

MELANIE A. ZABER AND LAURA S. HAMILTON

Teacher and Principal Perspectives on Supports for Students' College and Career Pathways

Findings from the American Educator Panels



Recent federal legislation has focused schools' attention on college and career readiness,¹ with the reauthorized Perkins Vocational and Technical Education Act emphasizing employability skills and about three-quarters of U.S. states adopting a measure of college and career readiness as part of their Every Student Succeeds Act (ESSA) indicators. However, conceptions of college and career readiness are nearly as numerous as the U.S. states (Mishkind, 2014). Mishkind's review of states' definitions finds that most states define *college and career readiness* as a unified idea rather than creating separate definitions of readiness for college and career. Among

¹ In this report, we use the term *college* to refer to both technical postsecondary education, such as the kind that might garner an associate degree, and four-year baccalaureate education.

KEY FINDINGS

- Majorities of teachers and principals expressed positive opinions about the quality of their schools' supports for students' future careers.
- Although most teachers (61 percent) reported that high-achieving students were well supported for postsecondary transitions, rates for underachieving students (32 percent), minority students (43 percent), and low-income students (44 percent) were much lower.
- Almost half of teachers reported having no information or resources about apprenticeships to share with students, and another 20 percent of teachers had not shared apprenticeship information with any students.
- More than half of high school principals reported having no access to data on their students' postsecondary remedial education or graduation rates.
- Teachers in urban and high-poverty schools reported significantly higher rates of data access than teachers in nonurban and low-poverty schools.
- High-resource schools do not have more supports for college and career pathways: Geography, local employment, and school context play a large role.
- Principals tended to provide more-favorable responses than teachers about school supports. Although we cannot determine the reasons for these discrepancies, they could reflect differences in principals' and teachers' scopes of responsibility, with principals tending to have greater awareness of schoolwide supports and activities than teachers.

states where the definitions are unified, most definitions highlight academic or content knowledge; critical thinking or problem solving; and collaboration, communication, and social skills as key skill or knowledge categories. Although the specific manifestations of these skills differ (e.g., for content knowledge, some states name English and mathematics, while others refer to core subject areas), states seem to broadly agree about what students need to be prepared to do and what they need to know.

Schools are the implementors, supporting *how* students are prepared. Their supports take a variety of forms: They can be purely informational (e.g., improving student awareness on such topics as non-four-year pathways, less-well-known careers, apprenticeship and vocational options, or college application requirements), curricular (e.g., Advanced Placement [AP] courses, dual enrollment, or career academies), facilitative (e.g., SAT/ACT preparation, application writing support, career fairs), or transitional (e.g.,

summer melt programs, early college high school).² Districts and schools also might offer supports for teachers and principals in terms of direct professional development or guidance to engage with families on college and career topics.

Understanding the supports offered by schools is crucial because these supports are known to influence pathways and outcomes (Avery, Howell, and Page, 2014; Berger et al., 2014) and access to these supports varies greatly by individual school context (Rivera, Kotok, and Ashby, 2019; Zarate and Pachon, 2006). Despite increasing attention on college and career readiness, a significant body of evidence suggests that high school graduates are underprepared for both college coursework and for employers' skill needs (Cushing et al., 2019; Henry and Stahl, 2017; Hora, Benbow, and Oleson, 2016). Furthermore, there are documented inequities in who is prepared for postgraduation pathways (Henry and Stahl,

² *Summer melt* refers to a trend where high school graduates enroll in college in the spring but do not attend that college in the fall.

2017). High schools serve as allocators of access and experiences, and differences both within and across schools can alter the resources students have to pursue a given pathway. Prior qualitative work asked career and technical education (CTE) practitioners about barriers to achieving equity in their programs. Practitioners' responses highlighted both information flow and geographic context as school-based impediments (Rosen and Molina, 2019).

Ensuring equity in access to high-quality postsecondary preparation (including supports) is important for all students, because educational attainment is a key determinant of economic mobility and health outcomes (Chetty et al., 2017; Torche, 2011; Silles, 2009; Furnée, Groot, and van den Brink, 2008). However, those from disadvantaged or underrepresented backgrounds are less likely to pursue and obtain four-year degrees and, if they do enroll, they are more likely to drop out (National Center for Education Statistics [NCES], 2015; NCES, 2019). Research suggests that postsecondary application process supports can be effective, particularly in facilitating more-appropriate college matches (Avery, Howell, and Page, 2014; Smith, Pender, and Howell, 2013). Early postsecondary opportunities, such as early college high school and dual-credit or dual-enrollment programs, appear to increase enrollment and persistence among underrepresented students (Berger et al., 2014; Hughes et al., 2012; An, 2013; Miller et al., 2017; Edmunds et al., 2017).

Career awareness and readiness are valuable for all students (because postsecondary education generally also is part of preparation for an eventual career) and are particularly paramount for those not pursuing four-year degrees. CTE is one pathway for students interested in postgraduation employment to acquire occupation-specific skills in preparation for the growing market of middle-skill jobs—i.e., those requiring a two-year degree or less (Holzer and Lerman, 2009). Students who are interested in these middle-skill jobs need to engage on both postsecondary and career pathways. Previous work shows that CTE features, such as workplace learning, can help with career planning and the development of networks (including the social capital those networks can provide), and can improve shorter-term school attendance and completion rates (Halpern, 2006;

Nikaido and Singh, 2013; Polidano and Tabasso, 2014).

High school is a critical period for pathway decisionmaking and exposure to career-relevant opportunities (Callahan et al., 2019). Furthermore, out-of-school sources of supports and expectations, such as family and social networks, can reinforce socioeconomic and regional gaps. Providing equitable access to college and career supports within schools can counteract these influences (Callahan et al., 2019). However, there are documented disparities in access to school-based programs. For instance, early college high school, dual-credit programs, and dual-enrollment options are far less frequently offered in rural schools (Rivera, Kotok, and Ashby, 2019). AP courses (i.e., college-level courses in which students take a qualifying exam to receive college credit) also are less likely to be offered in rural schools or in schools with high proportions of minority students (Zarate and Pachon, 2006). Similarly, a review of school supports for occupational awareness and aspirations revealed that high-resource schools had more overall supports and were disproportionately more likely to have internship or job-shadowing programs than low-resource schools (Rowan-Kenyon, Perna, and Swan, 2011).

Abbreviations

AEP	American Educator Panels
AP	Advanced Placement
ASLP	American School Leader Panel
ATP	American Teacher Panel
CCD	Common Core of Data
CTE	career and technical education
ESSA	Every Student Succeeds Act
FAFSA	Free Application for Federal Student Aid
NCES	National Center for Education Statistics
NSC	National Student Clearinghouse

Schools play a critical role in brokering access to college and career information and resources, particularly for students who lack personal networks to play this role.

Schools play a critical role in brokering access to college and career information and resources, particularly for students who lack personal networks to play this role. Thus, schools function to *allocate* access to supports for each pathway to the students they serve, giving them the potential to strengthen or combat disparities in both supports and outcomes.

In this report, we investigate the link between school supports and school context to better understand the root causes of gaps in preparation and outcomes. We address the following questions:

1. What are principals' and teachers' perceptions regarding the availability and quality of postgraduation transition supports for college and careers in high schools across the United States?
2. What parties do principals and teachers perceive as holding responsibility for student college and career readiness, and to what extent are their views in alignment?
3. To what extent do principals and teachers report that students have equitable access to information and supports, both within and across schools?
4. What changes in supports do principals and teachers recommend to improve students' postgraduation transitions?

Educators, school leaders, and policymakers alike can benefit from understanding the role of

school supports and school context in contributing to or narrowing gaps in college and career outcomes. To address these questions, we surveyed nationally representative samples of teachers and principals in U.S. public schools about their perceptions of the quality and availability of their schools' supports for college and career transitions. Our nationally representative survey data provide a look into the day-to-day functioning of high schools across the United States and allow us to share the perspectives of teachers and principals working in a wide variety of school contexts. These school-based educators are well equipped to provide expert recommendations on how to augment or improve school supports for college and career transitions.

The inclusion of both principal and teacher survey data provides a more comprehensive view of educators' perceptions than is possible with only one of these groups. Their perspectives are complementary: While principals' roles typically give them an overarching view of schoolwide policies, procedures, and offerings, teachers tend to have more interactions with the students with whom they work and are therefore privy to knowledge that principals might not be. Parallel surveys to these groups lend insight into the resources that are available in schools across the United States and the resources to which students have *ready access*, a fundamentally different—but equally important—perspective. The inclusion of both perspectives is informative because educators' perceptions can influence their responses to policies or their approaches to interacting with students, even if those perceptions are potentially inaccurate. If teachers believe that their schools offer lower levels of support, for example, these beliefs could lead teachers to provide inaccurate information to students about what is available. Discrepancies in perceptions might suggest a need for improved schoolwide communication.

In the next section, we briefly describe the data and methods we used to address these questions. We then present survey findings that address the four research questions. We conclude with a discussion of implications.

Data and Methods

Data

In this report, we use the results of spring 2019 surveys administered to nationally representative samples of public school teachers and principals using the American Teacher Panel (ATP) and American School Leader Panel (ASLP) as part of the Learn Together Surveys, which were funded by the Bill & Melinda Gates Foundation. The surveys covered several topics and were administered to teachers and principals in grades 6 through 12. In this report, we focus on a subset of the survey questions—specifically, those that address topics related to the quality of supports and resources for students’ college and career pathways. These questions were asked of only a subsample of teachers and principals: teachers of high school students and principals at schools serving any high school grades (i.e., any grades from 9 through 12, whether the school also serves other grades or not). These high school samples were made up of 2,141 teachers and 770 principals; educators in both charter and traditional public schools were included in the sample. Details on ATP and ASLP sampling methodology and the construction of weights are available in the accompanying technical report (Johnston et al., 2020). It is important to note that teachers were not sampled within schools, and we cannot directly compare responses between teachers and principals in the same school.

Characteristics of the samples of teachers and principals included in the analyses for this report are shown in Table 1. Teacher and principal responses were merged by school with data from the 2015–2016 Common Core of Data (CCD). School data were additionally merged at the county level using industry employment data from the 2018 Quarterly Census of Employment and Wages; school districts were assigned to the county with the largest area overlap (U.S. Bureau of Labor Statistics, undated).

Because we examined responses of teachers and principals in different kinds of schools (e.g., urban, high-poverty, majority nonwhite student body), we present sample characteristics by school context. As shown in Table 1, the average ATP teacher teaches in a school with a student body that is 16 percent

black, 24 percent Hispanic, and 52 percent white. Unsurprisingly, the student body in majority nonwhite schools is more diverse; the average ATP teacher in a majority nonwhite school sees a student body of 26 percent black students, 41 percent Hispanic students, and 21 percent white students.

Methods

In this section, we discuss two descriptive methods for analyzing survey responses. The first considers individual survey questions, whereas the second aggregates responses across questions.

Analyses of Responses to Individual Questions

Our analysis of individual questions involved examining overall frequency distributions for both teachers and principals and comparing responses across types of schools. We compared responses among teachers and principals in urban and nonurban schools, high- and low-poverty schools, and majority white and majority nonwhite schools. The definition of *urban* is captured in the CCD elements, and *high-poverty* is defined according to the NCES standard of at least 75 percent of the student body being eligible for free or reduced-price lunch. *Majority nonwhite* is defined as 50.1 percent or more of the student body identifying with a race or ethnicity other than white non-Hispanic.³ To estimate differences between these subgroups, we use linear probability models with the (binary) response of interest as the dependent variable and an indicator for the subgroup of interest as the sole independent variable. Standard errors of the coefficient on the subgroup indicator were used to determine statistical significance (determined by $p < 0.05$). The appropriate survey weights were included in each model.

