

Teaching and California's Future



Who Is Teaching California's Children?

Camille E. Esch
Patrick M. Shields

The Center for the Future of Teaching and Learning
Research conducted by SRI International

Teaching and California's Future is sponsored by The Center for the Future of Teaching and Learning. The Center is made up of education professionals, scholars and public policy experts who care deeply about improving the schooling of California's children. The Center was founded in 1995 as a public, nonprofit organization dedicated to increasing the capacity of California's teacher workforce to provide a rigorous and balanced curriculum and ensure every child's continuing intellectual, ethical and social development. Margaret Gaston and Harvey Hunt, co-directors of The Center for the Future of Teaching and Learning, organized and directed the work.

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Teachers Make a Difference in Student Achievement

The passage of President Bush's No Child Left Behind legislation and the implementation of California's new high school exit exam once more ratchet up the expectations for the state's schools and schoolchildren. Close on the heels of new state standards for students and a rigorous accountability system for schools, the new federal legislation adds the challenge of ensuring that all subgroups of students achieve at high levels. The high school exit exam solidifies California's commitment to having no child graduate without reaching a reasonable level of achievement.

Within this context of increasing accountability for results throughout the education system, a group of policymakers and practitioners, convened by The Center for the Future of Teaching and Learning under an initiative called Teaching and California's Future, consistently has raised

the issue of equal access for all students to a fully qualified and effective teacher. The logic is simple: If policymakers are going to raise standards for all students and hold them accountable for meeting those standards, they need to ensure that all students have a fair opportunity to learn. And although it may be difficult to specify everything a child needs to succeed in school, the evidence is compelling that a high-quality teacher is at the head of the list.

Over the past four years, the leadership of Teaching and California's Future has brought data to policymakers that raise serious concerns about all students' access to qualified and effective teachers. These efforts have demonstrated that students in low-achieving, high-poverty and high-minority schools are up to five times more likely than their peers in high-achieving schools to have a teacher who has not yet passed the



state's minimum threshold for entrance into the profession: the preliminary credential. We therefore have argued that those students most likely to be challenged by the new state standards — students who need more assistance to succeed in school — are the ones least likely to have a fully credentialed teacher.¹

Policymakers have been responsive to these concerns and, in fact, have initiated a variety of efforts to increase the numbers of fully credentialed teachers and to create incentives for fully credentialed teachers to work in the hardest-to-staff and lowest-achieving schools. Yet, some policymakers also have asked if information is available on characteristics other than credential status that might shed light on the quality of teachers in the workforce. These questions are bolstered by anecdotes about highly accomplished individuals — retired engineers, for example — who seek teaching jobs but do not hold credentials. All of these discussions are taking place within a national debate about the value of teacher licensure, and these issues will become more important as states are compelled to define the “highly qualified teacher” as part of the No Child Left Behind legislation.

These discussions have arisen in part because of the complex and sometimes inconclusive research findings on the relationship between certain teacher characteristics and student achievement. For example, one extensive review of the literature on the relationship between credential status and student achievement concludes that “mathematics students learn more when their teachers have standard mathematics certification (as compared to private school mathematics certification or no mathematics certification).”² However, no such relationship



is found in the area of English. Similar contradictory findings appear for a variety of other teacher characteristics, such as course-taking patterns, where some studies find clear relationships between the kinds of courses prospective teachers take and the subsequent achievement of their students, but other studies do not.³

Lost within this debate over which teacher characteristics are associated with student achievement gains is the well-established finding that *teachers matter*. That is, although we may struggle to reach consensus on which exact teacher characteristics matter most, we know that teachers make a significant contribution to student achievement, independent of both student background and other school and classroom inputs. This finding is agreed on across the political spectrum, from those calling for higher standards for teacher credentialing to those supporting fewer requirements for entry into the teaching profession.⁴

So the message to policymakers is confusing: It is imperative to pay attention to teacher quality if you care about student achievement, but it is difficult to find simple indicators of such quality. Given this confusion, the leadership of

Teaching and California's Future has undertaken a more in-depth analysis of the characteristics of the teacher workforce. The goal is to describe in greater detail the nature of the teacher workforce in the state, beyond credential status, and to provide policymakers with a more clear analysis of how teachers with different characteristics are distributed across schools in the state. At a time of some confusion, we are tapping the available state databases to shed as much light as possible on the teachers who teach our children.

In our recently released policy brief entitled *Strengthening California's Teacher Information System*, we underscored the weaknesses of California's data management systems that make it difficult to provide policymakers with the information they call for.⁵ There are numerous potential indicators of teacher quality (e.g., undergraduate institution, prior achievement, test scores) that would be useful to assess but are not available in California — unlike in some other states.⁶ Within the constraints of the available data, we attempt in this paper to give policymakers more insight into the characteristics of the teacher workforce beyond simple credential status and to describe in more detail who has the responsibility of teaching our most needy children. Our hope is to move the debate forward on what can be done in the state to ensure that every schoolchild has a qualified and effective teacher. Our analyses will show that:

- Low-achieving, poor and minority students are much more likely to have a teacher without a credential.
- The data do not support the argument that there are many well-educated, experienced teachers without credentials in our school

system. Instead, few teachers without full credentials have significant teaching experience or advanced degrees, and as a group they rank lower on these characteristics than their fully credentialed peers.

