

New Teachers' Experiences of Hiring: Preliminary Findings from a Four-State Study

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INTRODUCTION

Recent projections that the United States will need to hire 2.2 million new teachers during this decade (Hussar, 1999) lend new urgency to old concerns about the quality and composition of the teaching force. As the nation struggles to equip all students with the skills necessary to thrive in a changing society and economy, educators and policy makers are returning to a focus on teacher quality as a critical component of school reform. Efforts to improve the teaching force, however, are colliding with teacher shortages and with new conceptions of career that are altering how individuals approach careers in teaching (Peske, Liu, Johnson, Kauffman, & Kardos, 2001).¹

Despite increased attention paid to the importance of preparing and supporting new teachers, there has been little empirical research on how teachers are hired and even less on teachers' experiences with the hiring process. Most existing studies of teacher hiring were conducted at a time of teacher surplus rather than shortage. They also tended to analyze hiring from the perspective of districts and schools, thus depicting it as a one-way process in which schools evaluate candidates, and obscuring the role hiring also plays in providing information and signals to applicants.

This paper explores how new teachers are being hired and the extent to which the hiring process provides opportunities for prospective teachers and schools to collect rich information about, and form accurate impressions of, one another. It presents some preliminary findings from a four-state survey of 486 new teachers sponsored by The Project on the Next Generation of Teachers (PNGT).

Analysis of the data reveals that the majority of new teachers in the four states are hired through a decentralized process. Despite this, however, most new teachers have limited interactions with school-based personnel as part of the hiring process. While the vast majority of new teachers interview with the school principal, relatively few interview with teachers, department chairs, students, or parents at the school. Data also

¹ These shortages are particularly intense in urban and rural school districts and in math, science, foreign language, bilingual education, and special education. While the recent downturn in the economy has ameliorated some of these shortages, there will still be a need to replace a large cohort of retiring teachers and to fill openings created by persistently high rates of teacher turnover and attrition.

suggest that the hiring process relies heavily on paper credentials and interviews, and that schools and districts make very little use of observations. Only 7.5 percent of the new teachers in the four-states are observed teaching a sample lesson as part of the hiring process (the individual state percentages range from 6.9 percent in CA to 19.6 percent in MA). Finally, many new teachers are hired quite late. In California and Florida, for instance, one in three new teachers is hired after the start of the school year.

Taken together, these and other findings suggest that many schools are not taking full advantage of decentralized hiring and its potential for improving the amount and quality of information exchanged between teaching candidates and those who do the hiring. In other words, the hiring process that many new teachers experience, while school-based, is still not very interactive. As a result, new teachers in California, Florida, Massachusetts, and Michigan form only moderately accurate pictures of their schools, prior to accepting their initial teaching positions. This may have implications for the fit between new teachers and their schools, and for new teacher satisfaction and retention.

BACKGROUND

Recent research suggests that public schools may not be hiring the best applicants (Ballou, 1996; Ballou & Podgursky, 1998). Using pooled data from the *Surveys of Recent College Graduates* (1976-1991), Ballou (1996) found that certain indicators of a strong academic background “do little to improve [and, in some cases, hurt] the prospects of an applicant for a public school teaching position” (p. 120). This pattern, he noted, contrasts starkly with those in other fields. Ballou, however, paid little attention to the policy and organizational constraints within which school officials conduct hiring, and he did not examine hiring practices.

In contrast, other researchers (David, 1988; Shivers, 1989; Wise, Darling-Hammond, & Berry, 1987) studied teacher hiring qualitatively and found important differences in how districts organized and conducted it. Districts differed in how they centralized or decentralized hiring processes, what information they used to assess candidates, and how they treated candidates.

How Hiring is Organized – The degree to which hiring processes are centralized influences how districts, schools, and applicants exchange information, and, potentially, how applicants experience hiring. In centralized hiring, the district office carries out most of the hiring activities, relies on standardized procedures, and uses generic job descriptions, interview protocols, and/or criteria for evaluating candidates (Shivers, 1989; Wise et al., 1987). In this arrangement, the specific characteristics of teaching vacancies (e.g., subject area, grade level) and the particular needs of local contexts (e.g., student population served, professional culture of the school) are not factored into the hiring equation until the late stages of the process, if at all. Indeed, in some cases, districts hire new teachers on the basis of their general qualifications and then find some place to assign them (Wise et al., 1987). As a result, candidates may receive little information about specific positions and thus have little basis on which to evaluate the fit between their own skills, interests, and expertise and the positions that they are considering and for which they are being considered.

In contrast, in decentralized hiring, schools (and the individuals within them) carry out the activities and decision-making, and tend to pay more attention, earlier in the process, to whether candidates fit the requirements of a specific position and/or the needs and culture of the school. Principals and teachers (and, sometimes, students and parents) often devise their own criteria, activities, and interview questions for evaluating candidates (Wise et al., 1987).

Most school districts, of course, fall somewhere between these two extremes and divide hiring activities between the central office and the school site (Wise et al., 1987). Typically, early hiring activities, such as the initial screening of paper credentials, are performed by a district's central office, while others, such as the final decision on whom to hire for a specific position, are conducted by school-based administrators.

