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Data Access and Use Among Middle and High School Principals

Schools and districts across the United States have invested heavily in data management systems to facilitate educators' access to data that can inform their work.¹ School principals, in particular, make countless decisions that could benefit from access to these data.² Principals also help create cultures of data use within their schools, providing guidance and supporting the conditions that enable other school staff to use data effectively and appropriately.³

The availability of data systems has grown in concert with an expansion in the types of student data that are collected. The Every Student Succeeds Act (ESSA) requires that states monitor student achievement in their public schools and that they disaggregate the data by student demographic subgroups. ESSA also created opportunities for states to expand their data collection to include a variety of measures beyond test scores.⁴ Moreover, a widespread emphasis on promoting students' social and emotional development along with their college and career readiness (which can include measures of coursetaking as well as postsecondary outcomes) means that principals are increasingly interested in monitoring their students' progress along several dimensions.⁵ Advocates of an expanded view of learning that incorporates students' academic, social, and emotional competencies recommend that schools consult multiple data sources to inform their decisions about programs and practices and that they review data in ways that will promote equity.⁶

Access to multiple data sources disaggregated by subgroups is not sufficient to ensure equitable opportunities or outcomes. It can, however, serve as an important starting point for conversations among school staff about the extent to which students are being served in an equitable way. Making these data available through an electronic data management system can be especially helpful for supporting broad access and use.⁷

An earlier American Educator Panels (AEP) Data Note found that teachers reported widespread access to electronic data management systems, although access varied across types of data.⁸ In this Data Note, we shift the focus to principals, recognizing the important roles they play in making data-informed decisions and creating cultures of data use in their schools. Using results from a nationally representative survey of principals from the RAND Corporation's AEP, we examine middle and high school principals' access to several types

¹ Data Quality Campaign, 2016.

² Hamilton et al., 2009; Pak and Desimone, 2019.

³ Coburn and Turner, 2011.

⁴ Hall, 2017.

⁵ Atwell and Bridgeland, 2019; Camara, 2013; Hamilton, Doss, and Steiner, 2019.

⁶ Aspen Institute, 2019.

⁷ Data Quality Campaign, 2016.

⁸ Berglund and Tosh, 2020.

Using the American School Leader Panel, we surveyed a nationally representative sample of middle and high school principals (i.e., those leading schools that included any grades from 6 to 12) in spring 2019. We asked the following questions:

- During the current school year (2018–2019), what kinds of student data do you have access to through an electronic data management system(s)? [Principals could make multiple choices from eight categories of data.] Are the data that you have access to disaggregated by student race, ethnicity, and income (e.g., free and reduced-price lunch)?
- During the current school year (2018–2019), for which of the following purposes do you use these data? [Principals could make multiple choices from five purposes.]
- Do you currently look at data in collaboration with other schools with the aim to improve together?
- Do you use a continuous improvement framework with the data that you look at with other schools?¹

¹ The survey defined a *continuous improvement framework* as “a formal template or approach that allows you to study implemented interventions, review data, test impact, and revise your approach (e.g., Plan Do Study Act framework).”

of data about their students’ outcomes and experiences, along with the ways in which principals report using those data. We also explore principals’ reports regarding collaborations with leaders of other schools around data use, because this type of collaboration can provide useful professional learning opportunities. Understanding what data principals use, and for what decisions, can help identify gaps that can be addressed by improved systems or guidance. We draw on data gathered from middle and high school principals in spring 2019 to understand whether principals have access to data to guide their decisions and how they use those data when they do have access.