Response Clustering

The approach described earlier allows us to distinguish differences in responses to a single question by

³ The CCD race/ethnicity variable captures race and ethnicity as one option; “Hispanic” ethnicity is recorded as an alternative to races, such as “white” or “black.”

TABLE 1

Selected Demographic and School Characteristics of Panel Respondents

	Full Sample	School Context					
		Urban	Nonurban	High Poverty	Low Poverty	Majority Nonwhite	Majority White
Panel A: ATP (<i>n</i>)	2,110	576	1,534	303	1,540	942	1,165
Teacher characteristics							
Years of teaching	15.0	14.2	15.3	12.4	15.5	13.7	16.1
Percentage female	58	55	60	61	58	59	58
Percentage Hispanic	8	12	6	17	6	13	3
Percentage white	85	76	89	69	89	74	95
Percentage black	6	11	4	15	4	11	2
Percentage Asian	1	0	1	1	1	1	1
Percentage with master's degree or higher	63	65	62	61	63	60	65
School characteristics							
Percentage black	16	23	13	32	12	26	7
Percentage Hispanic	24	33	21	47	19	41	9
Percentage white	52	32	58	13	59	21	77
Percentage Asian	5	8	4	3	5	7	3
Traditional public	94	91	96	92	95	92	97
Panel B: ASLP (<i>n</i>)	754	133	621	111	570	244	495
Principal characteristics							
Years as principal	9.2	8.4	9.5	8.7	9.4	8.4	9.7
Percentage female	35	48	32	47	32	49	28
Percentage Hispanic	7	11	5	14	5	16	1
Percentage white	85	74	88	66	90	67	95
Percentage black	9	15	7	16	7	16	4
Percentage Asian	2	4	1	3	1	2	1
Percentage with master's degree or higher	54	57	54	59	53	51	56
School characteristics							
Percentage black	12	24	9	25	9	25	5
Percentage Hispanic	21	37	16	38	16	43	8
Percentage white	59	28	68	30	66	20	81
Percentage Asian	3	7	2	2	3	5	2
Traditional public	81	66	86	66	87	70	89

NOTES: *High-poverty schools* have more than 75 percent of the student body eligible for free or reduced-price lunch. *Low-poverty schools* have 25 percent or fewer students eligible for free or reduced-price lunch. There are two categories not displayed from the middle two quartiles (mid-high poverty and mid-low poverty).

school characteristics. However, it is probable that schools that have extensive supports for one aspect of college or career pathways also have supports for other aspects of these pathways. Thus, we are interested in constructing response *profiles*, or grouping sets of teacher or principal responses across questions into common patterns. To do this, we employed *k*-means clustering, a data-grouping technique from machine learning, to form profiles (or clusters) of teachers' responses. The data were well fit by approximately five to seven distinct profiles.⁴ We then correlated these profiles (using multivariate least squares regression) with a variety of school characteristics (e.g., student body demography, school size, school geography) that were not used in the formation of the profiles so that we could examine whether and how profiles of responses aligned with particular school types.

Limitations

Because our data are drawn from surveys, the teacher and principal perspectives that we share are subject to all of the limitations associated with that format, including a lack of rich detail, potential differences in how respondents interpret question wording, and potential biases stemming from self-reports. For example, it is possible that some respondents provided an overly favorable view of the availability of some supports. However, the anonymous nature of the American Educator Panels (AEP) and the careful review of the survey by multiple parties helps mitigate these concerns. We anticipated that most respondents would view the AEP surveys as having low stakes, in that teachers and principals are not recruited through their districts, and responses are not made available to districts in a form that

⁴ Because the survey responses were sometimes categorical, sometimes scale, and sometimes binary, we created indicator values of each possible response and used these constructed indicators to form the clusters, which each had equal weight. *k*-medians clustering yielded similar results. The clustering process does not incorporate weights. The number of clusters was determined by inspecting the “elbow” in a sum-of-squared-errors plot and cluster stability over varying *k*. If there were no distinctive groupings, this method would suggest a *k* of 1; i.e., a common profile. Full technical details and code are available upon request to mzaber@rand.org.

would allow respondents to be identified. Moreover, the high-quality sampling and weighting methods provide a unique opportunity to share the voices of educators in a way that supports inferences about what is happening nationally and in subgroups of schools. Another limitation of this analysis is the lack of information about student outcomes that could be linked to the survey results, although other research provides strong evidence for how specific programs and practices relate to students' college and career success. We also lack students' perspectives, particularly on how they experience their schools' college and career supports.

Finally, one challenge to the profile construction is that there are multiple teachers in the AEP from the same school. The methodology does not preclude these teachers from being sorted into different profiles, which has important implications for then aggregating these teachers' responses by school-level characteristics: Essentially, the same school could be in two profiles. Empirically, this is infrequent, and it is an unavoidable drawback of using this approach. We complement the teacher profile analysis with a principal profile analysis, which does not pose these challenges, and both have broadly similar conclusions. However, teachers answered several important and interesting questions on specific topics, such as information sharing and resource sharing with students, that were not asked of principals, so we include the teacher profile analysis to bring attention to these topics. Furthermore, a school counted in two profiles will “weight” the profile composition accordingly; if teachers in a school have differing perceptions, this will reflect their lived experiences.

Results

Educator Perceptions of School Infrastructure for College and Career Readiness

The first set of findings examines the perception of supports for college and career pathways in high schools, highlighting differences between teacher and principal reports, as well as differences by school characteristics and for subgroups at each school. These findings provide evidence regarding the extent

to which school-level educators believed that students receive adequate supports and highlight disparities that will need to be addressed to ensure that all students have equitable opportunities to pursue rewarding postsecondary pathways.

Large Majorities Favorably Rated Their Schools' Quality and Educator Supports

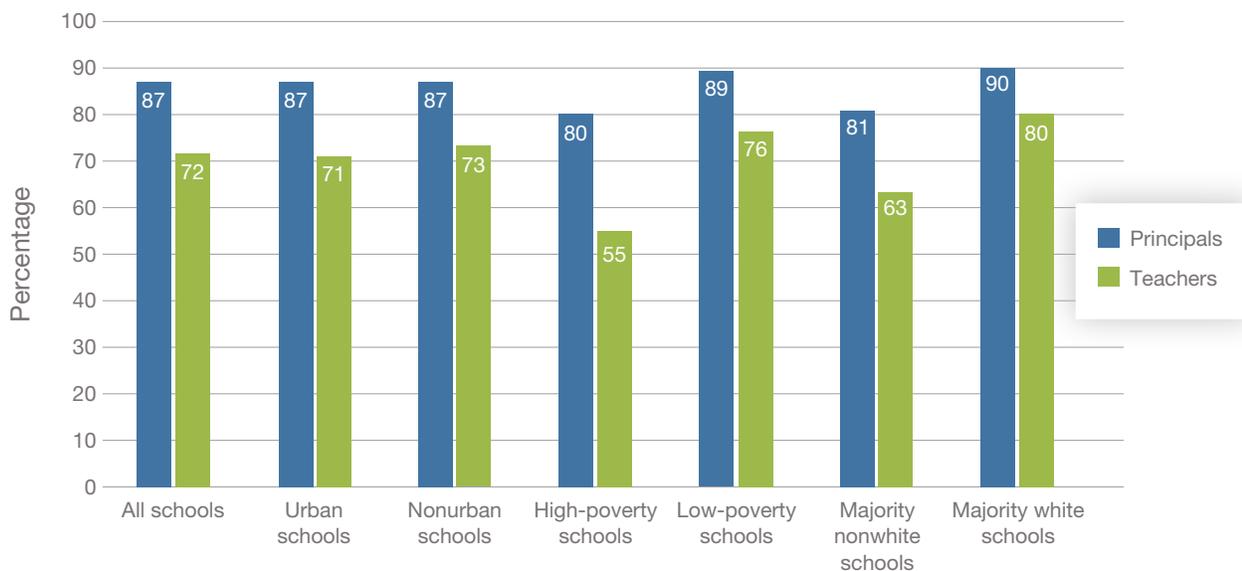
Teachers and principals were asked, "With respect to how it prepares your students for their future careers, how would you rate the quality of the education in your school?" Response options were *poor*, *fair*, *good*, and *excellent*. As shown in Figure 1, 72 percent of teachers and 87 percent of principals rated the quality of their schools' preparation of students' future careers as good or excellent. Favorable responses were significantly more common among teachers and principals in low-poverty or majority white schools, but more than half of teachers and principals in both of these school types rated their schools' quality as good or excellent. There were no significant differences between urban and nonurban schools.

Teachers and principals also were asked to rate the professional development and management supports they were receiving. Responses to these questions followed a similar trend, with overall positive responses and more-positive responses among principals than teachers. Sixty-one percent of teachers rated their provided supports as good or excellent, compared with 70 percent of principals. Responses were significantly more favorable among teachers and principals in majority white or low-poverty schools (compared with educators in majority nonwhite or high-poverty schools) and moderately more favorable among teachers in nonurban schools (compared with teachers in urban schools).

Perceived Available Supports Differed Within and Among Schools

Next, we turn to teachers' and principals' perspectives about the types of supports available within their schools and how access varied by subgroup. A large majority of teachers reported that curricular and facilitative supports, such as advanced courses

FIGURE 1
A Majority of Educators Highly Rated School Quality for Students' Future Career Preparation

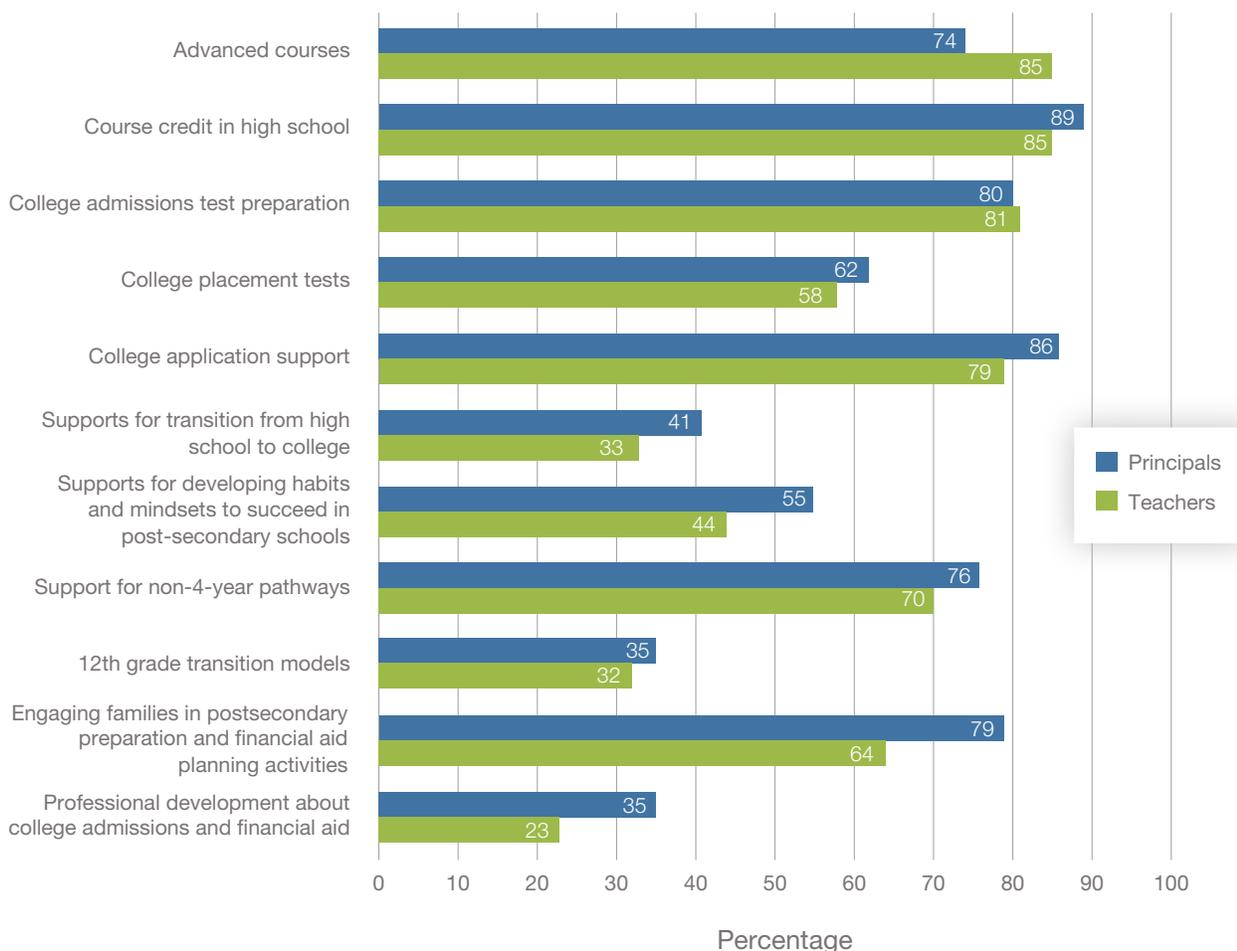


NOTES: In this figure, we present the percentage of respondents who selected *good* or *excellent* in response to the following question: "With respect to how it prepares your students for their future careers, how would you rate the quality of the education in your school?" Response choices were *poor*, *fair*, *good*, and *excellent*. *Urban* is captured in the CCD elements, and *high-poverty* is defined according to the NCES standard of at least 75 percent of the student body being eligible for free or reduced-price lunch. *Majority nonwhite* is defined as 50.1 percent or more of the student body identifying with an identity other than white non-Hispanic.