- The small number of teachers without credentials who do have advanced degrees are not distributed evenly across schools. Teachers without credentials in high-poverty, high-minority and low-achieving schools are less educated as a group than teachers without credentials in more-affluent, higher-scoring schools.
- The small number of teachers without credentials who do have significant teaching experience are distributed more evenly. Still, in those schools with the most minority, poor and low-achieving students, teachers without credentials are slightly less likely to have significant teaching experience.
- Low-performing schools also are more likely to have high concentrations of new teachers — whether they have credentials or not — and fewer veteran teachers to support them.

These findings follow. Our quantitative analyses are based on state-collected teacher workforce data and are supplemented by qualitative findings from a series of case studies carried out in schools and districts across the state in 2000 and 2001.⁷

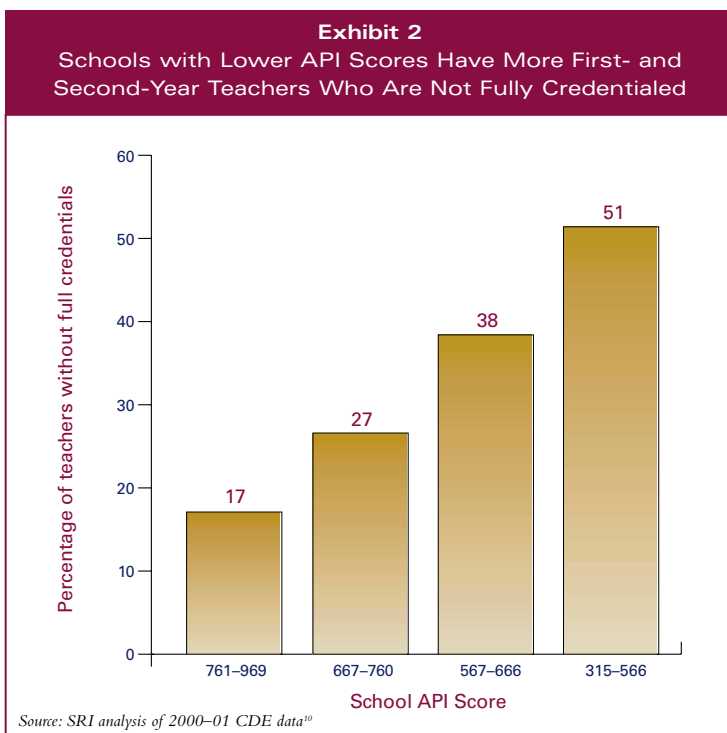
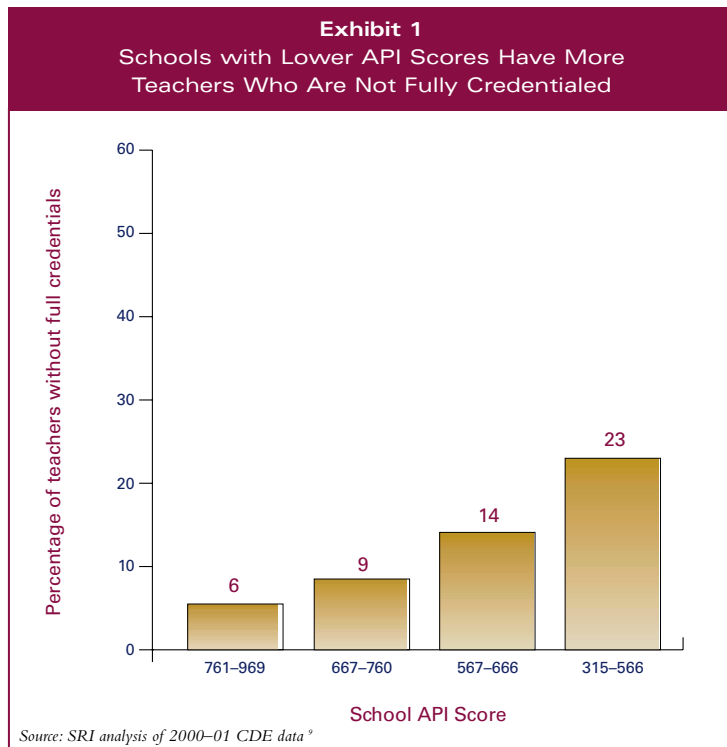
Characteristics and Distribution of California Teachers

Distribution of teachers without full credentials

As we reported previously, teachers in schools that have low test scores or that serve large numbers of poor or minority children are less likely than teachers in other schools to have completed a teacher preparation program and hold a full or preliminary teaching credential. We refer to this group as “teachers without full credentials” or “not fully credentialed teachers,” and it consists of individuals who hold emergency credentials or are preinterns or interns. Exhibit 1 shows that in 2000–01, 23 percent of the teachers in schools with the lowest Academic Performance Index (API) scores were not fully credentialed, compared with only about 6 percent in schools with the highest API scores.⁸

A closer look at just first- and second-year teachers provides further details about this maldistribution. Exhibit 2 shows that in schools with low API scores, 51 percent of first- and second-year teachers do not have a full credential, compared with only 17 percent in schools with high API scores. In other words, the lower a school’s API score, the more likely it is to have a greater proportion of first- and second-year teachers without full credentials.

