cautions about using the data and our final thoughts.

Principal Pipeline Data

As shown in Table 1, we propose data should be collected and made available in three broad areas: preparation, licensure, and labor market, which includes placement, employment, mobility, and attrition. Further, we propose that across the three areas, states and the USDoE collect data on the personal characteristics of PPP enrollees, graduates, and principals, which would enable analyses regarding equity and representation.

We propose three tiers of data collection and availability. We believe the data in all three tiers are important and should be collected and made usable by states and/or the USDoE, although some data are more important to collect and release than others. The tiers are organized in ascending order of ease of collection and importance to understanding the principal pipeline. Thus, Tier 1 includes the most essential and easily collected data that are at the foundation of data-informed policymaking efforts. Tier 2 includes data at the individual and PPP levels that are often already collected by states or could easily be collected by states. These data allow for more detailed analyses than Tier 1 data and can be used to start identifying specific strengths and weaknesses in the pipeline, particularly with respect to diversity issues. Tier 3 includes data at

the individual and PPP levels that are more difficult to collect and sensitive with regard to the use of the information. The data would include individual licensure scores, evaluation information, and survey responses from PPP students, PPP graduates, and the supervisors of PPP graduates employed in leadership positions. Thus, Tier 3 data are more difficult to collect and coordinate and, in many cases, would be considered confidential, requiring restricted-access licenses to access.

Many, if not all, of Tier 1 and Tier 2 data are currently collected by states and/or the USDoE. Specifically, similar teacher data are already collected by states, and similar teacher preparation program data are already collected by both states and the USDoE. Thus, the Tier 1 and Tier 2 data about principals and PPPs should be relatively easy to collect and make available. Tier 1 licensure data are already collected by states, and Tier 2 data could be collected by states on their own licensure tests or in collaboration with testing companies. Tier 3 data are more difficult and costly to collect, organize, and store, thus they may require additional effort and fiscal support. We propose a potential solution to this issue later in the paper.

Informing Policy and Practice with Principal Pipeline Data

We contend states and the U.S. Department of Education, in partnership with organizations such as the National Policy Board for Educational Administration (an alliance of the AASA, CCSSO, ICPEL, NASSP, NAESP, and UCEA), National Governors Association, National Council of State Legislators, and funders of educational research intended to inform practice and policy, need to collect and make available principal pipeline data to better focus resources where they are most needed to ensure every student has access to effective school leaders. In this essay, we focus on three sections of the principal pipeline—PPP quality, principal

licensure, principal labor market—and equity and representation across all areas. Each of these is described below.

Preparation Quality

Data to be Collected on Preparation Quality

Available evidence suggests PPPs influence leader abilities to improve various teacher and student outcomes (e.g., Darling-Hammond et al., 2007; Orphanos & Orr, 2014) and that there are variations in PPP quality (e.g., Fuller & Hollingworth, 2018; Grissom, Mitani, & Woo, 2019). Greater availability of data would certainly increase our knowledge of effective PPP practices. States, then, should invest in collecting and managing an array of data that can help improve the quality of PPPs and the ability of their graduates to improve student outcomes and address issues of equity. Basic measures of quality would include Tier 1 data on the number of graduates, graduates obtaining employment, and graduates remaining in leadership positions. More advanced measures of quality would require Tier 2 and 3 data on PPP course content, clinical experiences, aggregate and individual licensure test data, individual employment pathways, and estimates of principal effectiveness relative to student outcomes. In addition, surveys of current and former students, such as the INSPIRE surveys that programs across multiple states continue to use, would provide direct measures of quality from the viewpoint of the educators receiving the preparation and can be merged with other state data. The collection of Tier 3 data across the preparation, licensure, and employment areas would allow researchers to examine more distal measures of PPP quality, such as the impact of graduates on teacher and student outcomes (e.g., Fuller & Hollingworth, 2018; Grissom, Mitani, & Woo, 2019), the qualifications of teachers hired by a principal (Fuller et al., 2011), teacher retention, and student outcomes (e.g, test scores, discipline rates, graduation rates, attendance rates).