(e.g., AP or International Baccalaureate courses), college course credit, college admissions test prep (e.g., SAT, ACT), and support for non-four-year pathways (e.g., military, community college) were available. However, Figure 2 reveals that only one-third of teachers reported that transition supports, such as summer melt programs and early college development curricula (i.e., transition courses focused on readiness for college coursework) were available. With the exception of advanced courses and college admissions test preparation, principals reported higher rates of postsecondary support availability than did teachers.

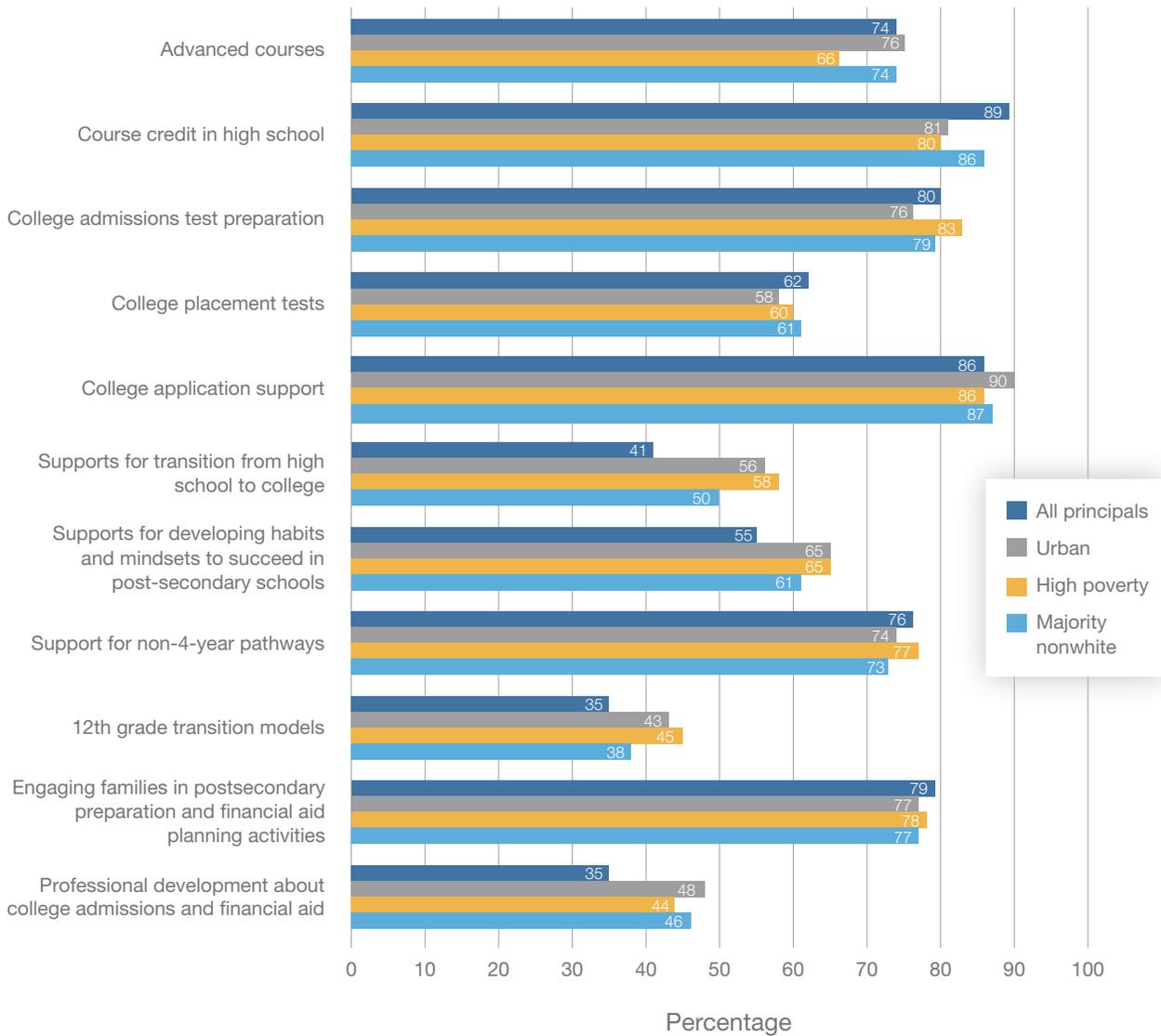
In Figure 3, we present the variation in reported support availability by principals' school context. High school to college transition programs were reported more frequently by principals in urban (56 percent) and high-poverty (58 percent) schools, compared with those in nonurban (37 percent) and low-poverty (38 percent) schools. In contrast, principals in nonurban and low-poverty schools were more likely to report the availability of dual-enrollment or other non-AP college credit options. Principals in urban, majority nonwhite, or high-poverty schools also were significantly more likely to report offering professional development about college admissions

FIGURE 2
Educator Reports of Available Postsecondary Supports



NOTES: In this figure, we present the percentage of educators who responded to the following question: "During the current school year (2018–19), which of the following types of programs or interventions (e.g., curriculum, program, or practices) geared at postsecondary outcomes are offered at your school?" There also was an "other" response option (with a text field), which is not displayed. *Urban* is captured in the CCD elements, and *high-poverty* is defined according to the NCES standard of at least 75 percent of the student body being eligible for free or reduced-price lunch. *Majority nonwhite* is defined as 50.1 percent or more of the student body identifying with an identity other than white non-Hispanic.

FIGURE 3
Principal Reports of Available Postsecondary Supports, by School Context



NOTES: In this figure, we present the percentage of educators who responded to the following question: “During the current school year (2018–19), which of the following types of programs or interventions (e.g., curriculum, program, or practices) geared at postsecondary outcomes are offered at your school?” There also was an “other” response option (with a text field), which is not displayed. *Urban* is captured in the CCD elements, and *high-poverty* is defined according to the NCES standard of at least 75 percent of the student body being eligible for free or reduced-price lunch. *Majority nonwhite* is defined as 50.1 percent or more of the student body identifying with an identity other than white non-Hispanic.

and financial aid. Reporting for each of these supports generally was more frequent among principals than teachers, which could reflect the fact that principals are more likely to have a view of the full set of supports a school offers. However, to the extent that teachers interact with students more frequently on a day-to-day basis, their awareness of the available supports might be even more important than the supports that actually are available. If teachers lack

awareness of supports that principals know are available, it suggests a need to ensure that all school staff are up to speed on what their schools offer so that they can provide accurate and consistent guidance to students.

In addition to these differences across schools, there were differences within schools in terms of access to these supports and in the percentages of students who were considering different

postsecondary pathways. As shown in Figure 4, teachers and principals generally reported that almost all high-achieving students were receiving sufficient supports in their postsecondary transitions (61 percent of teachers and 68 percent of principals). However, their view of supports for underachieving students was less positive: Only one-third of teachers and 46 percent of principals responded that almost all are receiving sufficient supports. Although reports of “very few” students were generally infrequent and varied little by school type, teachers in high-poverty schools were more than twice as likely to report that very few high-achieving students were receiving sufficient supports compared with their counterparts in low-poverty schools (7 percent and 3 percent, respectively). These results reveal within-school inequities in supports for students at varying achievement levels and between-school inequities for students at similar achievement levels. The results in Figure 4 also suggest a difference in perspective between teachers and principals: Principals were more optimistic in their assessments of the sufficiency of supports for each subgroup. Although we cannot determine the reasons for these discrepancies, it is possible that they reflect the different perspectives teachers and principals bring to the survey based on their job responsibilities. In some cases, principals might know more than teachers about schoolwide programs or practices, whereas teachers might be more likely to hear from their students when those students are unable to access supports.

Principals also were asked about the sources of variation in support. Principals were asked, “Which of the following barriers are preventing every single student in your school from receiving

sufficient supports to meet their needs for a successful transition to postsecondary education?” They were presented with a list of seven options and an open-response other option. Staffing constraints and time needed for delivering supports were the two primary responses, with 64 percent and 52 percent of principals choosing each response, respectively. The staffing constraints response was significantly more frequent among urban principals (72 percent) than among nonurban principals (61 percent). Adequate academic preparation coming into high school was cited frequently by principals of urban (63 percent), high-poverty (62 percent), and majority nonwhite (57 percent) schools; it was the second-most-frequent response (after staffing constraints) for these subgroups, but it ranked no higher than fourth in frequency among principals in nonurban (39 percent), low-poverty (40 percent), and majority white (37 percent) schools.

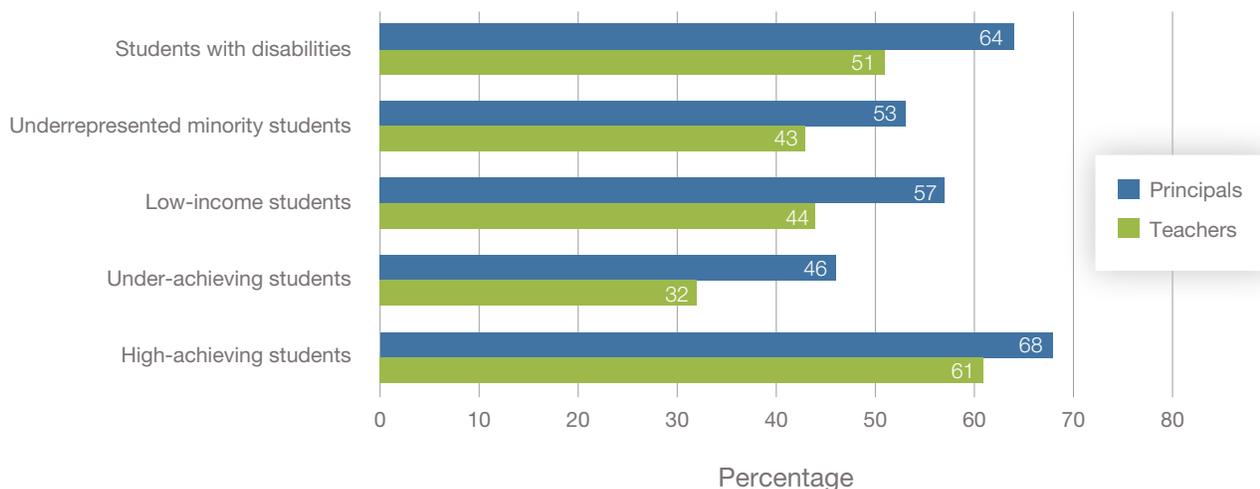
Responsibility for Students’ College and Career Readiness

In this section, we discuss teacher and principal perceptions regarding which groups hold responsibility and influence for ensuring student preparation for postsecondary education and careers. In the earlier discussion, we noted that principals and teachers might have different levels of awareness about available supports. This set of questions is relevant to understanding the degree to which school leaders and staff are in alignment about how to collectively support students and with educators’ views regarding the roles and responsibilities of groups outside the school or school system.