The finding is similar when the data are disaggregated by the percentage of minority students or the percentage of students receiving free or reduced-price lunch in the school: Those schools serving greater percentages of minority or economically disadvantaged students also



have more first- and second-year teachers without full credentials.

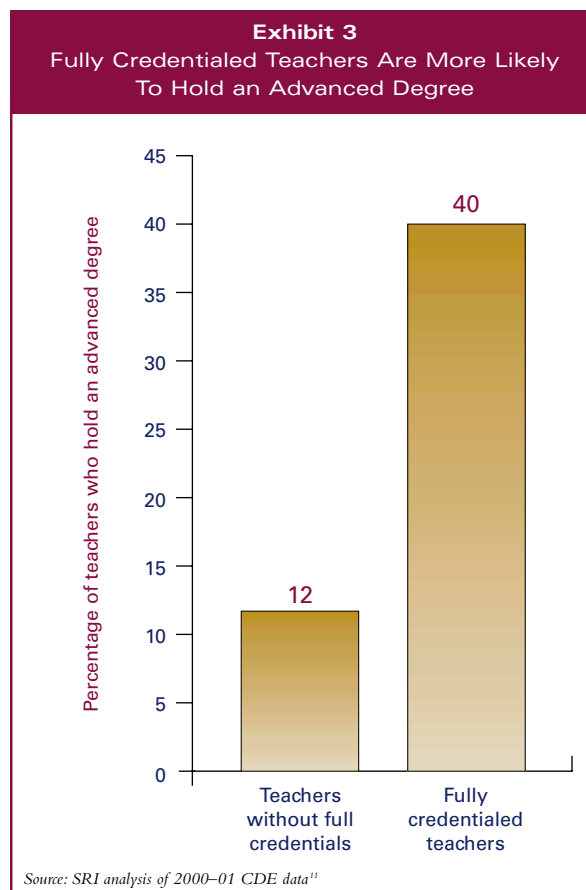
As troublesome as this situation appears, some argue that the lack of a full credential is really a technicality and does not imply a lack of quality in the teacher. There is even anecdotal evidence to suggest that some practicing teachers without full credentials who have other potentially valuable attributes such as advanced education or relevant work experience may be very effective. Accordingly, policymakers have begun to ask questions that probe for information on teachers beyond credential status. For example:

- Besides their credential status, what do we know about who is — and who is not — teaching in our neediest schools?
- How many teachers without full credentials are in fact well educated and experienced? Are they the norm or a small minority? What types of schools do they teach in?
- What about fully credentialed teachers in our neediest schools? Do these teachers have similar or different characteristics compared with credentialed teachers in more-advantaged schools?

We now look to statewide data to address these questions and find any additional information to describe teachers without full credentials. In addition, we examine statewide data on fully credentialed teachers, particularly those teaching in schools with high numbers of poor and minority children.

Education and experience of California teachers

Unfortunately, the data available at the state level to describe the teaching population are limited. However, the state does collect data on



the academic degrees held by teachers and their years of teaching experience. These data can give us additional insight into the population of teachers — credentialed or not — who are staffing our neediest schools.

Education level. Of the more than 40,000 teachers in California without full credentials, fewer than 5,000 — or about 12 percent — have a master’s or doctoral degree in addition to a bachelor’s degree (Exhibit 3). This finding gives a quantitative perspective to anecdotes about highly educated individuals entering the teaching profession. It appears that a small minority of teachers without full credentials hold advanced degrees.