In the summary of findings, we present overall national results for each question and discuss differences between responses for middle and high school principals. These grade-level differences are useful to explore because middle and high school principals are likely to have access to different types of data and to use them in different ways. High school students tend to pursue a broader array of courses and programs than those in middle school, and high school staff are generally responsible for monitoring students’ readiness for postsecondary life. We also explore differences in data access by school urbanicity, racial/ethnic composition, and poverty levels, but

we do not report on these analyses because we found almost no significant differences.⁹

Many Middle and High School Principals Lack Access to Data That Could Support Decisionmaking

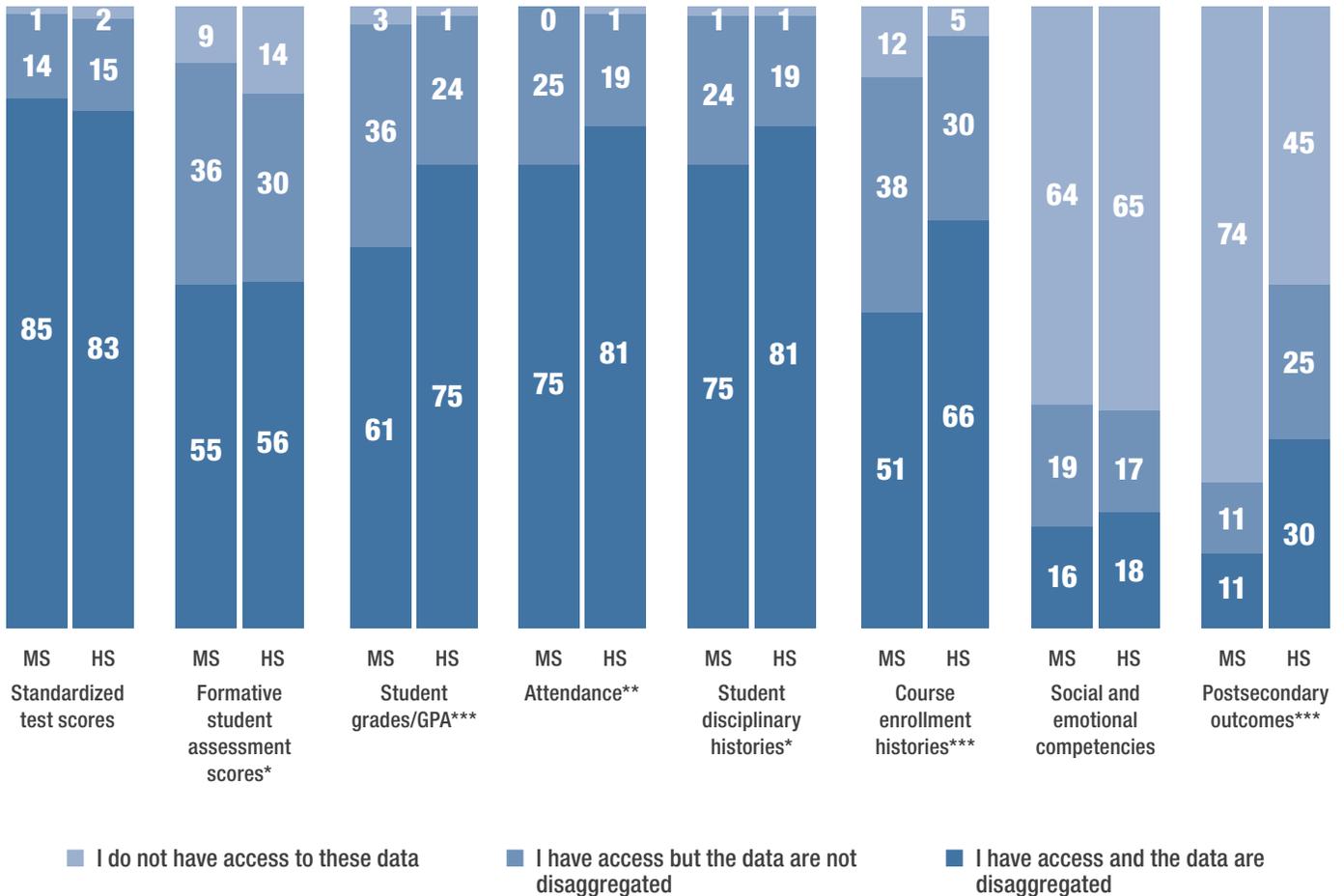
In Figure 1, we present the weighted percentages of principals who reported access to data in aggregated or disaggregated form through an electronic management system. Unsurprisingly, the principals reported having the most access to disaggregated data on standardized testing; they reported the lowest rates of access for data on social and emotional competencies and postsecondary outcomes. Given educators’ interest in promoting social and emotional development and ensuring college and career readiness, these results suggest that large numbers of schools could benefit from improved access to measures of these outcomes through their data systems.