Hiring, Fit, and New Teacher Satisfaction – Theory suggests that decentralized hiring has the potential to provide teaching candidates and schools with more (and better) information about one another and, thus, facilitate better matches between them. Better matches—or closer fit between new teachers' skills, interests, and expertise and the positions that they obtain—are important both for improving the functioning of schools, as well as for improving teacher satisfaction and addressing teacher shortages. Over the

past decade there has been growing consensus among researchers and policy makers about the importance of giving individual schools more control over how they organize their work (Little, 1990; Murnane & Levy, 1996; Rosenholtz, 1989). Control over hiring decisions is said to be essential for building and maintaining effective teams, and for building organizational capacity (Newmann, Wehlage, & Rigdon, 1997). Research has also pointed to the importance of teacher collegiality and teamwork as critical components of school improvement (Newmann & Wehlage, 1995; Talbert & McLaughlin, 1996).

By fostering better matches between individuals and their teaching positions, decentralized hiring may also lead to more satisfying initial experiences in the profession. The importance of hiring in addressing teacher shortages emerged from an earlier qualitative study that I conducted with the Project on the Next Generation of Teachers (Peske et al., 2001). In that study, my colleagues and I did not set out to examine teacher hiring, but it emerged as an important factor as new teachers described their initial teaching experiences. We found that many new teachers are approaching teaching tentatively or conditionally, rather than as a lifelong career. If teaching does not fit their interests and skills, they may choose not to teach or to leave after a short time. From this, I hypothesized that schools' and districts' hiring practices might play an important role in determining whether there is an appropriate fit between new teachers and their schools and that this fit (or lack thereof) might influence their satisfaction and retention.

This hypothesis is consistent with research in organizational behavior and management studies that has found links between person-organization or person-job fit and work outcomes such as job satisfaction and intentions to quit (Cable & Judge, 1996; Kristof, 1996; Rynes, Bretz, & Gerhart, 1991). Very few of these studies, however, have examined person-organization fit between teachers and schools. Moreover, as Kristof (1996) notes in her review of the person-organization fit literature, we still do not have a clear understanding of how specific recruitment or hiring activities affect levels of person-organization fit.

Taken together, the existing literature suggests the following hypotheses linking the organization of teacher hiring to the experiences of new teachers: (1) Decentralized, highly interactive hiring may, on average, facilitate better information exchange between

hirers and prospective teachers; (2) This may contribute to a better fit between new teachers and their positions; (3) New teachers who experience better fit may, on average, be more satisfied with teaching at their school and with teaching in general.

Research Questions ³/₄ This paper addresses three related research questions:

1. How are new teachers currently being hired in California, Florida, Massachusetts, and Michigan? For instance, how prevalent is centralized hiring versus decentralized hiring? How interactive is the hiring process?
2. Do new teachers report that the process they experienced provided them with accurate previews of their jobs and schools?
3. From the point of view of new teachers, to what extent do their current teaching positions provide a good fit with their individual interests, skills, and expertise?

The preliminary findings presented in this paper are descriptive. Future papers will use regression analysis to explore the relationship between hiring practices, the fit between new teachers and their schools, and new teacher satisfaction.

RESEARCH DESIGN

My colleague at the Project on the Next Generation of Teachers, Susan Kardos, and I worked together on this study. Collaboratively, we designed this four-state study and the one-state pilot study upon which it is built (Kardos, 2001; Liu, 2002; Liu & Kardos, 2002); however, our individual studies are each guided by our own research questions. Thus, the survey instrument that we administered contained distinct sections, and we conducted (and will continue to conduct) analyses separately. While I explore teacher hiring, Susan explores professional culture. Our work, however, is closely linked.

Sites

We conducted this research in four states: California, Florida, Massachusetts, and Michigan. We chose these states because they share some key policy features and because they are diverse in terms of size, population, and geographic location. All four states are experiencing some degree of teacher shortage; all have alternative routes to

certification; all have charter school legislation; all have adopted standards in core subjects; all use criterion-referenced assessments aligned to standards; and all are collective bargaining states (see Table 1). Notably, there is considerable variation across the four states in terms of size of state, student population, school sizes, student achievement, teacher salaries, per pupil spending, teacher participation in alternative routes to teaching, number of charter schools, and percent of teachers from accredited teacher education programs.

Table 1: Summary of State Level Characteristics of California, Florida, Massachusetts, and Michigan.

Source: *Education Week's "Quality Counts 2003: The Teacher Gap"* (Editors, 2003).

	CA	FL	MA	MI
Number of Public Schools	8,757	3,231	1,898	3,743
Number of Public School Teachers	305,000	136,000	69,000	97,000
Number of Public School Students (pK-12)	6,248,000	2,500,000	980,000	1,734,000
Percent Minority Students	62.6%	46.5%	24.2%	25.3%
Percent Children in Poverty	22.8%	21.9%	14.3%	16.8%
Percent Students with Disabilities	10.7%	15.0%	16.3%	13.4%
Percent English-language Learners	24.9%	9.9%	4.6%	2.6%
Percent of Students in Elementary Schools with 350 or Fewer Students (2001)	6%	3%	27%	28%
Percent of Students in High Schools with 900 or Fewer Students (2001)	11%	6%	33%	37%
Percent of 8 th Graders Scoring at or above proficient on NAEP math 2000	18%—TOTAL 27%—White 4%—Black 7%—Hispanic	N/A	32%—TOTAL 37%—White 8%—Black 14%—Hispanic	28%—TOTAL 35%—White 2%—Black 9%—Hispanic
Statewide Graduation Rates	66%	55%	73%	N/A
State Average Education Spending per Student (adjusted for regional cost differences)	\$8,479	\$8,429	\$6,161	\$6,512
Average teacher <i>starting</i> salaries, adjusted for the cost of living (2001)	\$27,177	\$27,387	\$27,198	\$30,188
Average teacher salaries, adjusted for cost of living (2001)	\$43,061	\$40,604	\$41,773	\$51,868
Number of Charter Schools	452	232	47	186
Number of Participants in State Alternative Route Programs	7,098	180	200	N/A
Percent of Graduates from NCATE-accredited Teacher Education Programs (2001)	58%	79%	76%	69%