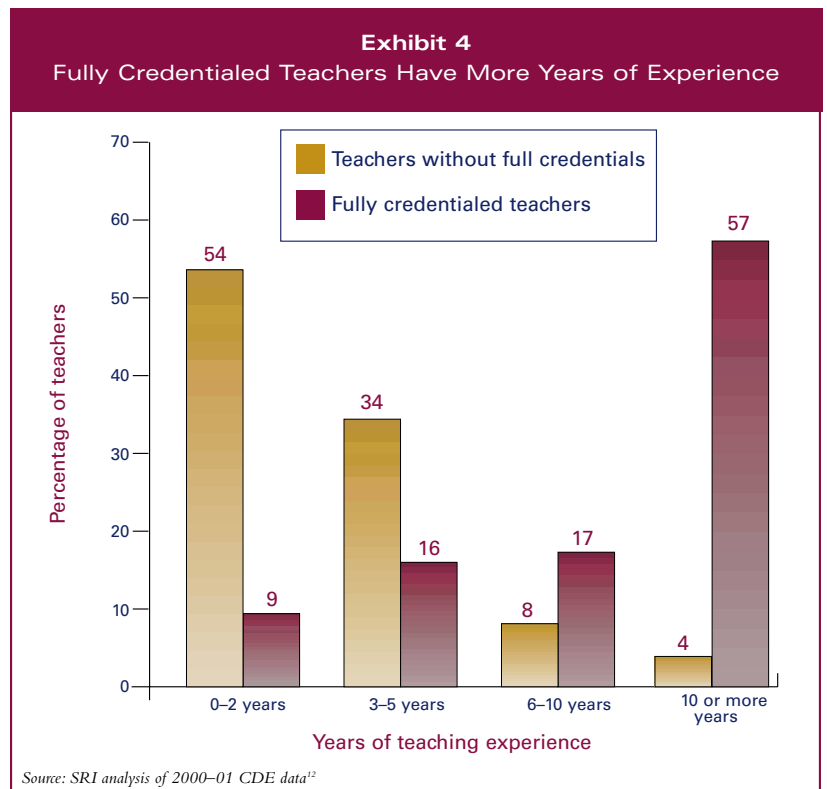


In comparison, of the roughly 278,000 fully credentialed teachers, approximately 40 percent hold a master’s or doctoral degree in addition to a bachelor’s degree and teaching credential (Exhibit 3). The fact that fully credentialed teachers are much more likely to hold an advanced degree may be explained in large part by the incentives in place for more experienced teachers to continue their education to move up on their district pay scale.

Teaching experience. Emergency permit holders are required by the state to secure a preliminary credential within five years of teaching in the public school system and interns are required to do so within two years — so as a group, teachers without full credentials tend to be less experienced than credentialed teachers. Statewide data show that teachers without full credentials report having an average of 3.2 years of experience. Some teachers without full credentials are very experienced, but not many. Approximately 3,300, or about 8 percent of teachers without full credentials, report that they have between six and 10 years of teaching experience, with an additional 1,600, or about 4 percent, reporting more than 10 years of experience

(Exhibit 4). Given the five-year limit on teaching without a credential, teachers in this group could be reporting teaching experience outside of the public education system or in another state. In comparison, fully credentialed teachers report having an average of 14.9 years of teaching experience, and a majority have 10 or more years of experience (Exhibit 4). Fewer than 10 percent of fully credentialed teachers have two or fewer years of experience.

These data on advanced degrees and years of experience do not support the idea that there are many well-educated, experienced teachers without credentials in our school system. Instead, few teachers without full credentials have significant teaching experience or advanced degrees, and as a group they rank lower on these characteristics than their fully credentialed peers.



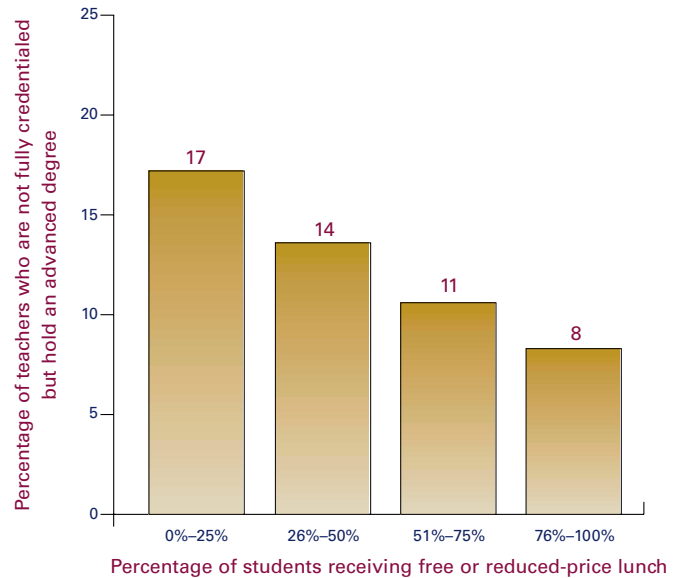
Distribution of California teachers by education level

We demonstrated previously that teachers without full credentials are more likely to teach in schools that have low test scores or that serve high proportions of poor or minority students. In addition, a close look at only the teachers without full credentials in these schools shows that they are less likely to hold an advanced degree than teachers without full credentials in more-advantaged schools. That is, schools with higher test scores and more-affluent students have far fewer teachers without full credentials to begin with, and the few they have are more educated as a group. Exhibit 5 shows the distribution of teachers without full credentials in schools with different percentages of students receiving free or reduced-price lunch, a proxy for student poverty level.¹³ About 17 percent of teachers without full credentials hold advanced degrees in schools serving few poor students, compared to only about 8 percent in schools serving the highest proportion of poor students.

Although the difference is less striking, the pattern is similar among fully credentialed teachers in schools serving the highest proportion of poor students. Exhibit 6 shows that in schools serving the more-affluent students, about 40 percent of fully credentialed teachers hold an advanced degree, compared with about 34 percent in schools serving the highest proportion of poor students.