Past Research on Preparation Quality

Past efforts to assess PPP quality have utilized data from all three tiers to examine a variety of measures of PPP quality across the entire pipeline, starting with the selection of individuals into a program and ending with graduates' effectiveness in improving student outcomes. For example, researchers have found many PPP students self-select into programs (Black, 2011; Farley-Ripple et al., 2012) and that more purposeful and rigorous selective recruitment processes can improve the quality of graduates (e.g., Darling-Hammond et al., 2007; Gates et al., 2014; Orr, 2011). Once in a program, Darling-Hammond and colleagues (2007) found that course content is most effective when connected to ongoing clinical experiences, while Orr & Orphanos (2011) found the quality, but not the length, of the clinical experience is associated with improved candidate abilities. Most recently, Doss and colleagues (2021) concluded various measures of pre-service principal practice were associated with measures of principal effectiveness. With respect to the licensure section of the principal pathway, licensure scores are certainly an understudied measure of PPP quality, and the only major study of licensure test results calls into question whether these scores capture principal effectiveness, much less PPP quality (Grissom, Mitani, & Blissett, 2017). In terms of production, Fuller and Hollingworth (2018) have documented great variation between PPPs within one state and even relatively high variation across years within PPPs.

With respect to the employment section of the pipeline, researchers have also found great differences in placement rates across PPPs and even across time for individual PPPs (Fuller & Hollingworth, 2016; Grissom, Mitani, & Blissett, 2017). Finally, with respect to student outcomes, there are two studies of note. First, Gates and colleagues (2014) examined the relationship between graduates from the New Leaders PPP and found that, despite variation

across individuals and locations of their PPPs, there was an overall net positive influence on student achievement. Second, Fuller and colleagues (2011) found that graduates from research and doctoral institutions in a southern state were associated with improved teacher qualifications and greater student achievement.

Utility of Research on Preparation Quality

School district policymakers could use state data and their own data about the effectiveness of PPPs to develop partnerships with high-quality PPPs and/or PPPs that prepare leaders of color. Using their own data and state employment data, PPP policymakers could examine and alter their recruitment and selection efforts to both diversify and improve the quality of entrants into their program as well as examine their strategies for ensuring their graduates are placed into leadership positions and remain in those positions. One strategy would be to enter into district-PPP partnerships where both organizations collaborate to improve the principal pipeline. State policymakers could use the data gathered on PPPs and merge them with data on licensure and employment to examine the relationship between PPPs and outcomes as was done in several research studies (e.g., Fuller & Hollingworth, 2018; Grissom, Mitani, & Blissett, 2017).

Specifically, PPP data-based findings can illuminate the extent to which PPPs have: (a) adopted evidence-based practices; (b) graduated students who obtain licensure; (c) placed students in school leadership positions; (d) supported graduates to remain in leadership roles; and (e) prepared leaders who improve teacher and student outcomes. These data would enable the identification of PPPs that appear to be high quality and allow for further investigation to identify the personnel, processes, and procedures associated with successful outcomes. We do, though, like other researchers, caution against evaluating programs based on several outcome

measures, especially distal outcomes (e.g., Fuller & Hollingworth, 2018; Grissom, Mitani, & Woo, 2019). In addition, states could use the information in their accreditation, review, and technical assistance endeavors to improve preparation quality.

Licensure

Data to be Collected on Preparation Quality

Since states require licensure tests and grant licensure, SEAs (or their testing contractors) already collect data on licensure scores and the individuals obtaining licensure. These data can typically be matched to individuals in specific PPPs and individuals in particular positions. For example, both Texas and Tennessee collect licensure score and/or license status data that can be connected to individuals from PPPs and their positions. Thus, the issue regarding licensure is the sharing of relevant data with PPPs and researchers.

Past Research on Licensure and Licensure Tests

Despite states collecting licensure score and status data, there is a great paucity of research that specifically examines licensure data. Some exceptions include studies of the rates of teachers obtaining principal licensure in Texas (e.g., Fuller & Hollingworth, 2016; Davis et al., 2017) and in Tennessee (Grissom, Mitani, & Blissett, 2017). Research from Tennessee was unable to identify any relationships between licensure test scores and various principal effectiveness measures. The research brings into question the validity of principal licensure tests.