In some cases, principals might know more than teachers about schoolwide programs or practices, whereas teachers might be more likely to hear from their students when those students are unable to access supports.

FIGURE 4

Educator Reports of Sufficient Postsecondary Support for Almost All Students, by Subgroup



NOTES: In this figure, we present the percentage of respondents who selected “almost all are receiving sufficient supports” to the following statement: “Please indicate the degree to which each of the following student groups at your schools are receiving sufficient supports to meet their needs for a successful transition to postsecondary education.” The other response choices were “N/A or not sure,” “very few are receiving sufficient supports,” and “some but not all are receiving sufficient supports.”

Educators Reported That Teachers, Students, and Families Have a Strong Influence Students’ Future Careers and Postsecondary Outcomes

As shown in Table 2, 81 percent of principals rated teachers as having a major impact and 19 percent rated them as having a minor impact on student’s future careers. Teachers generally agreed, with 71 percent rating themselves as having a major impact and 29 percent rating themselves as having a minor impact. Teachers and principals agreed that both students and their families have a major impact on students’ future careers. There were no significant differences in reports for either of these categories by school type among teachers or principals. However, principals in nonurban schools were significantly more likely to report that the business community had no impact on students’ future careers than were principals in urban schools.

The only role whose importance educators differed on was high school college and/or career counselors. Less than half of teachers (46 percent) classified them as having a major impact on students’ careers, while more than 60 percent of principals reported them as having a major impact. The reasons

for the discrepancy in principals’ and teachers’ responses regarding the influence of counselors are not clear, but it is possible that principals have a better understanding of the activities undertaken by counselors than do teachers. This finding, and others that indicate different perceptions between the two groups, highlight a need for principals and teachers to collaborate around a common vision regarding the roles of different staff members in supporting students’ pathways.

We also asked principals about who holds responsibility for student postsecondary enrollment and success. Specifically, we asked principals to rate the amount of responsibility they believed each actor held. As shown in Table 3, 85 percent of principals reported that students have a lot of responsibility. Principals perceived parents as having less responsibility, but still more responsibility than school-affiliated actors (e.g., teachers, school leaders, other staff). Sixty-four percent of principals reported that parents hold a lot of responsibility. The most-significant differences by school type occurred by urbanicity, with principals in nonurban schools significantly more likely to report none or very little responsibility for teachers and other staff than their urban counterparts.

TABLE 2

Perceptions of School and Community Actors' Influence on Students' Future Careers

	Teachers			Principals		
	No Impact (%)	Minor Impact (%)	Major Impact (%)	No Impact (%)	Minor Impact (%)	Major Impact (%)
Teachers	0	29	71	0	19	81
High school college and/or career counselors	3	51	46	0	38	61
Students themselves	0	7	92	0	5	95
Parents or other family members	1	9	91	0	8	91
The high school experience, as a whole	1	32	67	1	25	75
Peers and/or neighborhood	2	31	68	1	35	63
Colleges and universities	2	42	56	2	51	47
The business community	11	63	26	8	67	25

NOTES: In this table, we present the percentage of educators who responded to the following question: "How much impact do you believe the following have on students' future careers?" All response choices are shown. The survey question additionally included a line for "other" individuals/groups with an open text field (not displayed). Some items do not sum to 100 percent due to rounding.

TABLE 3

Principals' Perceptions of Responsibility for Student Postsecondary Enrollment and Success

	None or Very Little Responsibility	Some Responsibility	A Lot of Responsibility
You, as school leader	2	44	53
The students themselves	0	15	85
Parents	4	32	64
Your school's teachers	7	60	34
Other staff in your school	10	62	28
Your district leadership	20	55	25
The college/university system	15	44	41

NOTES: In this table, we present the percentage of principals who responded to the following question: "There are multiple people and systems who hold some responsibility for student postsecondary enrollment and success. In your opinion, how much responsibility do each of the following actors currently hold for ensuring the postsecondary enrollment and success of your students?" All response choices are shown. Some items do not sum to 100 percent due to rounding.

Equitable Access to College and Career Supports Across School Contexts

In this section, we compare sets of educator responses for a given school type, aggregating similar responses into profiles. We then characterize the educators' schools in a given profile. Profiles were constructed separately for questions on postsecondary transition supports and future career supports, and by educator

type (teacher or principal). The results inform the extent to which a student's school or region influences their access to supports for college and career readiness.

Career Resources Are Unequally Distributed and Unequally Shared

In Table 4, we show the six profiles of teacher responses formed from the questions on students'

TABLE 4

Profiles of Teacher Responses to Career Pathways Questions and Correlated School and Geographic Characteristics

Profile Created from Common Responses to Career Pathways Questions	Percentage of Teachers	Similarities Among Teachers		
		Primary Region ^a	Regional Employment	School Composition
Teachers are less likely to declare that resources are not available, but report lower rates of discussing or sharing resources with students and of assessing every student	11.0	West	More professional and business services	Lower-poverty, more-urban schools
Teachers are less optimistic about education and support quality and report high rates of sharing with some students	18.6	Midwest		More white, more rural, smaller schools
Teachers report high rates of sharing career-planning resources and high rates of nothing to share for educational employment opportunities	13.3	South	More manufacturing, less professional and business services	Smaller schools
Teachers report high rates of no resources to share, high rates of “none of my students” responses to career discussion questions, lower quality of received supports, and lower rates of assessing every student	18.5	Northeast and west	Less natural resources and mining; and trade, transportation, and utilities	Medium or large schools
Teachers rate supports as high quality and report lots of resource sharing and information sharing	16.5	South	More manufacturing or trade, transportation, and utilities	Poorer, less urban schools
Teachers rate supports as high quality and report sharing information and resources with most students	22.0	Varied	More natural resources and mining	More nonwhite (especially black) schools

NOTES: *Urban* is captured in the CCD elements, and *high-poverty* is defined according to the NCES standard of at least 75 percent of the student body being eligible for free or reduced-price lunch. *Majority nonwhite* is defined as 50.1 percent or more of the student body identifying with an identity other than white non-Hispanic.

^a Regions are the four U.S. Census regions: Midwest, northeast, south, and west.

future careers, the characteristics of each profile’s respondents’ schools, and the characteristics of the region surrounding those schools. Profiles differed most by teachers’ reported rates of having talked to students about career topics and of having shared information about career options, particularly in whether they had information to share. The elements that best differentiated clusters (as indicated by *F*-statistic for correlation with group membership) were teacher reports of talking with students about technical or industry-specific skill development and soft skill experiences, and teacher-reported rates of information sharing about apprenticeships,

internships, part-time jobs, and training and educational programs.⁵

Characteristics of the Teachers’ Schools in Each Profile

Two developed profiles predominantly consist of teachers in southern schools in areas with more manufacturing employment. One set of these schools, which reflects about 13 percent of teachers nationally, had limited career resources to offer to students, but those that were available were actively shared with most or all students. The second set had more resources to offer students and actively shared

⁵ *Soft skills* is the term used by the Bill & Melinda Gates Foundation in the survey. It was defined in the survey as a set of skills including interpersonal skills, personal qualities, technology use, systems thinking, communication skills, information use, resource management, critical-thinking skills, and applied academic skills.

those resources with all students. Teachers in this group reported higher rates of sharing information on apprenticeship, internship, and technical training opportunities. According to another profile, teachers in primarily western, lower-poverty, urban schools were more likely to report the availability of resources, but these teachers also reported lower rates of sharing resources with most or all students. They also were less likely to report assessing every student for career readiness. Similarly, a group of teachers in Midwestern, primarily white, rural, and smaller schools were less optimistic about the quality of career supports they received and reported higher rates of sharing information with only some students. However, it is important to note that some teachers or schools might have policies in which only certain types of students (e.g., those who have selected a nonacademic pathway) receive information about noncollege training options, and there is variation in the types of student each school and teacher serve. Overall, teachers' responses about preparing students for future careers differed primarily by geographic context (region, area employment, and urbanicity), and less by student body composition (poverty, race/ethnicity).

Characteristics of the Principals' Schools in Each Profile

We performed an identical analysis using principals' responses to questions about students' future careers and organized them into five profiles. Note that several of the questions asked of teachers, particularly about classroom-level information sharing, were not asked of principals. We present these results in Table 5. The elements that best differentiated clusters were each principal's quality rating of their school's student career preparation, whether their school assessed every student's readiness for college and a career, and the degree of impact of different actors on students' future careers.

A profile of principals primarily concentrated in more nonwhite, very large southern schools reported ample supports for students' future careers: Principals in these schools assessed every student's readiness and rated the education quality and support for students' future careers as good or excellent. These principals also reported that the business

community had a major impact on students' careers, suggesting an important role for schools' geographic context. In contrast, a profile of principals in very white, very rural schools (primarily in the Midwest) reported more challenges in supporting students' future careers. However, these principals tended to be in lower-poverty schools, suggesting that the primary challenge might not be school resources. Although the principal profiles differ slightly by degree of student poverty, they differ primarily by regional characteristics and school size.

These teacher and principal profiles raise an important aspect for policy—school leaders cannot control their local geographic context, yet the opportunities afforded by being located near technical education institutions or a thriving business community might create additional inequality in school-based access to postgraduation pathways. Students in communities without these institutional supports additionally might struggle to build social capital to

[S]chool leaders cannot control their local geographic context, yet the opportunities afforded by being located near technical education institutions or a thriving business community might create additional inequality in school-based access to postgraduation pathways.

TABLE 5

Profiles of Principal Responses to Career Pathways Questions and Correlated School and Geographic Characteristics

Profile Created from Common Responses to Career Pathways Questions	Percentage of Principals	Similarities Among Principals		
		Primary Region ^a	Regional Employment	School Composition
Principals are more likely to rate education quality as good or excellent, their schools assess every student's readiness, and they rate the business community as having a major impact	23.7	South	Less manufacturing	More nonwhite, very large, slightly more urban, higher poverty
Principals rate counselors, colleges, and the business community as having a major impact	18.9	Northeast	Less natural resources and mining; more information; and more leisure and hospitality	Not very small
Principals are more likely to rate education quality as poor; their schools do not assess every student's readiness; and they are more likely to say that teachers and counselors have no impact and that students, parents, and the high school experience have a minor impact	17.7	Midwest, mixed	N/A	Very white, lower poverty, very rural
Principals frequently report that counselors have no impact and that colleges have only a minor impact	20.2	N/A	More construction	Very small or very large
Principals frequently report that counselors and peers have a major impact	19.5	Northeast and Midwest	More manufacturing	Very small, higher poverty

NOTES: *Urban* is captured in the CCD elements, and *high-poverty* is defined according to the NCES standard of at least 75 percent of the student body being eligible for free or reduced-price lunch. *Majority nonwhite* is defined as 50.1 percent or more of the student body identifying with an identity other than white non-Hispanic.

^a Regions are the four U.S. Census regions: Midwest, northeast, south, and west.

replace these opportunities (Small, 2017). In sum, some school-based inequality in access to supports is not controllable by policy, emphasizing the need to focus resources on the component of inequality that is controllable.

Poverty Status, Along with Geographic Context, Relates to Postsecondary Supports

In Table 6, we show the five profiles of teacher responses formed from the questions on students' postsecondary transitions, the characteristics of each profile's respondents' schools, and the characteristics of the region surrounding those schools. Teacher profiles differed most by reported rates of postsecondary supports and methods of access, reports of sufficient support for underachieving and low-income students, and reported data access.