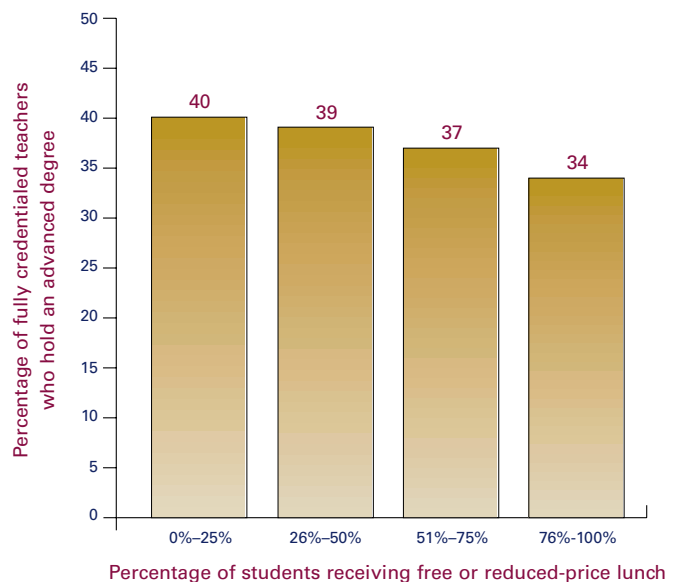
The pattern for teachers without full credentials is similar when the data are disaggregated by the proportion of minority students in the school. Exhibit 7 shows that almost one-fifth of teachers without full credentials in schools with 30 percent or fewer minority students hold

Exhibit 5
Schools with More Poor Students Have Fewer Teachers Who Are Not Fully Credentialed But Hold an Advanced Degree



Source: SRI analysis of 1999-2000 and 2000-01 CDE data¹⁴

Exhibit 6
Schools with More Poor Students Have Fewer Fully Credentialed Teachers Who Hold An Advanced Degree

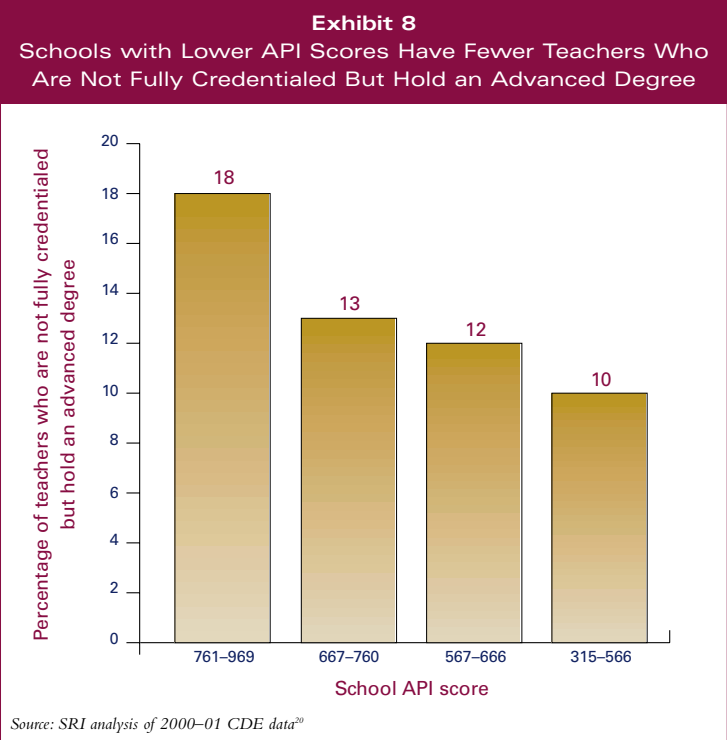
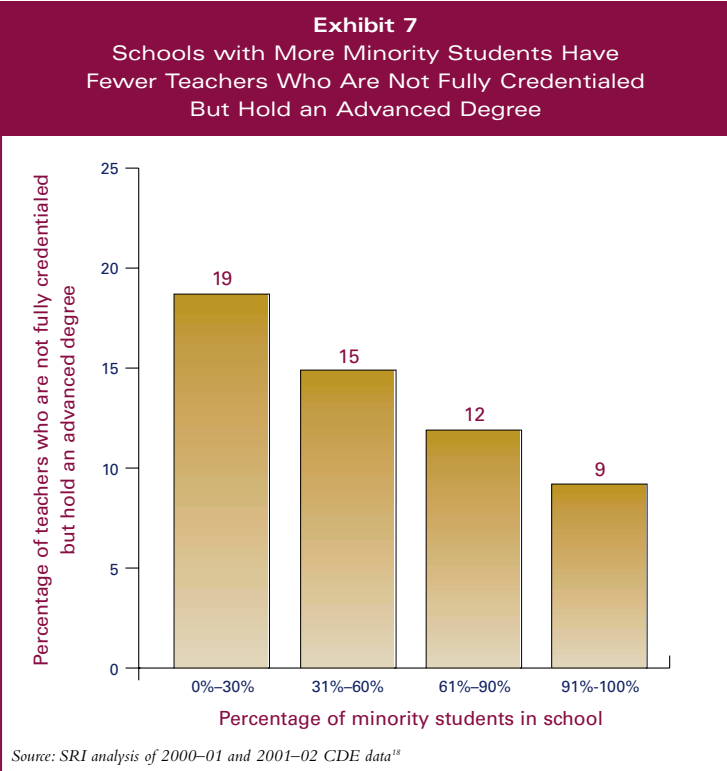