Utility of Research on Licensure and Licensure Tests

With access to licensure scores, district policymakers could begin to examine the relationship of scores and their own estimations of principal effectiveness. Further, they might decide to require the inclusion of test scores in an application or, alternatively, choose to ignore test scores if they find they have little predictive validity. PPP policymakers could use the test

scores as part of their own self-assessment and determine if additional support is necessary for those taking the test. If the state makes aggregate test scores available by program, states could study PPPs with high pass rates and then provide technical assistance to PPPs with low passing rates. Of course, with respect to state policy, the collection of and sharing of principal licensure scores could provide invaluable information about the utility of a state's licensure test—particularly with respect to predictive validity, which is the purpose of such tests. Conducting this research is incredibly important given that licensure tests can unnecessarily restrict the supply of principals—especially principals of color.

Principal Labor Market

Data to be Collected

To manage the labor market, state and PPP policymakers need accurate and longitudinal information about the supply, demand, and shortages of principals. At a minimum, this requires states to collect Tier 1 data across the preparation, licensure, and employment areas. Ideally, administrative data would be supplemented by statewide surveys of superintendents about the number of applicants, quality of applicants, and difficulty of finding an appropriate hire.

Past Research

Past research has used Tier 1 through Tier 3 data to examine the number of individuals obtaining principal licensure (e.g., Lankford et al., 2003), the percentage of individuals obtaining licensure who became employed as an assistant principal or principal (e.g., Bastian & Henry, 2015; Davis & Anderson, 2020), the years from licensure to employment as a principal (e.g., Fuller et al., 2016; Davis et al., 2017), the length of time between employment as an assistant principal to principal (Bailes & Guthery, 2020; Crawford & Fuller, 2017), distribution of

principals (e.g., Clotfelter, et al., 2006; Loeb et al., 2010), principal turnover (e.g., Snodgrass Rangel, 2018), and principal mobility patterns (e.g., Baker, et al., 2010)

In general, this body of research using state administrative datasets (mostly data from Missouri, New York, Illinois, North Carolina, Tennessee, and Texas) has concluded that more individuals obtain licensure than the number of vacancies each year, between 50% and 75% of those obtaining principal licensure become employed as a principal or in a school leadership position, the average years from licensure to employment as a principal is about five years (Bastian & Henry, 2015; Davis et al., 2017), an increasing number of newly licensed principals become an assistant principal prior to becoming a principal (Crawford & Fuller, 2016; Fuller et al., 2019), principal attrition and turnover are higher than teacher attrition and turnover (e.g., Bartanen, & Mitani, 2019), and salaries incentivize principals to move from one school to another (e.g., Baker et al., 2010; Pendola, 2021). To what extent these findings hold across individual labor markets and states is only speculation, given the lack of available data to conduct similar studies elsewhere. The National Teacher and Principal Survey (NTPS) administered by the National Center for Education Statistics (https://nces.ed.gov/surveys/ntps/) does provide important nationally representative information about turnover and the factors associated with turnover, such as working conditions (e.g., Snodgrass Rangel, 2018; Tekleselassie & Choi, 2019). The NTPS data, however, does not provide information at either the state or labor market level nor any information regarding PPP enrollments or the supply of licensed school leaders. Additionally, the Common Core of Data (https://nces.ed.gov/ccd/) does not differentiate administrator counts by role (e.g., principal, assistant principal), meaning that pools of potential principals working in the assistant principal rank, for instance, cannot be calculated.