⁹ The only differences that were statistically significant at a $p < 0.05$ level were that (1) urban school principals reported greater access to student attendance data than other principals and (2) principals in schools where students of color constituted a majority reported greater access to formative assessment data than those in majority-white schools.

FIGURE 1

Principals Report Most Access to Test Scores, Lack Access to Social and Emotional Competency and Postsecondary Outcome Data

Weighted Percentages of Principals Who Report Access to Various Types of Data



NOTE: Asterisks indicate significant differences among respondents from high schools and middle schools, according to a chi-square test. *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$. Bars might not sum to 100 due to rounding.

Although more than nine in ten principals reported access to course enrollment histories, many of them indicated that the data were not disaggregated. Disparities in students' opportunities to pursue rigorous coursework provide valuable evidence regarding equity, so this is another gap in data access that could be important to address.¹⁰ Lack of access to disaggregated data on postsecondary outcomes and

¹⁰National Academies of Sciences, Engineering, and Medicine, 2019.

social and emotional competencies also limits school leaders' opportunities to identify inequities in these important measures.

For the most part, the differences between middle and high school principals' reported access to data were relatively small. As might be expected, high school principals reported greater access to data on postsecondary outcomes, course enrollment, and grades than principals in middle schools.

Principals Use Academic Data to Inform a Variety of Leadership and Management Decisions

Principals were asked to indicate the purposes for which they used each of the data types addressed in Figure 1.¹¹ Principals could select any and all purposes from a list of five categories and could also select “N/A—do not use.” Figure 2 shows the responses for four types of data that provide information on academic outcomes, and Figure 3 provides

¹¹This question did not refer to an electronic management system, so some principals who indicated lack of access in the previous question reported having access to data in their responses to this question.

responses for the other four data types. For simplicity, we do not display separate results for middle and high school principals, but we note instances in which those groups’ responses differed significantly.

For three of the four types of data shown in Figure 2, at least 90 percent of principals reported using the data to inform decisions about one or more of the listed topics. Data were most likely to inform selection of interventions (i.e., curricula, programs, practices), followed by instructional leadership and scheduling. Given the importance of instructional leadership for supporting teaching and learning,¹² it is surprising that that larger percentages of principals

¹²Goldring et al., 2019.

FIGURE 2

Academic Data Often Used to Select Curricula, Programs, and Practices

Weighted Percentages of Principals Who Report Using Academic Data for Various Purposes