Characteristics of the Teachers' Schools in Each Profile

Three of the five created groups consisted of teachers with low reported rates of data access. However, these schools differed in the reported level of access to postsecondary supports for students. A subgroup of teachers in majority white, low-poverty large schools in the Midwest or west in areas with lots of construction employment reported significantly lower rates of support for nonwhite and low-income students (as well as low data access). Larger low-poverty schools traditionally might be thought of as better resourced, but these schools might not have substantial supports for students who differ from the majority. A subgroup of teachers in high-poverty smaller schools were less likely to report postsecondary supports, and when teachers did report them, they classified them as not being available to all students. This group

also reported less support for both high-achieving and underachieving students (as well as low data access). The final group with lower rates of data access reported high rates of sufficient support for both high-achieving and underachieving students, as well as for low-income students, nonwhite students, and students with disabilities. Teachers in this group were concentrated in primarily white, rural schools in the south in areas with more natural resources and mining employment.

Two groups reported substantial data access but were divided on the level of access. One group reported access to school-level data, and teachers in this group were more likely to report the presence of transition models and parent engagement tools and that these supports were accessible for all students.

This group was more optimistic about underachieving students receiving sufficient supports. The average teachers in this group worked in urban, nonwhite, and high-poverty schools, generally in the northeast or Midwest. The second group reported access to individual-level data on student postsecondary outcomes (e.g., application, enrollment, and graduation) and reported sufficient support for each student subgroup. Although teachers in this group were more likely to report supports for transitions, test preparation, and applications, they reported that these supports were not open to all students. These teachers were concentrated in poorer, urban, and small to midsize schools in southern areas with more employment in information or financial industries.

TABLE 6
Profiles of Teacher Responses to Postsecondary Pathways Questions and Correlated School and Geographic Characteristics

Profile Created from Common Responses to Postsecondary Pathways Questions	Percentage of Teachers	Similarities Among Teachers		
		Primary Region ^a	Regional Employment	School Composition
Teachers are less likely to have postsecondary programming; they also report that most supports are not available to all students, have lower reported support for both high-achieving and underachieving students, and report lower rates of data access	21.6	Varied	More trade, transportation, and utilities; less information; less natural resources and mining	Less Hispanic, higher poverty, smaller schools
Teachers report higher rates of supports for each subgroup and lower rates of data access	24.7	South	More natural resources and mining, less professional and business services, and less information	Fewer nonwhite students, more rural
Teachers more frequently report the presence of supports and that those supports are open to all students, report lower rates of support for minorities and low-income students, and report lower rates of data access	22.5	West or Midwest	More construction	Lower poverty, more white, very large
Teachers report more supports for transitions, test preparation, and applications; note that supports are not open to all; have higher reported rates of supports for each subgroup; and report lots of data access and often individual-level access	12.7	South	More information, more financial activities, and less construction	Poorer, more urban, small to midsize schools
Teachers report higher rates of support for underachieving students, more-frequent access to data (at the school level), and the presence of transition models and parent engagement tools that are accessible for all students	18.5	Northeast or Midwest	More professional and business or manufacturing, less tourism or natural resources and mining	More nonwhite, higher poverty, more urban

NOTES: *Urban* is captured in the CCD elements, and *high-poverty* is defined according to the NCES standard of at least 75 percent of the student body being eligible for free or reduced-price lunch. *Majority nonwhite* is defined as 50.1 percent or more of the student body identifying with an identity other than white non-Hispanic.

^a Regions are the four U.S. Census regions: Midwest, northeast, south, and west.

Characteristics of the Principals' Schools in Each Profile

We performed an identical analysis using principals' responses to questions about students' postsecondary transitions and organized them into seven profiles. Note that some of the questions asked of teachers were not asked of principals. We present the results in Table 7. The elements that best differentiated clusters were the amount of support for student subgroups, the amount of access to student college outcomes data, and the inclusion of student college outcomes in goals and accountability.

In contrast to the analysis of teacher responses, there are no clear dimensions (e.g., poverty status,

region, rurality) that correspond to favorable or unfavorable responses among principals of the degree of postsecondary supports. Three profiles corresponded to lower rates of sufficient supports for all subgroups, but these schools range from very small to very large (although the very large schools are more likely to have data access). Four profiles were composed of principals who reported college outcome goals, generally without specific targets, but these schools were distributed across every region of the United States.

Overall, while geography was partly related to reported postsecondary supports and data, school poverty status related more strongly to sets of responses. Teachers in high-poverty, urban schools

TABLE 7
Profiles of Principal Responses to Postsecondary Pathways Questions and Correlated School and Geographic Characteristics

Profile Created from Common Responses to Postsecondary Pathways Questions	Percentage of Principals	Similarities Among Principals		
		Primary Region ^a	Regional Employment	School Composition
Principals report a high rate of support for high-achieving students (and a moderate rate for other subgroups), individual-level data access, and that college enrollment and acceptance are goals (but there is no specific target)	14.4	Northeast	More financial activities, more professional and business services	Lower poverty, less urban, less rural
Principals report a high rate of almost all students receiving supports across subgroups; individual-level data access; and that college acceptance, enrollment, and graduation are goals with specific targets and are included in accountability measures	12.8	West	Less natural resources and mining	More nonwhite, more urban, medium size
Principals report lower rates of sufficient supports for all subgroups, higher rates of no data access, and no college outcome goals	12.1	N/A	More leisure and hospitality	More rural, very small
Principals report lower rates of sufficient supports for all subgroups, access to school-level data, and college outcome goals without specific targets	12.7	South	N/A	Higher poverty
Principals report lower rates of sufficient supports for all subgroups, access to school-level data, and no college outcome goals	15.0	Not northeast	More construction, more manufacturing	Less Hispanic, very large
Principals report high rates of sufficient supports for all subgroups, access to school-level data, and college outcome goals without specific targets	13.0	Not west	More natural resources and mining, less information	Higher poverty
Principals report high rates of sufficient supports for all subgroups, higher rates of no data access, and no college outcome goals	20.0	West	More natural resources and mining, less professional and business services	Very white

NOTES: *Urban* is captured in the CCD elements, and *high-poverty* is defined according to the NCES standard of at least 75 percent of the student body being eligible for free or reduced-price lunch. *Majority nonwhite* is defined as 50.1 percent or more of the student body identifying with an identity other than white non-Hispanic.

^a Regions are the four U.S. Census regions: Midwest, northeast, south, and west.

reported better data access than the average teacher. Teachers in low-poverty schools were more likely to be in groups that reported more postsecondary supports, although certain supports, such as transition models, were frequently reported in high-poverty schools. Although poverty was not as clear a factor in the principal profiles, principals concentrated in low-poverty schools reported extensive supports and data access.

These results suggest that supports and access to them differ in ways that are correlated with school context, but the underlying needs of the student body also might be correlated with school context. Schools in a region with very high educational attainment among the adult population might have less need for transition supports, for example, if students are able to gain relevant information on strategies for postsecondary success from parents and neighbors. Still, changes over time in postsecondary offerings and requirements might make up-to-date information (potentially provided through schools) more valuable. Although the inequality in access to postsecondary transition supports is undesirable, the good news is that the inequality appears to stem from school resources and characteristics rather than regional amenities. This means that the inequality could be alleviated by federal and state policy changes that would grant more resources to schools.

Apprenticeships Stand Out as an Area for Growth

Looking across the principal and teacher survey responses, we identified two themes that suggested the presence of informational gaps that might hinder student postsecondary and career success, as well as schools' ability to monitor longer-term outcomes and react to student needs.

Teachers were asked about the extent to which they shared information or resources about select education and career options with students. In general, teachers were more likely to report having shared information or resources about postsecondary degree programs than about jobs and work opportunities. One area of particular interest is

In general, teachers were more likely to report having shared information or resources about postsecondary degree programs than about jobs and work opportunities.

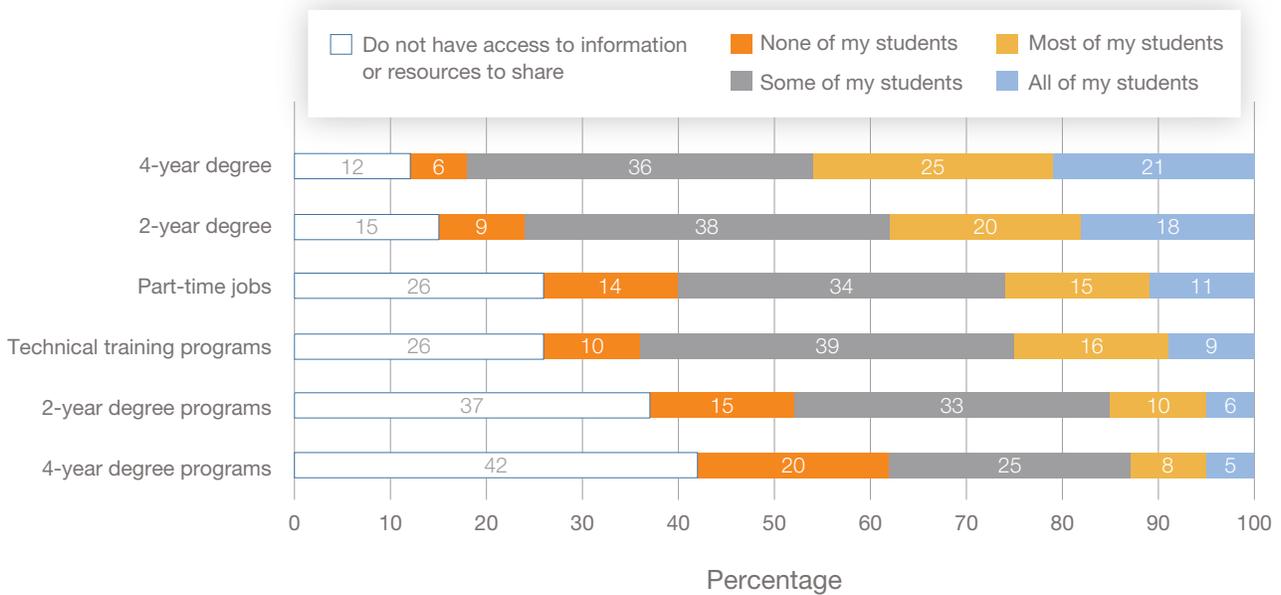
apprenticeships.⁶ As shown in Figure 5, more than 40 percent of teachers reported having no information to share with students about apprenticeships, and another 20 percent reported having information or resources on apprenticeships but not sharing that information with students.

Teachers in majority nonwhite schools were significantly more likely to have spoken with most or all students about apprenticeships (15 percent, compared with 12 percent of teachers in majority white schools). In contrast, 46 percent of teachers reported having talked to most or all students about four-year degree programs, and 38 percent of teachers reported having talked to most or all students about two-year degree programs. Several federal programs support registered apprenticeships; workforce development funds through the Workforce Innovation and Opportunity Act (WIOA), student aid through Pell grants or federal work study, and veterans' education benefits through the G.I. Bill all can be used for apprenticeships (Collins, 2016). There is increasing public support for apprenticeships in the United States, borne out of the success of Germany's apprenticeship model, where high schools play a key role in apprenticeship education (Lichtenberger, 2018;

⁶ The U.S. Department of Labor (2020) defines an *apprenticeship* as "an employer-driven, 'learn-while-you-earn' model that combines on-the-job training . . . with job-related instruction in curricula tied to the attainment of national skills standards."

FIGURE 5

Teacher Reports of Information Sharing and Resource Sharing with Students



NOTES: In this figure, we present the percentage of teachers who responded to the following question: “During the current school year (2018–19), how many students have you shared information or resources with regarding the following education and career options?” All response options are shown.