Sampling Procedures

The sample consists of 486 first-year and second-year, K-12 public school teachers (excluding Arts and Physical Education). To draw the sample, we used two-stage stratified cluster sampling (Levy & Lemeshow, 1999; Light, Singer, & Willett, 1990; Louis M. Rea & Richard A. Parker, 1997), which we tested in our New Jersey pilot study. In stage 1 of our sampling process, we stratified the sample by state, school level (elementary, middle, high)², and school type (charter, non-charter), in order to ensure adequate representation along each stratum. We drew a total of 258 schools: 59 in California, 58 in Florida, 62 in Massachusetts, and 79 in Michigan. We over-sampled in the smaller states and under-sampled in the larger ones to enable us to conduct supplementary analyses within each state. In addition, more schools were drawn in Michigan, because Michigan is experiencing a teacher shortage to a lesser extent than the other three states; sixty Michigan schools would not have yielded enough new teachers for our sample. Similarly, we over-sampled charter schools to facilitate future subgroup analysis. In analyses in which all states are included, we incorporated sampling weights to correct for the over- and under-sampling. Seventy-two percent of the schools selected agreed to participate (see Table 2): 64% of California schools; 71% of Florida schools; 82% of Massachusetts schools; and 71% of Michigan schools. See Appendix 1 for a flowchart depicting the sampling plan.

Table 2: Total Number of Schools and Teachers Sampled; Number of Respondents; and Response Rates by State.

STATE	NUMBER SAMPLED (N)	NUMBER RESPONDED	RESPONSE RATE
Stage 1^{3/4} Schools			
CA	59	38	64%
FL	58	41	71%
MA	62	51	82%
MI	79	56	71%
TOTAL	258	186	72%
Stage 2^{3/4} Teachers			
CA	187	112	60%
FL	179	113	63%
MA	215	144	67%
MI	170	117	69%
TOTAL	751	486	65%

² Elementary, middle, and high schools differ in how they are organized and in how specialized their teaching positions are. This may influence how they conduct hiring. It is, therefore, important to ensure that the sample does not contain a disproportionate number of high schools, which might result from just sampling proportional to size.

In order to improve the ultimate precision of parameter estimates in our analyses, we drew the sample of schools in proportion to the number of students in each school, which served as a proxy for the number of new teachers, an unknown quantity (Levy & Lemeshow, 1999). We contacted principals in each of the schools and asked for names of all first-year and second-year academic teachers. We sent each principal an introductory letter followed by a phone call, asking for names and teaching assignments of all first-year and second-year teachers in the building. We followed up with non-responding schools with additional (weekly or biweekly) mailings and phone calls over the course of two months.

All new teachers in each randomly selected school were included in the sample (Stage 2 of our sampling process).³ We were given the names of 751 first-year and second-year teachers, and achieved a response rate of 65% (486 teachers) using strategies devised in our pilot-study (Dillman, 1991; Kardos, 2001; Keiley, 1996; Liu, 2002) where we achieved a 79% response rate. Our individual response rates for this 4-state study are as follows: 60% in CA; 63% in FL; 67% in MA; and 69% in MI. See Table 2.

Data Collection Procedures

Each identified new teacher received an introductory letter quickly followed by the questionnaire with an accompanying cover letter. As an incentive to participate, all respondents who returned completed surveys were sent a \$15 gift certificate for Amazon.com. After approximately two weeks, we sent reminders to non-respondents. After approximately two more weeks, we sent non-respondents second reminders and new questionnaires. After two more weeks, we sent third reminders.⁴ We continued to follow up with reminders until our data collection time expired in June 2002, and we achieved what we considered to be a respectable response rate.

³ Because we included all of the new teachers at a school in our sample, each new teacher's probability of being selected was equal to the probability of her or his school being selected at the first stage of our multi-level sampling procedure. Because schools entered the sample in proportion to school size, they (and thus teachers in different schools) had different probabilities of being selected. To correct for this, we applied sampling weights for each teacher equal to the inverse of the probability of her or his school being selected at the first stage.

⁴ Our communiqués are modeled on Keiley (1996) who achieved a 91% response rate in her dissertation study.

Sample

Our sample consists of 486 first-year and second-year teachers from four states: California, Florida, Massachusetts, and Michigan. See Table 3 for a description of the sample.

Limitations of the Sample — Analysis of patterns of response and non-response suggests that we have a reasonably representative sample. To explore possible sources of selection bias, we used data from our survey and public sources to compare the group of responding schools to the group of non-responding schools, and the group of responding teachers to the group of non-responding teachers.