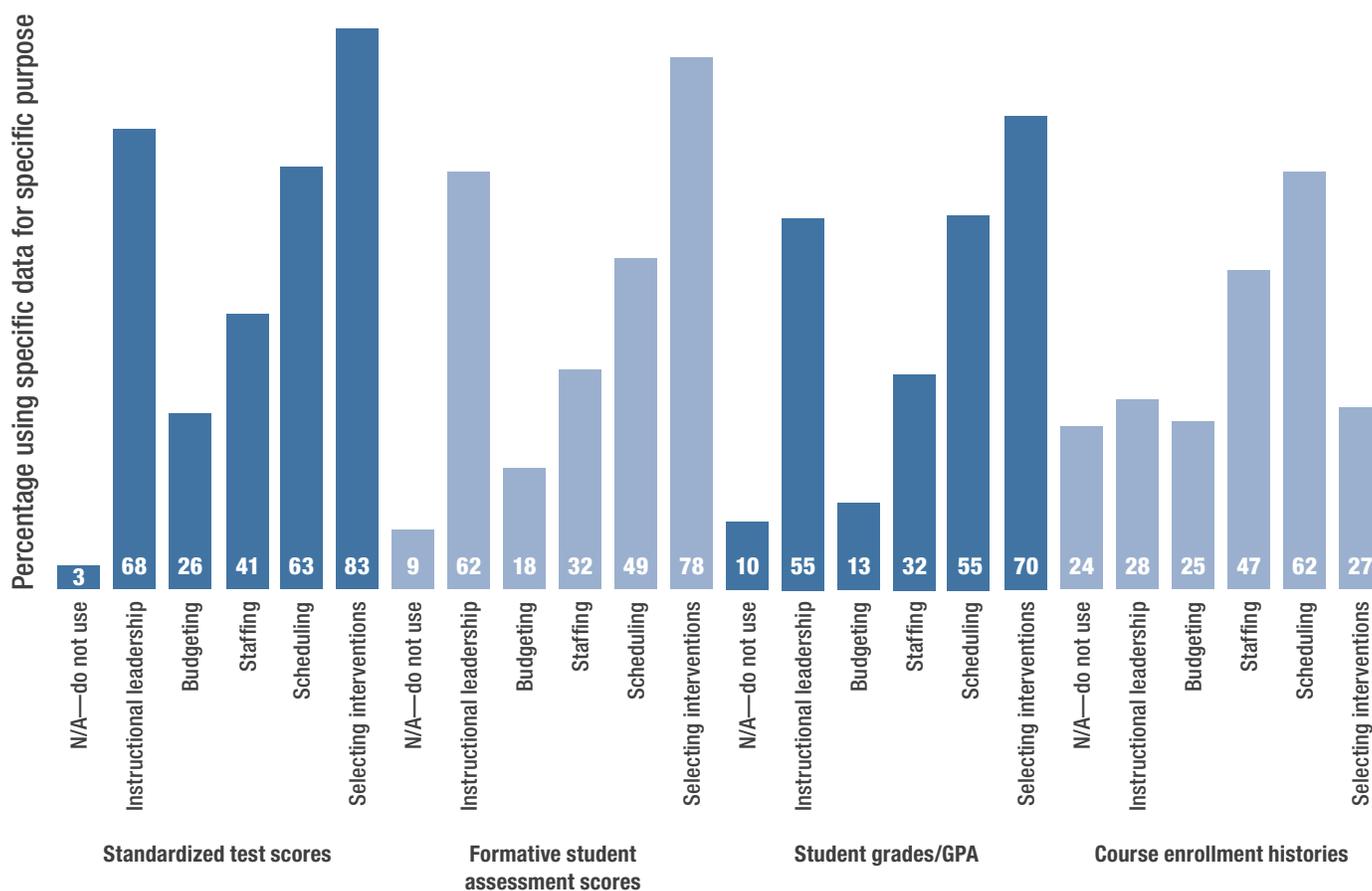
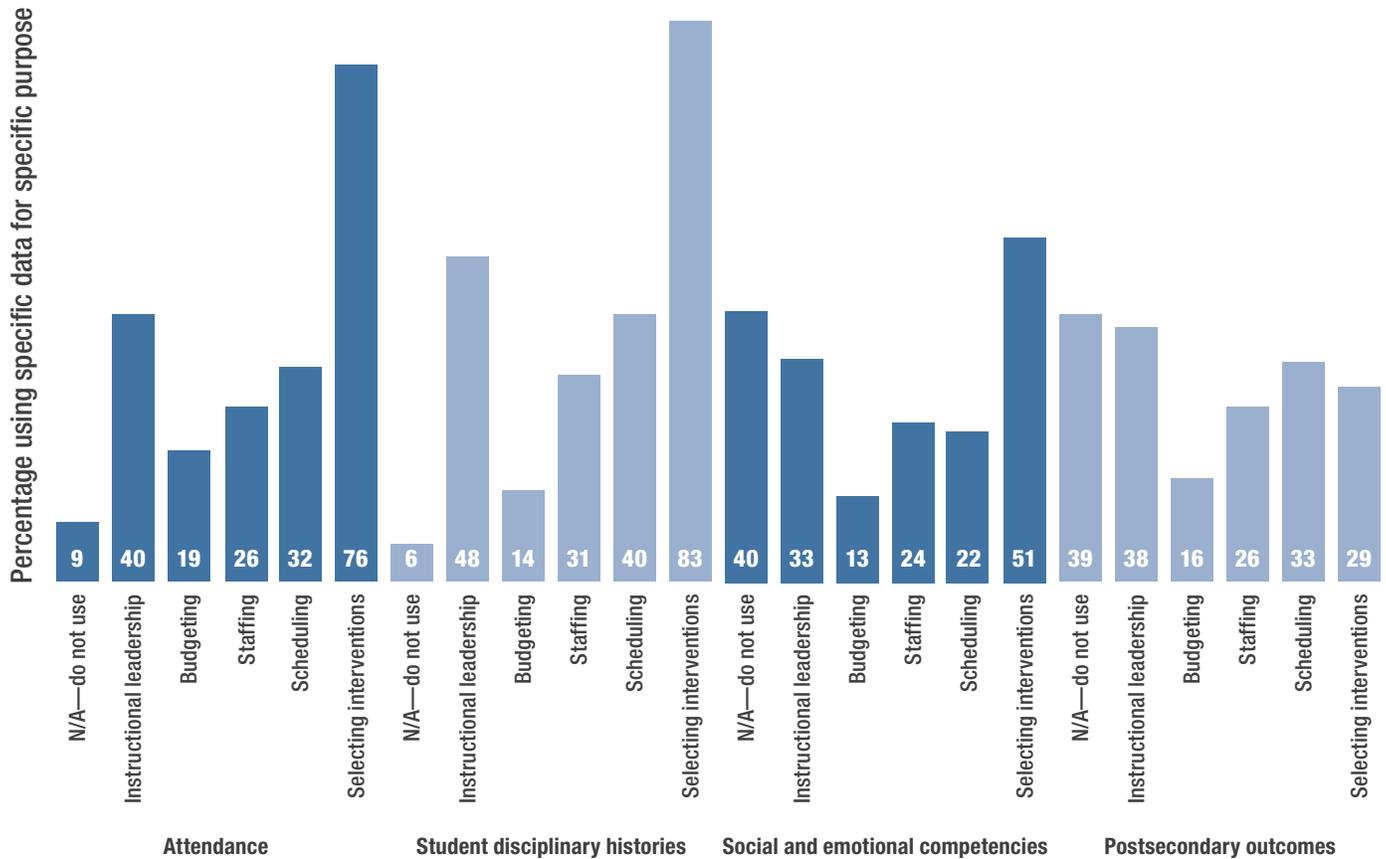