Peiffer, 2017; Amoyaw and Brown, 2018). If apprenticeships continue to grow in prevalence and support, high school teachers and principals alike will need to be well informed to distribute accurate information to students.

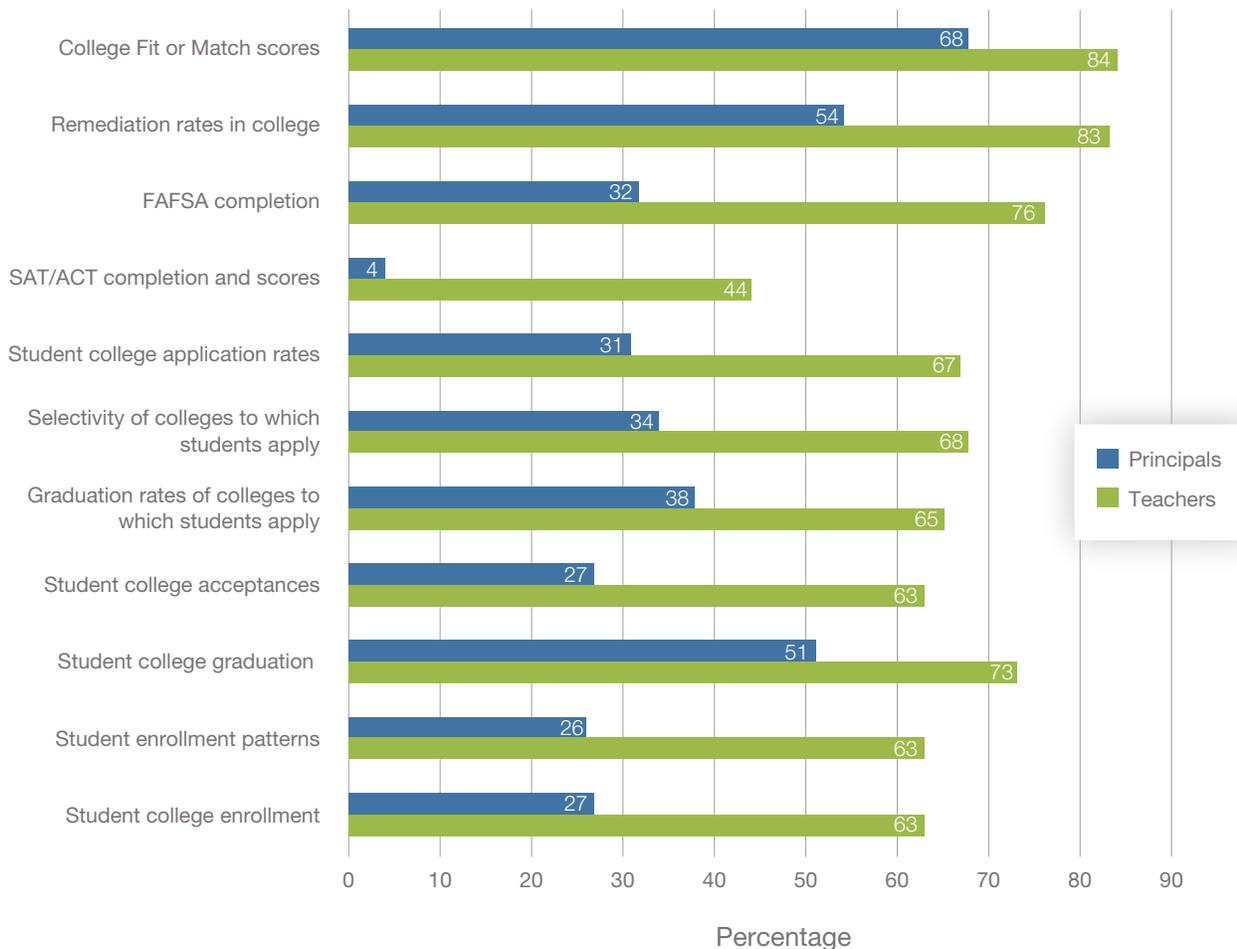
If the goal of a high school is to produce college-ready graduates, the lack of data on remedial education and college graduation outcomes makes assessment of that goal impossible.

Teachers and Principals Reported Limited Access to Information About Students’ College-Related Outcomes

Principals and teachers also were asked about access to data on their students’ postsecondary application, acceptance, enrollment, and outcomes. More than half of principals reported having no access to their students’ college graduation or remedial education (i.e., high school-level courses taken in college) rates, as shown in Figure 6. Those that do have access can access primarily school-level data, with only 18 percent and 15 percent reporting access to individual-level graduation and remediation data, respectively. Although the principal responses showed no significant differences in access to data across school urbanicity, poverty levels, and racial makeup, teachers in urban, high-poverty, or majority nonwhite schools were significantly more likely to report some access to both data elements than were their counterparts. If the goal of a high school is to produce college-ready graduates, the lack of data on remedial education and college graduation outcomes makes assessment of that goal impossible. With only

FIGURE 6

Educator Reports of Having No Access to Data on Students' College-Related Outcomes



NOTES: In this figure, we present the percentage of educators who responded “no access” to the following question: “To which of the following data do you have access?” FAFSA = Free Application for Federal Student Aid.

school-level data, principals cannot measure how well their schools’ education serves disadvantaged subgroups in college, and it is important to understand both overall and subgroup-specific outcomes.

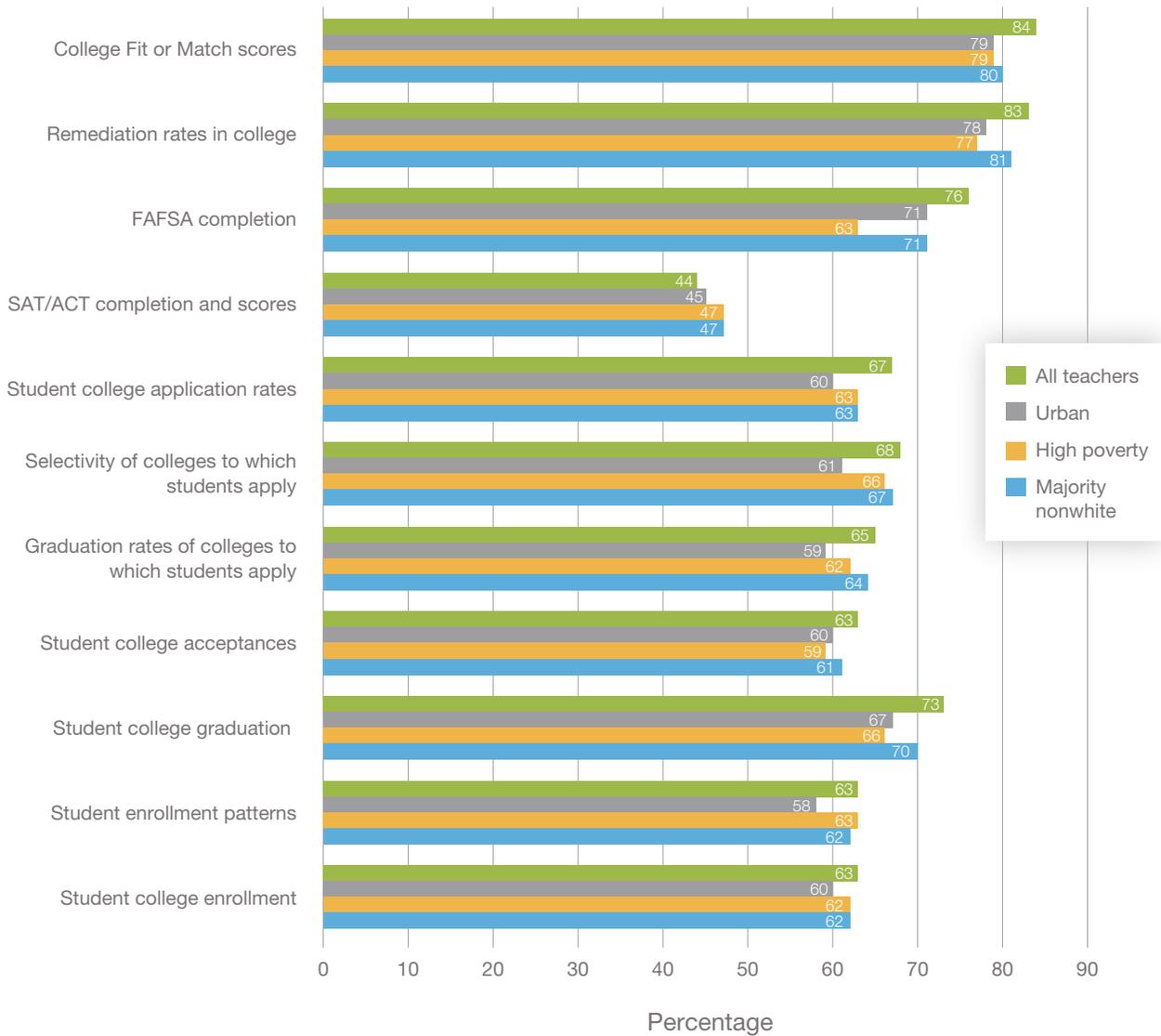
Other data elements had significant variation by school context, as shown in Figure 7. Both principals and teachers in high-poverty or urban schools were significantly more likely to report having access to data on FAFSA completion. In fact, every significant difference in reported availability suggested more data access among urban, high-poverty, or majority nonwhite schools.

Access to these data elements might be partially determined by the school’s underlying data system.

While the vast majority of principals (89 percent) reported using counselors’ or other staff members’ records as one of their sources of college data, 52 percent reported using at least one of either the National Student Clearinghouse (NSC) (36 percent overall) or Naviance or a similar system (31 percent overall). Naviance relies on NSC data, and postsecondary institutions reporting data to NSC are not required to disclose remediation. In 2018–2019, about 46 percent of institutions reported remediation. Until 2013–2014, no remediation data for any postsecondary institutions were available through NSC (National Student Clearinghouse Research Center, 2019).

FIGURE 7

Teacher Reports of College-Related Outcomes with No Data Access, by School Context



NOTES: The survey question text was “To which of the following data do you have access?”

Teacher and School Leader Perceptions of Needed Supports

Although analyzing national trends and disparities is instructive for identifying nationwide needs, teachers and principals have firsthand knowledge of the realities and needs of their schools. In this section, we discuss teachers’ and principals’ reports of additional supports needed for students in their schools.

Teachers and Principals Generally Agreed on Needed Resources for Career Preparation

Teachers and principals were asked to select up to three resources that they thought were most needed for their school or district to ensure that students are better prepared for their future careers. The results are shown in Figure 8. The top responses from both teachers and principals included engagement by the local business community, professional development for school employees on career readiness, high school

career-technical courses, and career academies or career pathway programs. Teachers were more likely to report needing additional resources in the classroom, which is likely a reflection of their daily classroom interactions.