There are no statistically significant differences between responding and non-responding schools in terms of the following measures: average faculty size, average size of student population, percentage of students eligible for free or reduced price lunch, eligibility for Title I funds, and percentage of Black and Hispanic students. This is true for both the full 4-state sample and the individual state samples. One possible source of bias, however, is school level. In California, the group of responding schools included a much lower proportion of middle schools than the group of non-responding schools. In Florida, the responding schools included a higher proportion of elementary schools and a lower proportion of middle schools than the non-responding schools. However, in Massachusetts and Michigan, there appear to be no significant group differences in school level.

At the level of the individual teacher, there are no (or very minor) differences between responding teachers and non-responding teachers in terms of the following: gender, teaching experience (first year or second year), school type (charter school or conventional), grade level, primary teaching assignment, and school locale (urbanicity). One notable exception is that, in Michigan, non-respondents were more likely to teach in urban schools and schools with higher proportions of Black and Hispanic students than respondents.

Table 3: Description of Full Sample (unweighted statistics) and of Sample By State.

	4-States (n=486)		CA (n=112)		FL (n=113)		MA (n=144)		MI (n=117)	
	n	%	n	%	n	%	n	%	n	%
Teaching Experience										
First Year	252	51.9%	59	52.7%	58	51.3%	83	57.6%	52	44.4%
Second Year	234	48.2%	53	47.3%	55	48.7%	61	42.4%	65	55.6%
Gender										
Female	372	76.5%	84	75.0%	88	77.9%	110	76.4%	90	76.9%
Male	114	23.5%	28	25.0%	25	22.1%	34	23.6%	27	23.1%
Race										
American Indian / Alaskan	3	0.6%	1	0.9%	1	0.9%	0	0.0%	1	0.9%
Asian or Pacific Islander	14	2.9%	9	8.1%	1	0.9%	2	1.4%	2	1.7%
Black / African American	30	6.2%	2	1.8%	18	15.9%	3	2.1%	7	6.0%
Hispanic / Latino	38	7.9%	22	19.8%	14	12.4%	2	1.4%	0	0%
White	385	79.9%	73	65.8%	74	65.5%	132	93.0%	106	91.4%
Biracial/Multiracial	4	0.8%	3	2.7%	1	0.9%	0	0%	0	0%
Other	8	1.7%	1	0.9%	4	3.5%	3	2.1%	0	0%
Career Stage										
First-Career Entrant	284	58.4%	55	49.1%	63	55.8%	75	52.1%	91	77.8%
Mid-Career Entrant	202	41.6%	57	50.9%	50	44.2%	69	47.9%	26	22.2%
Age										
21-29	310	63.8%	61	54.5%	67	59.3%	91	63.2%	91	77.8%
30-39	95	19.6%	28	25.0%	26	23.0%	26	18.1%	15	12.8%
40-49	58	11.9%	17	15.2%	14	12.4%	19	13.2%	8	6.8%
50-57	23	4.7%	6	5.4%	6	5.3%	8	5.6%	3	2.6%
Grade Level										
Elementary	263	54.1%	53	47.3%	71	62.8%	73	50.7%	66	56.4%
Middle School	94	19.3%	11	9.8%	25	22.1%	33	22.9%	25	21.4%
High School	129	26.5%	48	42.9%	17	15.0%	38	26.4%	26	22.2%
School Type										
Conventional	370	76.1%	94	83.9%	83	73.5%	111	77.1%	82	70.1%
Charter	116	23.9%	18	16.1%	30	26.6%	33	22.9%	35	29.9%

Measures

I measured new teachers' experiences of hiring using an 85-item survey instrument that I administered to the sample of teachers. I designed this instrument based on a review of the hiring and questionnaire-design literatures (L. M. Rea & R. A. Parker, 1997; Sudman & Bradburn, 1982) and the *NCES School and Staffing Survey* (1999-2000). The survey instrument contains items that:

- request basic demographic information about the new teachers (Age, Gender, Race, Marital Status, Educational Level);

- request information from the new teachers about their teacher preparation, school workplace, current teaching assignments, career stage, and views on career;
- ask about the people with whom teachers interacted during the hiring process, the materials they were asked to submit, and the activities they were asked to do as part of their applications;
- ask new teachers to characterize, in broad terms, the type of hiring that they experienced from decentralized to centralized (a categorical variable, CENTRAL);
- ask new teachers about the fit between their skills, interests, and expertise and the positions they ultimately obtained (these items are composited to form a measure of fit with position, FITJOB, and fit with school, FITSCH);
- measure to what extent the hiring process provided candidates with information that might have helped them develop an accurate picture of the position and school (these items are composited to form a measure, PREVIEW);
- measure the new teachers' satisfaction with their schools and with teaching (SATSCH and SATTCHG).

STATISTICAL ANALYSES

In all of my data analyses, I use estimation methods that are appropriate for the complex design of my survey sample, with suitable cluster, strata, and sample weight designations incorporated into the analyses. To avoid biased point estimates and standard errors as a result of clustering and stratification effects, I use a family of commands in STATA Version 6 that are specifically designed to handle survey data.

To answer the question of how new teachers in the four states are being hired, I summarize several measures of hiring, calculating descriptive statistics and displaying data in a series of tables and charts for the four states together and for each state individually. Because of its size, California dominates our four-state sample and the responses of California teachers are weighted quite heavily in calculations of averages or proportions for the full four-state sample. In reporting findings below, I break out data by

state and indicate when state level differences are statistically and substantively important.