Source: SRI analysis of 2000-01 CDE data¹⁵

advanced degrees, compared with fewer than 10 percent of teachers without full credentials in schools serving 91 percent or more minority students.¹⁶ In other words, teachers without full credentials in “low-minority” schools are twice as likely to hold advanced degrees as teachers without full credentials in “high-minority” schools. Interestingly, the distribution of fully credentialed teachers with advanced degrees is nearly even across schools with different proportions of minority students, with a slightly lower percentage in schools with the fewest minority students, a break from the pattern shown thus far.¹⁷

When we examine schools of varying achievement levels, we find that those schools that are most in need of good teachers have more teachers without full credentials and, of those, more who do not hold advanced degrees. Exhibit 8 shows that in those schools that are performing the highest on the API, almost 18 percent of teachers without full credentials hold advanced degrees, compared with only about 10 percent of teachers in schools performing the lowest on the API. Fully credentialed teachers with advanced degrees are distributed almost evenly, with a slightly greater percentage in those schools with the highest API scores than in those with the lowest API scores.¹⁹

These averages tell only part of the story of the distribution of teachers with advanced degrees. Across California, schools vary greatly in the number of teachers with advanced degrees they employ. In 19 percent of schools, half or more of the teachers on staff hold advanced degrees, and in 6 percent of schools, two-thirds of teachers hold advanced degrees.



Other schools are not as fortunate: 15 percent of schools have 15 percent or fewer teachers with advanced degrees, and 5 percent of schools have no teachers with advanced degrees. That is, although 36 percent of California’s teacher workforce holds advanced degrees, about 470 schools across the state do not employ any of them.

Distribution of California teachers by experience

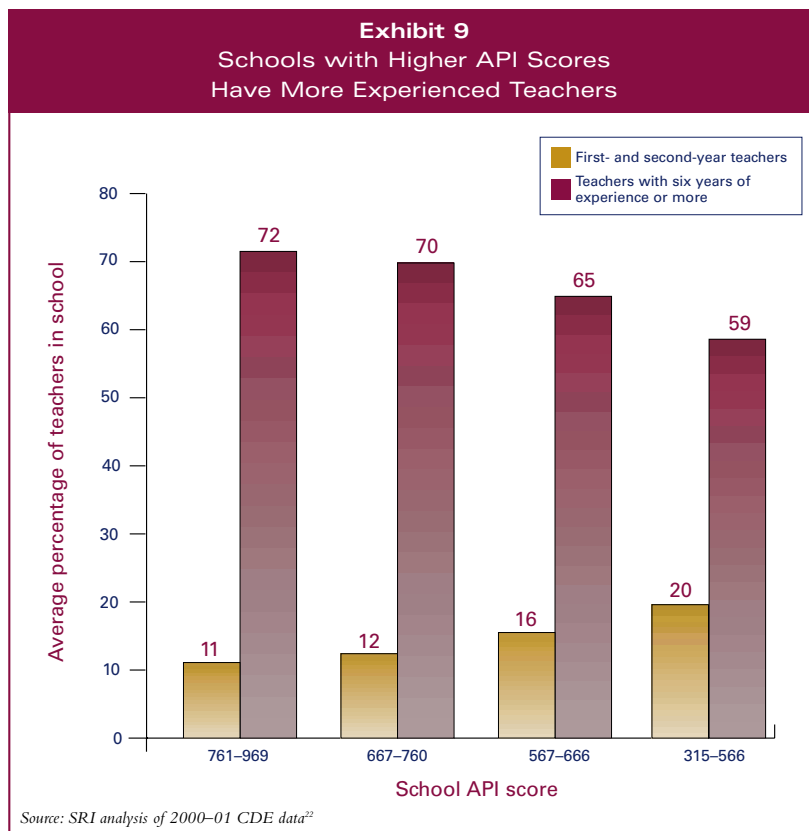
Fully credentialed teachers in more advantaged schools also are more likely to be slightly more experienced as a group. In schools with less than 25 percent of students receiving free or reduced-price lunch, fully credentialed teachers have an average of 15.1 years of experience, and 76 percent of them have six years of experience or more. In schools with 75 percent to 100 percent of students receiving free or reduced-price

lunch, fully credentialed teachers have less experience on average — at 13.8 years — and 73 percent of them have at least six years of experience.

The pattern is similar in schools with the most minority students and the lowest API scores. That is, on average, fully credentialed teachers in these schools have slightly less experience than fully credentialed teachers in schools with the fewest minority students and the highest API scores.