FIGURE 3

Nonacademic Data Also Used to Select Curricula, Programs, and Practices

Weighted Percentages of Principals Who Report Using Nonacademic Data for Various Purposes



NOTE: We only include high school principals' responses for the postsecondary outcomes category.

did not report using test score, student grade, and course enrollment data to inform decisions in this area.

Middle school principals were more likely than high school principals to use standardized test scores for budgeting, scheduling, and selecting interventions. Middle school principals also were more likely to use formative assessment data for scheduling and selecting interventions, whereas high school principals reported greater use of grades and GPA data for both staffing and scheduling. Most of these differences were relatively small, on the order of 5–10 percentage points.

We did find larger differences by grade level for course enrollment histories, which is to be expected because high schools tend to offer more courses than middle schools. Approximately one-third of middle school principals said that they did not use course enrollment histories for any purpose, but only 8 percent of high school principals reported completely forgoing course enrollment history data. High school principals reported greater use of course enrollment data than middle school principals for each type of decision, particularly for staffing and scheduling.

Nonacademic Data Also Inform Decisions, Particularly Regarding Intervention Selection

Figure 3 shows principals' reported use of nonacademic data on attendance, disciplinary histories, social and emotional competencies, and postsecondary outcomes. Principals commonly reported using attendance and discipline data, especially for selecting interventions. Roughly 80 percent of principals indicated using both data types for selecting interventions; these responses did not differ by grade level. We did observe some grade-level differences for other types of decisions, with middle school principals less likely to use attendance data to provide instructional leadership and more likely to use discipline data to inform staffing and scheduling.