I also develop and summarize a composite measure (PREVIEW) that captures the extent to which new teachers report that the hiring process provided them with accurate pictures of their job and school. To do this, I conduct item analysis (examining contributions to Cronbach's Alpha Internal Consistency Reliability) and use principal components analysis to create a composite from the various sub-items.

To explore the fit between new teachers and their positions, I develop and summarize two composite measures (FITJOB, FITSCH), which I create using item analysis and principal components analysis.

PRESENTATION AND DISCUSSION OF FINDINGS

How New Teachers Are Being Hired

Locus of Control and Activity

Decentralized hiring is quite prevalent in the four states studied. A little less than half of new teachers (45.9 percent) in the pooled group of four states report experiencing a *highly decentralized* hiring process for their current position. These individuals applied directly to and were offered a position by a specific school. Another thirty-one percent (30.9 percent) report experiencing a *moderately decentralized* hiring process—i.e., they were first screened by the district central office but were then interviewed and offered a position by a specific school. Finally, between one fifth and one quarter of new teachers (23.2 percent) in the four states experienced either a *moderately or a highly centralized* hiring process. They were offered a job by the district central office, though afterwards some had to continue interviewing within the district to find a specific teaching position, while others were assigned to a specific position by the central office. See Table 4 for a summary of new teachers' responses.

reported by total population of new teachers in the pooled group, and by state). Standard errors are in parentheses. Variable name: CENTRAL.

	4-States n=486	CA n=112	FL n=113	MA n=144	MI n=117
HIGHLY DECENTRALIZED: Applied directly to a specific school and was offered a position by that school.	45.9 % (6.9)	44.6 % (7.8)	57.6 % (7.1)	80.0 % (6.2)	45.8 % (7.2)
MODERATELY DECENTRALIZED: Screened by district central office (with no guarantee of job), then interviewed with and offered a job by a specific school.	30.9 % (5.4)	30.9 % 6.1)	31.1 % (5.7)	11.6 % (3.7)	36.9 % (5.3)
MODERATELY CENTRALIZED: Offered a job by district office, then had to interview in the district to find a specific teaching position.	11.2 % (4.3)	11.8 % (4.8)	9.5 % (3.4)	2.7 % (1.7)	4.6 % (2.8)
HIGHLY CENTRALIZED: Offered a job by district central office, then assigned to a specific school by district.	12.0 % (5.8)	12.7 % (6.6)	1.8 % (1.7)	5.7 % (3.2)	12.8 % (3.7)

Note: While some of the differences across states appear large, they are not statistically significant.

The above measure presents a very general description of the types of hiring new teachers in the four states experience. The data seem to suggest that, on average, new teachers spend more time interacting with specific schools than with district central offices. Over three quarters of new teachers experience some form of decentralized hiring (76.8 percent of new teachers in the pooled group of four states, and between 75.5 percent to 91.6 percent in the individual states). However, finer-grain data from other survey items complicate this picture. Data on interviews, submitted materials, and observations suggest that most teachers, even those who report experiencing what might be broadly characterized as decentralized hiring, have rather limited interactions with school-based personnel prior to accepting their positions. This points to an important distinction between the *locus* of hiring activities and the *nature* of these activities. Just because certain schools have control over hiring does not mean they will conduct hiring in ways that take advantage of this control. Decentralized hiring can still be information poor and not very interactive.

Interviews

Interviews are one of most interactive parts of the hiring process and a potentially rich source of information for schools, districts, and teaching candidates. It is not surprising that the vast majority of new teachers in the four states participated in at least one interview for their current positions—though, notably, in Florida one in five new teachers did not participate in any interviews as part of the hiring process.

Overall, new teachers in the four states report participating in an average of 1.64 interviews for their current position. New teachers in Michigan report participating in slightly more interviews (1.86, on average) than new teachers in the other three states (between 1.54 and 1.63, on average), though this difference is not statistically significant.⁵

Table 5: Interviews

Selected weighted statistics regarding interviews for the position that new teachers ultimately obtain, reported by total population of new teachers in the pooled group, and by state (with standard errors in parentheses).

	4-States n=486	CA n=112	FL n=113	MA n=144	MI n=117
Percentage of new teachers who participate in at least one interview for their position*	91.4 % (3.0)	91.7 % (3.4)	80.0 % (5.8)	98.7 % (0.9)	96.8 % (2.4)
Mean number of interviews per teacher for their position	1.64 (.10)	1.63 (.11)	1.54 (.15)	1.61 (.13)	1.86 (.16)

Note: A corrected Chi-Square statistic (converted to an F-statistic) was calculated as a global test of independence. Differences across the states (or at least some of them) are statistically significant if an item is marked by a tilde or asterisk. ~ p<.10; * p<.05; ** p<.01; *** p<.001

More interesting than the number of interviews in which new teachers participate, however, is the range of individuals with whom new teachers interview. Table 6 presents a list of school and district actors and the percentages of new teachers, in the four states as a whole and within each state, who interview with each.

⁵ This may be a matter of insufficient statistical power due to the relatively small samples from each state.

Table 6: The Individuals With Whom New Teachers Interview

Estimated percentages of new teachers (weighted) who interview with the following individuals as part of the hiring process, reported by total population of teachers in the pooled group, and by state (with standard errors in parentheses).