Utility of Research on Principal Labor Markets

The aforementioned data collection can be used for research examining principal labor markets that, in turn, can inform the decisions of district, PPP, and state policymakers. District policymakers can use the data to identify strengths and weaknesses in their recruitment, selection, placement, and retention of principals. The district policymakers can then examine and improve upon their practices and strategies, including when recruiting takes place, when principals are hired, the degree to which new principals are provided support, the working conditions under which principals work, and principal salaries. PPP policymakers can examine their placement and retention rates as measures of their effectiveness and identify the need for new strategies, such as explicitly preparing candidates for job interviews, developing university-district partnerships, and providing ongoing mentoring and support. State policymakers could use the data to examine the balance of supply and demand, identify the need for increasing or decreasing the supply of principals through changes in licensure or adoption of fiscal incentives, and address issues of attrition through increases in salary and providing technical assistance to districts in improving principal working conditions.

Equity and Representation

Data to be Collected

Currently, we do not have sufficient information about the diversity of candidates in PPPs or the diversity of employed school leaders by labor market or state except for in a handful of states. While the Integrated Postsecondary Education Data System (IPEDS) (https://nces.ed.gov/ipeds/) does include the race/ethnicity and gender of individuals completing postsecondary degrees and certificates in education, the students in IPEDS are not necessarily graduates of PPPs, and a substantial proportion of the students have missing racial/ethnic data.

Our review of SEA websites revealed fewer than ten states make diversity information about leaders available to the public.

Data on principal labor markets and PPPs should include data that illuminate issues of diversity, inclusion, and equity. Specifically, aggregate and individual data on the personal characteristics of employed leaders and PPP students should include race/ethnicity, gender, and age. Further, states should make available a wealth of data about schools, including student race/ethnicity and gender as well as measures of student socio-economic status beyond just participation in the federal free or reduced-price meal program. Finally, researchers should be able to connect all these data.

Past Research

More than three-quarters of principals are white (Taie & Goldring, 2019) while most K-12 public school students are students of color (53%; NCES, 2020). There has been a slow increase in the racial/ethnic diversity of principals since 1988, but the increase has been substantially slower than the increase in the racial/ethnic diversity of students. Similarly, while most elementary school principals are female, only about one-third of secondary school principals are female—far below the percentage of secondary teachers who are female.

The available evidence suggests PPP graduates of color are more likely than their white peers to be hired as an assistant principal but less likely to be hired as a principal. Further, when they are hired as a principal, the number of years from licensure to employment as a principal is longer than for their white peers. Similarly, the number of years between being hired as an assistant principal and then as a principal is significantly longer for assistant principals of color than for their white peers (Bailes & Guthery, 2020; Crawford & Fuller, 2017). With respect to gender, research suggests female principals are less likely to find employment as a principal

(e.g., DeAngelis & O'Connor, 2012; Fuller et al., 2019; Fuller et al., 2018) despite evidence that females are equally likely to apply for employment as a principal (DeAngelis & O'Connor, 2012). Interestingly, there does not appear to be any association between race/ethnicity and retention as a principal. However, research does suggest that women tend to remain in the principalship longer than their male counterparts (Fuller & Young, 2009).

Regarding licensure, evidence from Texas suggested that teachers of color were more likely than their white peers to obtain certification despite substantially greater probabilities that they would not pass the licensure test on the first attempt (Fuller & Young, 2009). Results from Tennessee also found that aspiring principals of color were more likely not to pass the licensure test (Grissom, Mitani, & Blissett, 2017). The same research, however, found no association between licensure score and effectiveness as s principal.

With respect to effectiveness, recent evidence from state administrative datasets strongly suggests the race/ethnicity of principals influences outcomes for teachers and students. For example, as compared to white principals, Black principals are less likely to discipline Black students and more likely to assign Black students to gifted programs (Grissom, Rodriguez, & Kern, 2017). Black principals are also more likely to hire Black teachers (Bartanen & Grissom, 2021), and research has consistently found that Black students taught by a Black teacher tend to have greater non-cognitive and cognitive outcomes than Black students not taught by a Black teacher (e.g., Cherng & Halpin, 2016; Redding, 2019).

Utility of Research on Equity and Representativeness

Because hiring practices strongly influence the racial/ethnic and gender diversity of those hired, district policymakers should use employment data to examine their hiring practices to ensure there is a focus on increasing the racial/ethnic and gender diversity of principals.