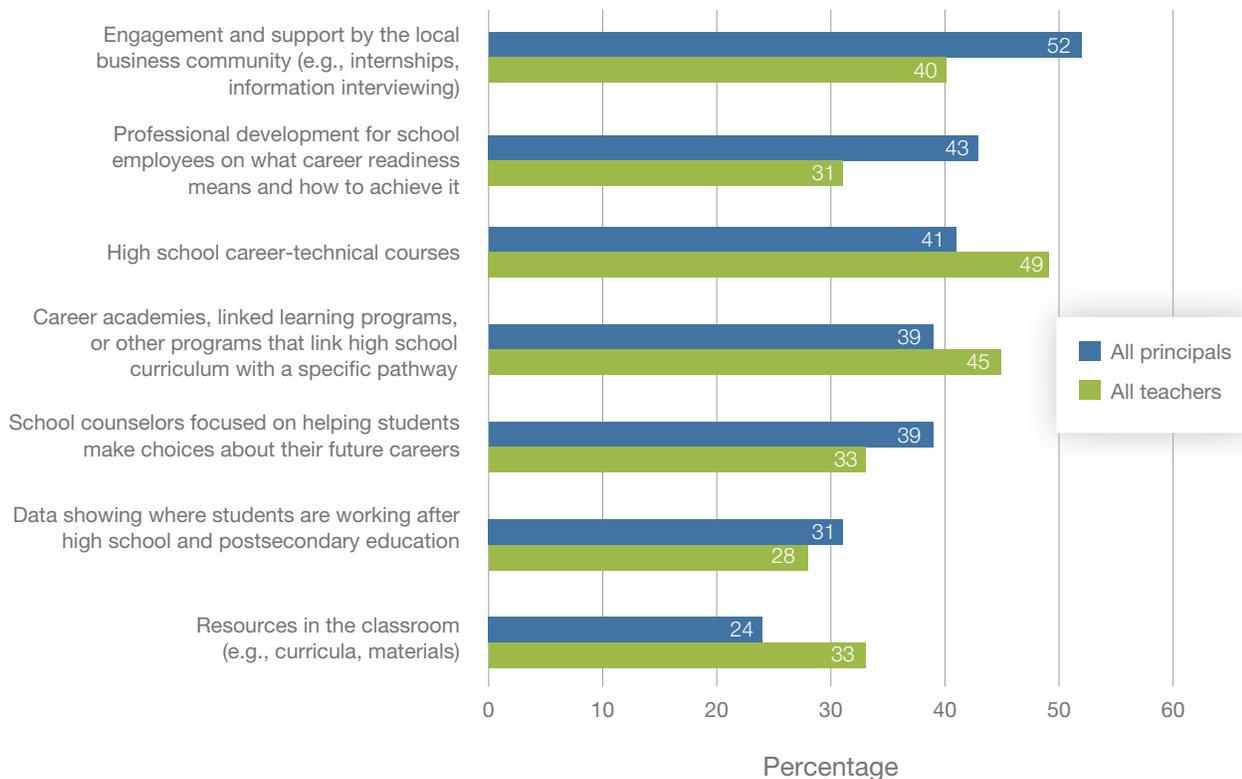
Although principals agreed on most career resources, principals in low-poverty schools were significantly more likely to cite high school CTE courses as a need, whereas principals in high-poverty schools were significantly more likely to cite local business community support (e.g., internships). In contrast, teachers in high-poverty schools were significantly more likely to report needing career academies and pathway programs relative to their counterparts in low-poverty schools. Teachers in urban schools were significantly more likely to report needing career-technical courses and significantly less likely to report needing professional development than their nonurban counterparts.

Collaboration with Local Colleges and Universities, Tools to Support Family Engagement, and Additional Staff Would Support Postsecondary Transitions

As with the career supports question, teachers and principals were asked to select up to three additional supports that would most help their schools support students' postsecondary success. More than half of principals and teachers cited collaboration with local colleges and universities on aligning academic pathways as a key support for students' postsecondary transitions, and the top three reported needs were identical between teachers and principals (collaboration with local colleges and universities, additional staff, and family engagement tools). In Figure 9, we show how selection of each support varied between principals and teachers.

However, as with career supports, there were significant differences by school context. Principals in

FIGURE 8
Educator Reports of the Most-Needed Career Pathway Supports



NOTES: The survey question text was "Which of the following resources does your school or school district most need to ensure students are better prepared for their future careers? (Select up to 3.)"

urban schools were significantly more likely to rank additional staff among the most-helpful supports for students' transitions to and success in postsecondary education (59 percent compared with 46 percent). Teachers in high-poverty and majority nonwhite schools were significantly more likely to report needing better tools to support family engagement than their peers in low-poverty or majority white schools.

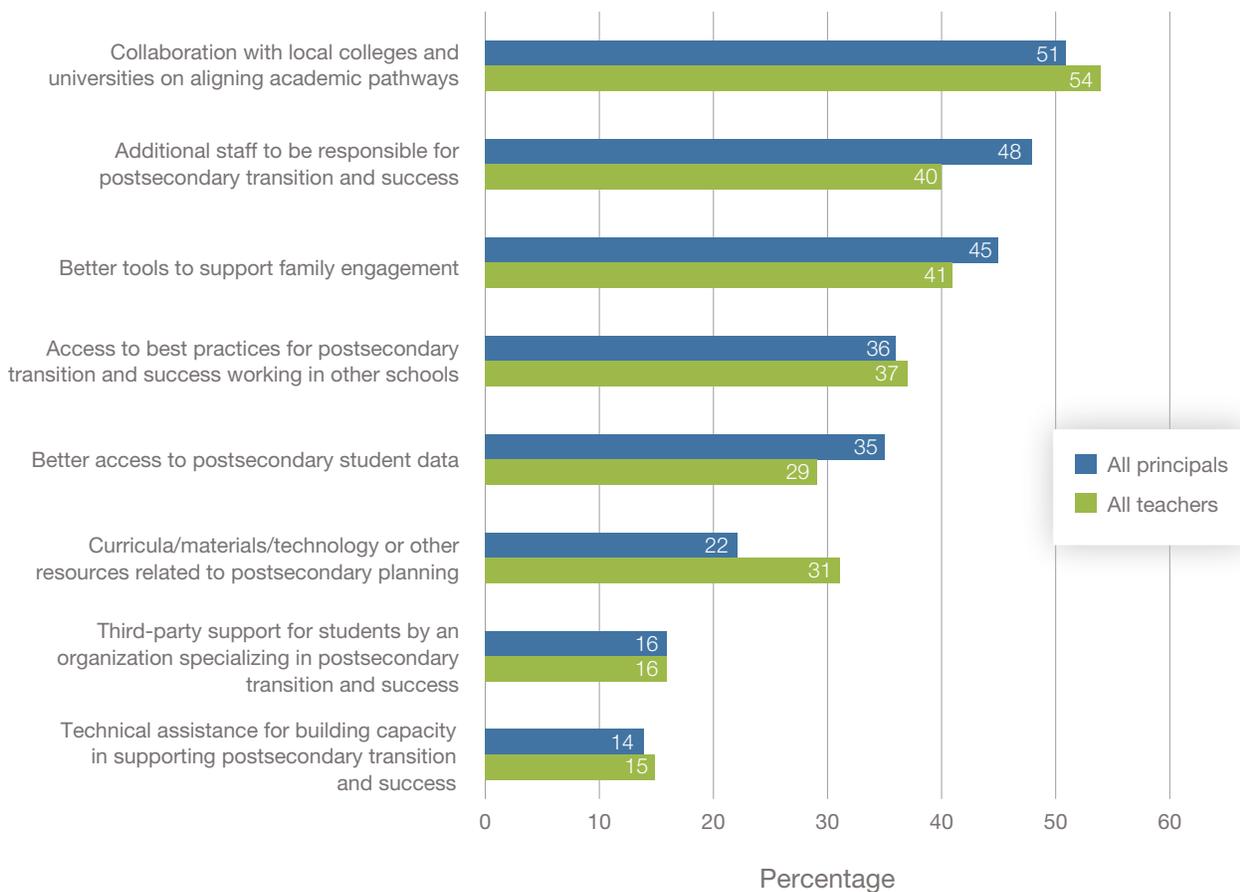
Discussion and Conclusions

In this report, we presented survey results on schools' supports for college and career pathways from a nationally representative sample of public high school teachers and principals. We found that, although both groups of educators reported widespread

supports, inequities both within and between schools are likely to limit some students' opportunities to develop the knowledge and skills they will need to succeed after high school, as well as their awareness of available postsecondary pathways.

Geography is one source of inequities in available supports. Our findings underscore the importance of understanding how a school's geographic location interplays with the supports and resources available to students. Individual states' funding choices, states' engagement with federal programs, and local property taxes all affect the financial resources schools have to allocate to various initiatives. Furthermore, several of the college and career supports discussed in this report are facilitated by having nearby colleges and universities and an engaged business community with which high schools can collaborate.

FIGURE 9
Educator Reports of Most-Needed Postsecondary Pathway Supports



NOTES: The survey question text was "Which of the following resources does your school or school district most need to ensure students are better prepared for their future careers? (Select up to 3.)"

[I]nequities both within and between schools are likely to limit some students' opportunities to develop the knowledge and skills they will need to succeed after high school, as well as their awareness of available postsecondary pathways.

We identified potential inequities in the availability of and access to supports both between and within schools. Between schools, some of these differences were a function of student racial/ethnic and socioeconomic composition, but we found differences that did not always favor the same groups. Within schools, teachers less-frequently reported sufficient support for college pathways for low-income and underrepresented minority students than for other subgroups. In both the analysis of individual questions and the profile analysis, we found evidence of varying support availability across and within school contexts. In the case of supports for future careers, some of these differences were driven by local amenities, which are less-readily changeable through policy. Differences in supports for postsecondary transitions did appear to correlate with school resources, suggesting some opportunity for policy to improve equity in access to supports. Future research should explore which supports can help schools with limited local amenities provide exceptional career readiness support for students. One potentially promising example is virtual career fairs (Phillips, 2018).

Data monitoring of student outcomes, both overall and by subgroup, is critical to diagnosing and addressing areas for improvement. Without monitoring, equitable support (where it exists) cannot guarantee equal outcomes. College remediation rates are a direct measure of how well prepared a high school's students are for college-level coursework, yet more than half of high school principals reported having no access to these data. We cannot tell from our data whether those who reported lacking access did not have systems in their schools or districts to track

these data or whether such systems were available but principals are unaware of them. Future research on college pathways should examine more deeply what data systems are in place, how principals interact with those systems, and how data access and use vary across outcomes and school contexts.

The relatively low provision of information about such opportunities as apprenticeships also suggests a need for changes to policy or practice. To ensure that students understand the full variety of options that are open to them, it is necessary for school staff to know about those options and communicate them to all students. Our survey data provide no information about communications with students from staff other than teachers and principals, but they do suggest some gaps in staff awareness that, if filled, could help ensure student awareness. Future research should explore the communication of college and career information among students, guidance counselors, and school leadership.

We also noted several areas of difference between principals and teachers. For many topics, such as apprenticeships or dual-enrollment programs, it is possible that principals have better institutional knowledge about what is offered by the school than do teachers, who generally interact with a subgroup of students. However, for supports that generally are offered in the context of an academic curriculum (e.g., college essay-writing guidance provided in English language arts classes), teachers might have a better sense of what is done "in practice" rather than by policy, might have more-direct engagement with students, and tend to have longer school tenure (NCES, 2017). Our findings focused on schoolwide

supports rather than classroom supports, so it is likely that principals' responses might be more accurate, although we have no way of verifying that. Where discrepancies are because of principals' greater knowledge of school resources, our findings suggest that further communication between principals and teachers could be valuable to ensure that teachers can provide accurate information to students and connect them to appropriate resources. Finally, we found overwhelmingly positive perceptions of the supports available within schools, despite several supports (such as apprenticeship resources) reported as unavailable by educators. This suggests that educators' baseline for a high-quality cadre of supports might be lower than what advocates suggest.

Conclusion

Our findings suggest that offering a broad array of supports for both college and career pathways is not a luxury reserved for suburban, low-poverty schools. Moreover, schools can simultaneously support students who are interested in pursuing postsecondary education and those who choose to enter the workforce shortly after graduating. As high schools find new ways to utilize federal policies that support college and career readiness, such as ESSA and Perkins V, these supports might become even more widely available to students. At the same time, merely offering supports is not sufficient; policymakers and educators will need to monitor the quality of these supports and ensure equity of access to them, both between and within schools. State and local education agencies, together with other organizations that support schools, can address this need by developing clear guidance and robust supports for school-level staff, along with data systems to monitor students' access to and participation in college and career preparation opportunities.