	4-States n=486	CA n=112	FL n=113	MA n=144	MI n=117
School principal~	80.1 % (4.9)	79.4 % (5.6)	74.9 % (5.9)	96.2 % (1.6)	93.6 % (3.0)
Teacher(s) at the school~	45.6 % (7.3)	46.0 % (8.3)	25.4 % (6.8)	52.6 % (7.6)	59.9 % (8.5)
District personnel/HR office*	34.9 % (5.5)	36.1 % (6.2)	13.9 % (4.9)	13.3 % (4.8)	45.1 % (8.8)
Other school administrator(s)	33.2 % (5.5)	33.3 % (6.2)	28.3 % (6.2)	28.8 % (4.5)	38.6 % (8.0)
Department chair at school*	14.7 % (4.1)	14.1 % (4.6)	9.6 % (3.5)	15.5 % (3.7)	31.5 % (5.2)
Parent(s) at the school	9.0 % (4.7)	9.5 % (5.3)	0.0 % (0.0)	18.4 % (7.6)	7.5 % (5.0)
Superintendent~	9.0 % (3.5)	8.3 % (3.9)	0.0 % (0.0)	34.1 % (7.4)	24.9 % (7.3)
Student(s) at the school***	.1 % (.1)	0.0 % (0.0)	0.0 % (0.0)	1.8 % (1.4)	2.4 % (1.5)

Note: A corrected Chi-Square statistic (converted to an F-statistic) was calculated as a global test of independence. Differences across the states (or at least some of them) are statistically significant if an item is marked by a tilde or asterisk. ~ p<.10; * p<.05; ** p<.01; *** p<.001

The school principal appears to dominate the interviewing process. Depending on the state, 74.9 percent to 96.2 percent of new teachers interview with the principal of the school that ends up hiring them. After the principal, the percentage of new teachers who interview with any given school- or district-related individual drops considerably. Less than half of new teachers interview with current teachers at the school—i.e., their potential future colleagues—and only one third (33.2 percent) of new teachers interview with a school-based administrator other than the principal. The percentages of new teachers who interview with parents or students at the school are miniscule. Only about one in ten new teachers in the four-state pool interviews with a parent, and less than one percent of them interview with a student.

Of the four states, Michigan stands out as having hiring processes that are organized to have new teachers interview with a fairly broad range of school people. New teachers in Michigan are somewhat more likely to interview with current teachers, district

HR offices, department chairs and other school-based administrators, and students than new teachers in the other three states.

Overall, however, the data on interviews suggest that, at both the district and school levels, hiring continues to be dominated by administrators. While teachers, parents, and students might have valuable insights for evaluating candidates and might also provide candidates with useful information about what a school is like, relatively few new teachers have opportunities to interact with them, at least in the interview part of the hiring process.

Submitted Materials

Table 7 presents a list of application materials and the percentages of new teachers in the four states who submit each as a part of their application for their current positions. The materials are ordered from the most frequently submitted to the least frequently submitted, for the total population of new teachers in the four states.

The vast majority of new teachers in the four-state pool submit standard paper documents such as resumes, cover letters, academic transcripts, and references. In addition, a sizeable percentage (40.5 percent) submits portfolios, which require more effort to prepare. New teachers in Michigan are the most likely to submit a portfolio; almost sixty percent do (59.1 percent). Still, it is somewhat surprising that more than one in four new teachers in the pooled group does not submit an undergraduate transcript, and almost three out of four do not submit standardized test scores, as part of the hiring process.

In the four-state pool, very few new teachers submit standardized test scores (27.8 percent), writing samples (24.4 percent), lesson plans (20.0 percent), or videotapes of sample lessons (0.4 percent), as part of the hiring process.

Table 7: Application Materials (n=486)

Estimated percentages of new teachers (weighted) who submit the following materials as part of their application, reported by total population of new teachers in the pooled group, and by state (with standard errors in parentheses).

	4-States n=486	CA n=112	FL n=113	MA n=144	MI n=117
Resume~	99.3 % (.5)	99.5 % (.5)	96.2 % (2.5)	97.8 % (2.2)	99.2 % (.6)
References**	92.3 % (1.9)	93.4 % (2.1)	82.4 % (4.8)	85.2 % (3.8)	84.3 % (5.3)
Undergraduate transcript	72.3 % (4.8)	72.3 % (5.5)	73.1 % (6.7)	76.0 % (6.5)	71.2 % (7.8)
Cover Letter~	67.7 % (5.4)	67.8 % (6.2)	54.3 % (7.1)	88.7 % (4.0)	75.5 % (5.8)
Graduate transcript*	41.2 % (5.4)	43.4 % (6.0)	26.9 % (9.0)	38.0 % (6.3)	17.6 % (4.5)
Portfolio~	40.5 % (6.4)	38.9 % (7.2)	51.1 % (5.9)	41.8 % (6.6)	59.1 % (6.4)
Standardized test scores	27.8 % (4.3)	26.5 % (4.9)	41.0 % (8.1)	33.2 % (6.5)	34.6 % (6.7)
Writing sample or essay	24.4 % (5.3)	24.9 % (6.0)	19.8 % (6.4)	22.7 % (9.5)	20.8 % (9.4)
Lesson Plan	20.0 % (4.3)	19.3 % (4.9)	22.0 % (4.5)	27.3 % (6.3)	29.5 % (6.9)
Videotape of sample lesson***	.4 % .2	0.0 % (0.0)	4.2 % (2.5)	5.1 % (3.1)	1.0 % (1.0)