Moreover, they should establish a tapping procedure that explicitly identifies teachers of color and female teachers for entry into a PPP. Further, district policymakers should use disaggregated state PPP data to identify PPPs graduating leaders of color and establish district-university partnerships with those PPPs.

PPP leaders should examine the personal characteristics of those recruited and selected into their program as well as their graduates as the first step in examining the degree to which their recruitment, selection, and support processes lead to the graduation and placement of leaders of color and female leaders. Further, PPPs should examine the effectiveness of their graduates in serving the needs of students living in poverty and students of color. Finally, PPPs should develop district-university partnerships to enhance their recruitment and placement of educators of color and female educators.

State policymakers should collect data on the individual demographic characteristics of PPP enrollees, graduates, licensure test-takers, individuals obtaining licensure, employed school leaders, and leaders leaving the profession. In doing so, the strengths and weaknesses of the pipeline can be identified. The collection of Tier 2 and 3 data, especially surveys of individuals, would help determine the specific factors associated with preparing, employing, and retaining a greater number and percentage of leaders of color and female leaders. These lessons learned could then be used to assist PPPs in improving their practice and help school districts create more effective and equitable hiring and retention strategies. Indeed, collecting and making available Tier 2 and 3 data on principals (and teachers) is vital to ensuring that every student—regardless of race/ethnicity—has an equal opportunity to learn and maximize their potential.

Policy Avenues to Increase Data Collection and Access

In stark contrast to PPP data, national and state-level teacher preparation program (TPP) data have been collected and made publicly available through *Title II: Teacher Quality Enhancement* of the *Higher Education Act* (*HEA*). Similar collection and release of relevant PPP data would provide researchers and policymakers critical information for the benefit of K-12 education. Currently, *Title II* requires all U.S. states, the District of Columbia, Puerto Rico, and outlying territories to annually report various TPP information to the USDoE since 2010 (U.S. Department of Education, 2016). States are required to report an array of information, including: number of TPPs and subject area programs, TPP type (traditional or alternative), aggregate grade point averages of students, requirements for initial licensure, state policies governing certification, student enrollment, number of completers, licensure pass rates by test, and identification of at-risk programs. The data is disaggregated by state, TPP, and program (generally teacher subject area). The enrollment data is also disaggregated by race/ethnicity and gender. All the data are publicly available (https://title2.ed.gov/Public/DataTools/Tables.aspx) and provide valuable information for education research and to inform policy concerning teacher preparation, certification, and licensure. Used in conjunction with national teacher turnover data, Title II data has informed policy around national (e.g., Sutcher et al., 2016) and state (e.g., Wan et al., 2019) teacher supply and demand. *Title II*-based reports cannot fully address locality and hard-to-staff schools in the supply/demand equation (e.g., Cowan et al., 2016), but do offer policymakers valuable proxies of national and state-level teacher supply whereas for principals there is none.

Identical data collection for PPPs and licensure may provide more accurate pictures of the public school principal labor market than the teacher labor market due to its relative size (3.7 million public school teachers, less than 100,000 principal principals; USDoE, 2018) and being

arguably less nuanced (e.g., teacher demand varies by subject area taught; Cowan et al., 2016). However, precise principal labor market reports are not possible because current data do not capture how many candidates are enrolled in and graduated from PPPs or how many administrator licenses are awarded (Anderson et al., 2020a). Some have conducted national analyses using best proxies for licensed leadership candidates to provide nationwide estimates of supply (e.g., Baker et al., 2007; Perrone & Tucker, 2019), but these studies have limited precision for state-level policy purposes without administrative licensure data. Similarly, research around PPP effects requires samples with relatively high numbers of programs. Informative PPP effect research would also necessitate samples composed of PPPs with varied characteristics and standards. As illustrated in Table 1, these data are collected for teachers under *Title II* but not for PPPs. In fact, as is the case for state licensure and principal preparation policy, there is no national established structure for ensuring the availability of comprehensive lists of PPPs (Anderson et al., 2020; Perrone et al., 2020).