Principals were less likely to report the use of data on social and emotional competencies and postsecondary outcomes; the use of social and emotional competency data did not differ between middle and high schools. The postsecondary outcome results in Figure 3 apply only to high school principals, but even so, nearly 40 percent reported not using these data to inform any of the decisions about which we asked. In addition, among all of the types of decisions listed on the survey, decisions about budgeting were the least likely to be informed by either academic or nonacademic data sources.

Fewer Than Half of Principals Reported Cross-School Collaboration on Data Use

Finally, we asked principals whether they collaborated with other schools to review data with the aim to improve together: 47 percent indicated that they did. This included 49 percent of middle school principals and 43 percent of high school principals (a statistically significant difference). Of the principals who said that they reviewed data with other schools, 61 percent reported using a continuous improvement framework as part of this collaboration.¹³ Middle and high school principals were equally likely to report using a continuous improvement framework.

Discussion

These survey findings provide a broad view of the types of data principals report accessing through electronic management systems and the ways in which they use both academic and nonacademic data. We found that most principals were able to use electronic systems to obtain academic data on their students, but many of those principals lacked access to these data in a disaggregated form. Disaggregated information on student progress and outcomes is crucial for enabling principals and other school staff to monitor disparities and promote equity.

¹³A *continuous improvement framework* is defined as “a formal template or approach that allows you to study implemented interventions, review data, test impact, and revise your approach (e.g., Plan Do Study Act framework).”

How This Analysis Was Conducted

The results presented in this Data Note are weighted frequency tabulations based on the survey questions listed earlier. (Details about the survey sampling, administration, and weighting are available at www.rand.org/t/RR4332.) We also conducted analyses using weighted linear regression models to compare responses between middle and high school principals as well as differences by urbanicity, poverty, and racial/ethnic composition of the students. To assess whether the differences between responses for principals in different types of schools were statistically significant, we performed chi-squared tests using weighted cross tabulation by school level and school poverty characteristics, separately, for each item.

An especially concerning finding is the relatively low level of access to disaggregated information on coursetaking histories, because this could provide an important indicator of opportunity gaps.

Access to data—both aggregated and disaggregated—was reported as lowest for social and emotional competency data and postsecondary outcome data. This finding suggests a need for education agencies or other support providers to help school leaders monitor these outcomes, given their importance for ensuring students' readiness for college, careers, and civic life. Several challenges are associated with measuring these outcomes, so external supports and financial resources likely are necessary to enable principals to gather and use this information.

Principals' use of data sources to support instructional leadership was common, but it was not universal. Opportunities might exist for support providers to help principals understand the value of existing data to inform instructional leadership and to identify new sources of data that might be better suited to that purpose.

Finally, fewer than half of principals reported reviewing data with leaders from other schools. These principals may be uninterested in doing so, or they may face such challenges as lack of time and a lack of mechanisms for collaboration. This finding suggests an opportunity to increase principals' participation in data collaborations that allow them to learn from one another and share ideas about how to use data effectively.

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The AEP Data Note series is intended to provide brief analyses of survey results of immediate interest to policymakers, practitioners, and researchers. If you would like to know more about the dataset, please see the Learn Together Surveys Technical Documentation (RR-4332-BMGF, www.rand.org/t/RR4332) for more information on survey recruitment, administration, and sample weighting. If you are interested in using AEP data for your own surveys or analysis or reading other AEP-related publications, please email aep@rand.org or see www.rand.org/aep.

About This Report

The American Educator Panels (AEP) are nationally representative samples of teachers and school leaders across the country.

We are extremely grateful to the U.S. public school teachers and leaders who have agreed to participate in the panels. Their time and willingness to share their experiences are invaluable for this effort and for helping us to understand more about how to better support their hard work in schools. We also thank our reviewers, Robin Lake, Rebecca Herman, and Susan Straus, for helpful feedback that improved this report.

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