Note: A corrected Chi-Square statistic (converted to an F-statistic) was calculated as a global test of independence. Differences across the states (or at least some of them) are statistically significant if an item is marked by a tilde or asterisk. ~ p<.10; * p<.05; ** p<.01; *** p<.001

These application materials, however, transmit information in only one direction, from candidate to hirer. While some might argue that by requiring certain materials, schools and districts can send signals to candidates about what they value, these signals are quite weak. As Spence (Spence, 1973, 1974) has argued, in order for a signal to be credible and useful for differentiating oneself from others, it must be more costly or difficult for some senders to enact than for others. Requiring the submission of materials is quite easy and is no more costly for one school or district to do than another. For instance, it is no more difficult for a school that does not value lesson planning to require candidates to submit a lesson plan than it is for a school that highly prizes careful lesson

planning. Thus, the act of requiring a lesson plan does not provide unique information that would allow a teaching candidate to distinguish between the two types of schools.

Observations

While application materials mainly transmit information from the candidate to the hirer, observations can provide opportunities for both parties to collect information about one another. Data presented in Table 8, however, suggest that schools make very little use of observations—either in terms observing candidates teach sample lessons or having new teachers observe the school in action.

Table 8: Sample Lessons & Classroom Observations

Selected weighted statistics regarding observations of and by teaching candidates, reported by total population of new teachers in the pooled group, and by state (with standard errors in parentheses).

	4-States n=486	CA n=112	FL n=113	MA n=144	MI n=117
Percentage of new teachers who are observed teaching a sample lesson as part of the hiring process~	7.5 % (2.3)	6.5 % (2.6)	14.0 % (5.0)	19.6 % (6.1)	14.6 % (6.4)
Percentage of new teachers who visit or observe classes while school is in session**	35.1 % (5.6)	37.1 % (6.3)	28.4 % (6.1)	23.0 % (7.0)	8.7 % (3.2)
Percentage of new teachers who observe or sit in on faculty or team meetings	13.2 % (3.8)	13.8 % (4.3)	12.0 % (3.5)	8.3 % (3.8)	5.2 % (2.8)

Note: A corrected Chi-Square statistic (converted to an F-statistic) was calculated as a global test of independence. Differences across the states (or at least some of them) are statistically significant if an item is marked by a tilde or asterisk. ~ p<.10; * p<.05; ** p<.01; *** p<.001

Only 7.5 percent of the new teachers in the four-state pool are observed teaching a sample lesson as part of the hiring process (the individual state percentages range from 6.9 percent in CA to 19.6 percent in MA, and the differences across state are significant at the .10 level). It is rather alarming that so few new teachers are asked to provide an authentic demonstration of their teaching ability prior to being hired.⁶ Despite having control over the hiring process, most schools seem to rely primarily on interviews and application materials. This may have consequences for both the quality of the information

⁶ The picture is not quite so bleak since, as we see below, some new teachers are hired by the schools in which they did their student teaching. Schools that hired these teachers may have many opportunities to assess their teaching abilities.

schools collect about candidates as well as the signals that schools send to candidates. For while application materials transmit information in one direction, the same is not necessarily true of teaching demonstrations.

On the surface, requiring candidates to teach a lesson while being observed might appear to be quite similar to requiring them to submit a specific piece of written material. It seems to be an activity that provides hirers with information for evaluating candidates. From an organizational standpoint, however, arranging a teaching demonstration is quite difficult. First of all, it requires time, a scarce resources in most schools. Principals have to find time to conduct the observation.⁷ Teachers at the school, if they are to be involved with observing, need to be released from their classes and substitutes found to cover for them. Coordinating individuals' schedules, finding a place to hold the demonstration, imposing on a teacher's class to have the candidate teach a lesson with his or her students all require considerable effort. In this way, requiring teachers to demonstrate their teaching while being observed can send a strong signal to candidates about a school's values and priorities regarding teaching or about the quality of a school's management—schools that are better managed and organized would find it easier to arrange an exhibition and be more likely to do it. Moreover, to the extent that teaching demonstrations involve some interactive component or discussion, they exchange information directly between schools and candidates.

Schools also appear to provide few opportunities for candidates to observe the school in action. Depending on the state, only 8.7 percent to 37.1 percent of new teachers visit or observe classes while school is in session, as part of the hiring process. Even fewer observe or sit in on a faculty or team meeting (5.2 percent to 13.8 percent). New teachers in California are most likely to observe the school in action while new teachers in Michigan are least likely to do so.

That schools do not make greater use of observations becomes easier to understand, when one considers the timing of hiring decisions.

⁷ Some might argue that evaluating written application material requires time and skill, also. True, but candidates have no way of knowing what schools or districts actually do with their materials after they have been submitted (and, in fact, schools and districts might not read most of the materials). From the point of view of the candidate, the school's commitment of resources is simply to collecting the material, which is very easy to do. Thus, requiring specific materials still sends a very weak signal, at best.

Timing

Many new teachers are hired quite late. In California and Florida, approximately one in three new teachers is hired after the start of the school year; in Massachusetts and Michigan, the proportion is closer to one in eight. These state differences are statistically significant ($p < .05$).

In addition, in three states (California, Florida, and Massachusetts) the majority of new teachers are hired within 30 days of the start of their teaching responsibilities. This suggests that, even if they are hired before the start of the school year, many new teachers are hired during the summer—which helps explain why few of them interview with school-based personnel or get to observe the school in action. Another measure, the average number of days between when new teachers are hired and when their teaching responsibilities begin, paints a similar picture. Depending on the state, new teachers are hired an average of 22.5 to 56.2 days before they begin their jobs.