The distribution of teachers without full credentials by years of teaching experience is somewhat more difficult to interpret. Because California policy limits the number of years for which an emergency credential can be renewed, there is less variation in the number of years of experience reported by teachers without full

credentials than in the number of years reported by fully credentialed teachers. On average, the distribution of teachers without full credentials who have various years of experience is fairly even across schools with different percentages of minority and poor students and with differing API scores. However, in those schools with the most minority and poor students and those with the lowest API scores, slightly fewer teachers without full credentials report having six or more years of experience.²¹



Concentration of new teachers

Regardless of credential status, new teachers tend to need more support than more experienced teachers. The more new teachers there are in a school, the greater the challenge of inducting them into the profession through the support of their more experienced peers. Schools that have more new teachers also, of course, have fewer veteran teachers, meaning that there are fewer colleagues to provide the needed support. As we have reported previously, the ratio of new to experienced teachers varies by key school characteristics. Exhibit 9 shows that in schools with the highest API scores, about 11 percent of teachers on average have one to two years of experience — the period during which teachers need the most support — while 72 percent have at least six years of experience, making them likely to be able to take on mentoring or other leadership roles. In schools with the lowest API scores, the breakdown looks somewhat different. Here, about 20 percent of teachers on average have one to two years of experience, and 59 percent have six or more years of experience. In other words, the lower a school's API score, the more new teachers and the fewer veteran teachers it is likely to have. In the higher-achieving schools, there are nearly seven veteran teachers to support every

new teacher in the school. In contrast, there are just three veteran teachers for every new teacher in the lowest-performing schools.

These data show the average percentages of new and experienced teachers in schools with different API scores. However, the averages mask wide variation among schools. Statewide, about 17 percent of schools have no first- or second-year teachers, and 43 percent of schools have 10 percent or fewer first- and second-year teachers. In the latter schools, there likely are enough experienced teachers to support new teachers, and administrators do not have to dedicate an inordinate amount of time to recruiting, hiring and retaining them. At the other end of the spectrum, 17 percent of schools — or almost 1,500 schools — have 25 percent or more first- and second-year teachers. Eight percent of schools have 33 percent or more first- and second-year teachers. In other words, in 700 California schools, at least one-third of the teachers are in their first or second year.²³ Our case studies show that these schools must devote significant administrative time and resources to hiring, supporting and trying to retain new teachers, leaving less time for curricular and pedagogical leadership.²⁴

Of course, there always will be new and inexperienced teachers in our schools, and schools are expected to provide them with the support they need. However, no school is well equipped to induct and support a large proportion of new teachers. In addition, when a school has a large percentage of inexperienced teachers, the students at that school are likely to be taught by several new teachers over the years. As is demonstrated above, it is these schools that typically serve the highest proportions of poor, minority and low-achieving students.



Do All of California's Students Have an Equal Opportunity To Succeed?

The data present a clear picture: Teachers who have those characteristics often associated with quality — a credential to teach, an advanced degree, at least several years of teaching experience — are less likely to teach in schools with many poor, minority or low-achieving students. Although there may be some teachers without full credentials who fit the anecdotal ideal of a well-trained, well-educated professional, the data show that these are few and far between. Those few are less likely to be teaching in the schools that serve our neediest students. Rather, these students are most likely to be taught by new teachers who lack experience, who are not educated beyond the bachelor's degree level and, in many cases, who have not met California's minimum requirements for teacher certification. Although no single teacher characteristic may have been proven to be a direct measure of quality, the consistent maldistribution of the characteristics for which we have data raises serious questions about whether all students are getting an equal chance.

The questions are even more serious when the impact of a concentration of inexperienced teachers, or teachers without full credentials, in a single school is considered. A commonsense approach tells us that we would not want our own children in a school where, year after year, they do not have the benefit of a fully credentialed, experienced, well-educated veteran. Our case studies confirm that schools with very high numbers of teachers who are new and do not

have credentials often are not well-functioning learning environments, but rather operate in a near-crisis mode to combat teacher turnover and keep the school adequately staffed. In many cases, these schools are not able to find permanent staff members for each classroom and must employ a string of substitutes to head a single classroom for part of the school year. It is unlikely that students in these schools have the same opportunities for academic success as their peers in more-affluent, well-staffed schools.

In focusing this paper on teachers without credentials and with less education and experience, we are not arguing that these teachers have no strengths and no potential to be great teachers. Our case study work suggests just the opposite. Teachers without credentials working in the state's schools tend to be exactly the kind of individual we want there: committed to teaching, eager to help students learn and willing to work hard to succeed. They are, in short, very similar to the individuals who entered the profession in earlier years with the benefit of a credential. The difference, of course, is that today's teachers without credentials do not have the benefit of such preparation and that the system of preparation in which they are participating is not designed to support them appropriately and often does not prove beneficial to them or to their students.

These findings point to several important directions for future discussion and policy, particularly as California moves ahead with the implementation of No Child Left Behind.

Clearly, policymakers must continue to pursue strategies that promote training new teachers before they go into the classroom, to maximize teachers' and students' chances for success. Further, it is critical that we have financially attractive, high-quality routes into teaching with adequate support once new teachers reach the classroom and that prospective teachers have real incentives to take these routes, rather than taking a teaching job before they are ready. As we see from the statewide teacher workforce data, the policy community additionally must ensure that the best, most-experienced and most-educated teachers are distributed evenly among our schools to provide high-quality instruction for children and also high-quality support to less-experienced teachers. The consistent maldistribution of teachers raises the question of how

to attract high-quality staff to certain types of schools. It is critical that policymakers continue to pursue this question and seek solutions to the problems. Ideally, our most-qualified individuals would be teaching the students who need the most help, giving them a fair chance for success in our changing and challenging system.