References

- Amoyaw, May, and David Brown, *Apprenticeship America: An Idea to Reinvent Postsecondary Skills for the Digital Age*, Washington, D.C.: Third Way, June 11, 2018. As of February 27, 2020: <https://www.thirdway.org/report/apprenticeship-america-an-idea-to-reinvent-postsecondary-skills-for-the-digital-age>
- An, Brian P., "The Impact of Dual Enrollment on College Degree Attainment: Do Low-SES Students Benefit?" *Educational Evaluation and Policy Analysis*, Vol. 35, No. 1, 2013, pp. 57–75.
- Avery, Christopher, Jessica S. Howell, and Lindsay Page, *A Review of the Role of College Counseling, Coaching, and Mentoring on Students' Postsecondary Outcomes*, New York: The College Board, October 2014.
- Berger, Andrea, Lori Turk-Bicakci, Michael Garet, Joel Knudson, and Gur Hoshen, *Early College, Continued Success: Early College High School Initiative Impact Study*, Washington, D.C.: American Institutes for Research, January 2014.
- Callahan, Jessica, Mizuko Ito, Stephen Campbell Rea, and Amanda Wortman, *Influences on Occupational Identity in Adolescence: A Review of Research and Programs*, Irvine, Calif.: Connected Learning Alliance, 2019.
- Chetty, Raj, John N. Friedman, Emmanuel Saez, Nicholas Turner, and Danny Yagan, *Mobility Report Cards: The Role of Colleges in Intergenerational Mobility*, Cambridge, Mass.: National Bureau of Economic Research, No. 23618, July 2017.
- Collins, Benjamin, *Apprenticeship in the United States: Frequently Asked Questions*, Washington, D.C.: Congressional Research Service, R44174, January 29, 2016.
- Cushing, Ellen, David English, Susan Therriault, and Rebecca Lavinson, *Developing a College- and Career-Ready Workforce: An Analysis of ESSA, Perkins V, IDEA, and WIOA*, Washington, D.C.: American Institutes for Research, March 2019.
- Edmunds, Julie A., Fatih Unlu, Elizabeth J. Glennie, Lawrence Bernstein, Lily Fesler, Jane Furey, and Nina Arshavsky, "Smoothing the Transition to Postsecondary Education: The Impact of the Early College Model," *Journal of Research on Educational Effectiveness*, Vol. 10, No. 2, 2017, pp. 297–325.
- Furnée, Carina A., Wim Groot, and Henriëtte Maassen van den Brink, "The Health Effects of Education: A Meta-Analysis," *European Journal of Public Health*, Vol. 18, No. 4, 2008, pp. 417–421.
- Halpern, Robert, "After-School Matters in Chicago: Apprenticeship as a Model for Youth Programming," *Youth and Society*, Vol. 38, No. 2, 2006, pp. 203–235.
- Henry, Laurie, and Norman A. Stahl, "Dismantling the Developmental Education Pipeline: Potent Pedagogies and Promising Practices that Address the College Readiness Gap," *Journal of Adolescent & Adult Literacy*, Vol. 60, No. 6, 2017, pp. 611–616.
- Holzer, Harry J., and Robert I. Lerman, *The Future of Middle-Skill Jobs*, Washington, D.C.: Brookings Institution, February 26, 2009.
- Hora, Matthew T., Ross J. Benbow, and Amanda K. Oleson, *Beyond the Skills Gap: Preparing College Students for Life and Work*, Chicago, Ill.: Harvard Education Press, 2016.

- Hughes, Katherine L., Olga Rodriguez, Linsey Edwards, and Clive Belfield, *Broadening the Benefits of Dual Enrollment: Reaching Underachieving and Underrepresented Students with Career-Focused Programs*, New York: Community College Research Center, July 2012.
- Johnston, William R., Laura S. Hamilton, David Matthew Grant, Claude Messan Setodji, Christopher Joseph Doss, and Christopher J. Young, *Learn Together Surveys: 2019 Technical Documentation and Survey Results*, Santa Monica, Calif.: RAND Corporation, RR-4332-BMGF, 2020. As of March 6, 2020: https://www.rand.org/pubs/research_reports/RR4332.html
- Lichtenberger, Thomas, “German Apprenticeships: Made for America,” *Inside Higher Ed*, March 27, 2018. As of March 13, 2020: <https://www.insidehighered.com/views/2018/03/27/how-adapt-german-apprenticeship-model-work-best-us>
- Miller, Trey, Holly Kosiewicz, Elaine Lin Wang, Elizabeth VP Marwah, Scott Delhomme, and Lindsay Daugherty, *Dual Credit Education in Texas: Interim Report*, Santa Monica, Calif.: RAND Corporation, RR-2043-CFAT, 2017. As of February 28, 2020: https://www.rand.org/pubs/research_reports/RR2043.html
- Mishkind, Anne, *Overview: State Definitions of College and Career Readiness*, Washington, D.C.: American Institutes for Research, September 2014.
- National Center for Education Statistics, “Postsecondary Attainment: Differences by Socioeconomic Status,” *The Condition of Education 2015*, 2015, pp. 22–28.
- National Center for Education Statistics, *National Teacher and Principal Survey, 2017–2018*, March 2017.
- National Center for Education Statistics, “Indicator 23: Postsecondary Graduation Rates,” *Status and Trends in the Education of Racial and Ethnic Groups*, February 2019, pp. 138–142. As of February 28, 2020: https://nces.ed.gov/programs/raceindicators/indicator_red.asp
- National Student Clearinghouse Research Center, *Reporting of NSC Additional Data Elements*, Herndon, Va., September 5, 2019. As of February 28, 2020: https://nscresearchcenter.org/wp-content/uploads/Reporting_of_NSC_Additional_Data_Elements.pdf
- NCES—See National Center for Education Statistics.
- Nikaido, David, and Kanika Singh, “From High School Student to Employee: A Proposal for a Citywide Internship Program in San Antonio,” Mellon Fellows White Paper SA2020, 2013.
- Peiffer, Emily, “A Strong Apprenticeship Model Can Help Solve America’s Workforce Challenges,” Urban Institute blog, November 15, 2017. As of November 18, 2019: <https://www.urban.org/urban-wire/strong-apprenticeship-model-can-help-solve-americas-workforce-challenges>
- Phillips, Kathryn, “These Students Glimpsed Their Future Without Leaving Their Desks,” Teach for America webpage, 2018. As of January 9, 2020: <https://www.teachforamerica.org/stories/these-students-glimpsed-their-future-without-leaving-their-desks>
- Polidano, Cain, and Domenico Tabasso, “Making It Real: The Benefits of Workplace Learning in Upper-Secondary Vocational Education and Training Courses,” *Economics of Education Review*, Vol. 42, 2014, pp. 130–146.
- Rivera, Luis E., Stephen Kotok, and Nathan Ashby, “Access to Dual Enrollment in the United States: Implications for Equity and Stratification,” *Texas Education Review*, Vol. 7, No. 2, 2019, pp. 14–29.
- Rosen, Rachel, and Frieda Molina, *Practitioner Perspectives on Equity in Career and Technical Education*, Washington, D.C.: MDRC Center for Effective Career and Technical Education, 2019. As of February 28, 2020: https://www.mdrc.org/sites/default/files/CTE_Equity_Brief_2019.pdf
- Rowan-Kenyon, Heather T., Laura Perna, and Amy K. Swan, “Structuring Opportunity: The Role of School Context in Shaping High School Students’ Occupational Aspirations,” *Career Development Quarterly*, Vol. 59, No. 4, 2011, pp. 330–344.
- Silles, Mary A., “The Causal Effect of Education on Health: Evidence from the United Kingdom,” *Economics of Education Review*, Vol. 28, No. 1, 2009, pp. 122–128.
- Small, Mario L., “What We Do Together: The State of Social Capital in America Today,” testimony before the Joint Economic Committee, May 17, 2017. As of February 28, 2020: https://scholar.harvard.edu/files/mariosmall/files/testimony_mariolsmall_socialcapital.pdf
- Smith, Jonathan, Matea Pender, and Jessica Howell, “The Full Extent of Student-College Academic Undermatch,” *Economics of Education Review*, Vol. 32, 2013, pp. 247–261.
- Torche, Florencia, “Is a College Degree Still the Great Equalizer? Intergenerational Mobility Across Levels of Schooling in the United States,” *American Journal of Sociology*, Vol. 117, No. 3, 2011, pp. 763–807.
- U.S. Bureau of Labor Statistics, “Quarterly Census of Employment and Wages,” database, undated. As of February 28, 2020: <https://www.bls.gov/cew/>
- U.S. Department of Labor, “Apprenticeship Toolkit: Frequently Asked Questions,” webpage, undated. As of January 9, 2020: <https://www.dol.gov/apprenticeship/toolkit/toolkitfaq.htm#1a>
- Zarate, Maria Estela, and Harry P. Pachon, *Gaining or Losing Ground? Equity in Offering Advanced Placement Courses in California High Schools, 1997–2003*, Los Angeles, Calif.: Tomás Rivera Policy Institute, 2006.

About This Report

This research was conducted by RAND Education and Labor, a division of the RAND Corporation that conducts research on early childhood through postsecondary education programs, workforce development, and programs and policies affecting workers, entrepreneurship, and financial literacy and decisionmaking. This report is based on research funded by the Bill & Melinda Gates Foundation. We are grateful to the foundation staff for their collaboration and feedback on our surveys and analysis. The findings and conclusions contained within are those of the authors and do not necessarily reflect positions or policies of the Bill & Melinda Gates Foundation. For more information and research on these and other related topics, please visit gatesfoundation.org.

The authors would like to acknowledge the following people and organizations for their contributions to this work: We thank the Bill & Melinda Gates Foundation for funding this work, collaborating on survey development, and providing helpful feedback throughout the course of this project. We appreciate the efforts of the RAND American Educator Panels (AEP) research team: Courtney Armstrong, David Grant, Casey Hunter, Claude Setodji, Matt Strawn, and Christopher Young. We thank the National Education Association and the Bill & Melinda Gates Foundation, which originally sponsored the panels. We also appreciate the helpful feedback provided by our reviewers: Julie Edmunds, Gaby Gonzalez, and Susan Straus. Lastly, we are extremely grateful to the U.S. public school teachers and leaders who agreed to participate in the American Teacher Panel (ATP) and the American School Leader Panel (ASLP) and take these particular surveys. Their time and willingness to share their experiences were invaluable for this effort and for helping us understand more about how to better support their hard work in schools.

For more information about the RAND American Educator Panels, please email aep@rand.org or visit www.rand.org/aep. More information about RAND can be found at www.rand.org. Questions about this report should be directed to mzaber@rand.org, and questions about RAND Education and Labor should be directed to educationandlabor@rand.org.

About the Authors

Melanie A. Zaber is an associate economist at the RAND Corporation. She has diverse research interests spanning workforce development, higher education, and equitable access to institutions. She holds a Ph.D. in economics and public policy.

Laura S. Hamilton is a senior behavioral scientist and distinguished chair in learning and assessment at the RAND Corporation. She directs the RAND Center for Social and Emotional Learning Research and co-directs the American Educator Panels, RAND's nationally representative survey panels of teachers and principals. She holds a Ph.D. in educational psychology.



The RAND Corporation is a research organization that develops solutions to public policy challenges to help make communities throughout the world safer and more secure, healthier and more prosperous. RAND is nonprofit, nonpartisan, and committed to the public interest.

RAND's publications do not necessarily reflect the opinions of its research clients and sponsors. **RAND®** is a registered trademark.

Print and Electronic Distribution Rights

This work is licensed under a Creative Commons Attribution 4.0 International License. All users of the publication are permitted to copy and redistribute the material in any medium or format and transform and build upon the material, including for any purpose (including commercial) without further permission or fees being required.

For more information on this publication, visit www.rand.org/t/RR4344.

Published (2020) by the RAND Corporation

Cover image: SDI Productions/Getty Images

www.rand.org