Unfortunately, the *HEA* does not require states to collect or submit similar information for PPPs under *Title II*. As a result, the field has a severely limited ability to examine issues essential to the principal workforce, including, but not limited to: (a) school leader supply and demand; (b) equity in the principal pipeline; (c) licensure pass rates; and (d) state policies regarding PPPs (Anderson et al., 2020a).

In addition, USDoE could create a Statewide Longitudinal Data System grant competition (see https://nces.ed.gov/programs/slds/grant_information.asp) in which states would have to submit proposals that specifically target data collection, analysis, reporting, and availability of the types of data in this essay. Many states already collect principal pipeline data

and simply do not make them available to the public or researchers, while many other states already have the infrastructure to collect the data but just do not.

At the national level, policymakers have an opportunity to initiate the collection and dissemination of data needed to inform the principal pipeline at minimal cost with the upcoming reauthorization of the *HEA*. This could be expanded at marginal cost using existing structures to include PPP and principal licensure information.

Cautions

In calling for the expansion of *Title II* and other data to establish a publicly available national PPP dataset and accessible and useful state datasets, we recognize there is always the potential for data misuse. In fact, most PPP data could be used to misidentify effective and ineffective programs. Researchers have highlighted the potential problems of using data to examine long-term impacts of PPPs and demonstrated how results may vary based on the chosen outcome variable and methodology employed (Fuller & Hollingworth, 2018; Grissom, Mitani, & Woo, 2019). There is not a strategy to prevent the misuse of data. We urge the USDoE and SEAs to use the data cautiously and use the expertise of researchers before using PPP data to make high-stakes decisions about programs. Despite the potential misuse of data, free access to data allows researchers to use the data properly, and the field can highlight quality studies and identify the misuse of data in accountability systems. We argue *Title II*-type data for PPPs and licensure as well as Tier 1, 2, and 3 data are necessary for the research needed to best inform policy.

Final Thoughts

Data about the teacher pipeline have been available for decades, which have generated policy attention about the importance of various pipeline components and have been used to

provide important understandings of the teacher pipeline (e.g., Goldhaber et al., 2020). Such data, however, are not widely available about the principal pipeline. Thus, relative to our understanding of the teacher pipeline, we have a very limited understanding of the principal pipeline, including principal supply, demand, preparation, licensure, placement, attrition, quality, and equity and representation. Policymakers have a unique opportunity to address this issue and we urge them to do so to improve the quality of our PK-12 education system.

Notes

[1] State policymakers include governors, commissioners/secretaries of education, and individuals working at SEAs and in legislatures.

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Table 1

Types of Principal Pipeline Data That All States Should Collect and Report

	Pipeline Area		
	Preparation	Licensure	Employment
Tier 1	Counts and percentages of entrants and completers by PPP[1]; PPP student demographics[1]	Counts, percentages, and demographics of test-takers and those obtaining licensure by PPP[2]	Counts of individuals employed in school leadership positions in schools and districts[1]; school leader demographics[2]
Tier 2	Required courses[3]; course content[3]; internship experiences[3]	Average scores[2]; sub-scale scores[2]	Data that include individual educators connected to specific school leadership positions in schools[1]; school data[1]
Tier 3	Tier 2 connected to individuals; aggregate surveys of students[3]; individual survey results[3]	Individual scores[2]	Evaluation information connected to individuals[3]; surveys of teachers and students[3]

[1] Based on our own experiences and those of other researchers, these data are already collected by a substantial number of SEAs. Most SEAs collecting these data make them available to researchers.

[2] These data are currently collected by testing companies and/or SEAs. When collected by testing companies, SEAs should include contract language that provides the transfer of data from the private company to the SEA. Only aggregate data should be available to the public. However, researchers need access to these data for individuals.

[3] These data can be collected through surveys of PPP employees, PPP graduates, school or district administrators, teachers, and/or students. Some states (e.g., Texas) collect data from the supervisors of PPP graduates and conduct statewide surveys of teachers and/or students. *Title II* data expansion to the PPP pipeline should include all Tier 1 and Tier 2 PPP data in this table.