Endnotes

¹See Shields, P. M., Esch, C. E., Humphrey, D. C., Young, V. M., Gaston, M., & Hunt, H. (1999). *The status of the teaching profession: Research findings and policy. A report to the Teaching and California's Future Task Force*. Santa Cruz, CA: The Center for the Future of Teaching and Learning.

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²See Wayne, A., & Youngs, P. (2001). *Teacher characteristics and student achievement gains: A review*. Paper presented at the annual meeting of the Association for Public Policy Analysis and Management, Washington, DC.

³See Wilson, S., Floden, R., & Ferrini-Mundy, J. (2001). *Teacher preparation research: Current knowledge, gaps, and recommendations*. Seattle, WA: Center for the Study of Teaching and Policy.

⁴See National Commission on Teaching and America's Future. (1996). *What matters most: Teaching for America's future*. New York: Author.

Rivkin, S., Hanushek, E., & Kain, J. (2001). *Teachers, schools, and academic achievement*. Dallas, TX: Cecil & Ida Green Center for the Study of Science and Society.

⁵See Esch, C. E., Shields, P. M., & Young, V. M. (2002). *Strengthening California's teacher information system*. Santa Cruz, CA: The Center for the Future of Teaching and Learning.

⁶See Lankford, H., Loeb, S., & Wyckoff, J. (2002). Teacher sorting and the plight of urban schools: A descriptive analysis. *Educational Evaluation and Policy Analysis, 24*(1), 37–62.

⁷See Shields, et al. (2001).

⁸Each API category represents one-quarter of the schools in California for which API scores were reported.

⁹California Department of Education (CDE), Office of Policy and Evaluation. (2001a). *API 2001 Base*. Retrieved April 2002 from the World Wide Web: www.cde.ca.gov/psaa/api/yeartwo/base/apiyr2data.htm.

California Department of Education (CDE), Educational Demographics Unit. (2001b). *CBEDS Professional Assignment Information Form (PAIF) 2000–2001*. Retrieved April 2002 from the World Wide Web: www.cde.ca.gov/demographics/files/paif.htm.

¹⁰CDE (2001a) and CDE (2001b).

¹¹CDE (2001b).

¹²CDE (2001b).

¹³The number of schools and the percentage of California schools in each poverty category are as follows:

Poverty category (percentage of students in school receiving free or reduced-price lunch)	Number of California schools	Percentage of California schools
0%–25%	2,638	31%
26%–50%	1,884	22%
51%–75%	1,918	23%
76%–100%	2,031	24%

¹⁴CDE (2001b) and California Department of Education (CDE), Educational Demographics Unit. (2000). *Free and reduced price meals/CalWORKS - 2000 school level file*. Retrieved April 2002 from the World Wide Web: www.cde.ca.gov/demographics/files/afdc.htm.

¹⁵CDE (2001b).

¹⁶The number of schools and the percentage of California schools in each minority category are as follows:

Minority category (percentage of minority students in school)	Number of California schools	Percentage of California schools
0%–30%	1,953	22%
31%–60%	2,339	27%
61%–90%	2,603	30%
91%–100%	1,790	21%

¹⁷CDE (2001b) and California Department of Education (CDE), Educational Demographics Unit. (2001c). *2001–02 enrollment, by ethnic group, by school*. Retrieved April 2002 from the World Wide Web: www.cde.ca.gov/demographics/files/ethsch.htm.

Detail on distribution of fully credentialed teachers who hold advanced degrees, by percentage of minority students in school:

Percentage of minority students in school	0%–30%	31%–60%	61%–90%	91%–100%
Percentage of fully credentialed teachers with advanced degrees	36%	39%	39%	39%

¹⁸CDE (2001b) and CDE (2001c).

¹⁹CDE (2001a) and CDE (2001b).

Detail on distribution of fully credentialed teachers who hold advanced degrees, by school API score:

School API score	315–566	567–666	667–760	761–969
Percentage of fully credentialed teachers with advanced degrees	37%	37%	37%	39%

²⁰CDE (2001a) and CDE (2001b).

²¹Specifically, 12.2 percent of not fully credentialed teachers in schools with the most minority students have six or more years of experience, compared with 13.8 percent of not fully credentialed teachers in schools with the fewest minority students. Eleven and a half percent of not fully credentialed teachers in schools with the highest proportion of poor students have six or more years of experience, compared with 12.5 percent of not fully credentialed teachers in schools with the fewest poor students. Similarly, 11.5 percent of not fully credentialed teachers in schools with the lowest API scores have six or more years of experience, compared with 12.7 percent of not fully credentialed teachers in schools with the highest API scores. It should be noted that an additional problem with interpreting these data is that it is difficult to discern whether not fully credentialed teachers who report six or more years of experience have teaching experience outside of the public system or the state (and are likely to be somewhat attractive to employing schools) or are somehow evading the credential requirement (and may be less attractive to schools).

²²CDE (2001a) and CDE (2001b).

²³CDE (2001a) and CDE (2001b).

²⁴See Shields, et al. (1999 and 2001).



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