Table 9: Timing of Hires

Selected weighted statistics regarding when new teachers are hired, reported by total population of new teachers in the pooled group, and by state (with standard errors in parentheses).

	4-States n=486	CA n=112	FL n=113	MA n=144	MI n=117
Percentage of new teachers who are hired after the school year has already started*	33.1 % (6.0)	34.5 % (6.7)	35.4 % (7.1)	13.5 % (4.4)	12.2 % (4.4)
Percentage of new teachers who are hired within 30 days of the start of their teaching responsibilities***	61.8 % (4.8)	62.2 % (5.4)	77.9 % (5.8)	50.2 % (8.0)	39.7 % (6.9)
Average number of days between when new teachers are hired and when their teaching responsibilities begin***	41.3 (8.1)	41.5 (9.2)	22.5 (2.9)	49.8 (8.4)	56.2 (5.8)

Note: For categorical variables, a corrected Chi-Square statistic (converted to an F-statistic) was calculated as a global test of independence. For continuous variables, t-statistics were calculated.

Differences across the states (or at least some of them) are statistically significant if an item is marked by a tilde or asterisk. ~ $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$

New teachers in Michigan are hired the earliest (on average, 56.2 days before they start their jobs), while new teachers in Florida are hired the latest (on average, 22.5 days before they start their jobs).

Care must be taken in interpreting these results, however. Because we surveyed new teachers in the spring, it is possible that some of these differences are the result of different rates of teacher attrition rather than differences in how hiring is organized. Some of the new teachers surveyed might have been hired late, because they were replacements for teachers who were hired earlier but who left in the middle of the school year.

Reported Accuracy of the School Preview

On average, new teachers in the four states report that they form only moderately accurate pictures of their schools from the hiring process. The composite variable PREVIEW measures the extent to which new teachers feel they formed an accurate picture of their individual schools from the hiring process (Cronbach's alpha reliability = .89). The composite is formed from the average of nine items that are each measured on a seven-point Likert scale, with "1" indicating strong disagreement and "7" indicating strong agreement (see Appendix 2).

Table 10 presents the mean PREVIEW scores in each state, and in the four-state pool. The state means are between of 4.03 (CA) to 4.81 (MI), which correspond to responses between "Neutral" and "Somewhat Agree" with the general proposition that they formed an accurate picture of what their school was like from the hiring process. In California, Florida, and Massachusetts, less than half of new teachers could say that they at least "somewhat agree" that the hiring process gave them an accurate picture of their school/job. In Michigan, just over half (51.5 percent) could say this. Figure 1 presents a graphical representation of the differences across states (though with unweighted values).

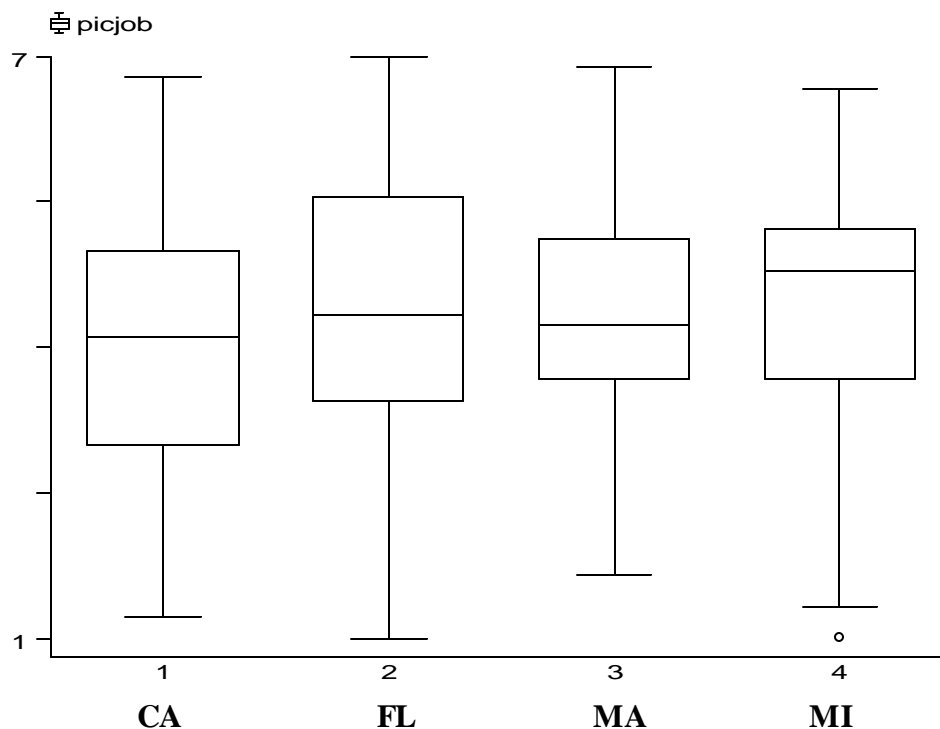
Table 10: Preview of the School Obtained from the Hiring Process

Selected weighted statistics regarding the picture that new teachers get from the hiring process, reported by total population of new teachers in the pooled group, and by state (with standard errors in parentheses). The composite variable PREVIEW measures the extent to which new teachers feel they formed an accurate picture of their individual schools from the hiring process (Cronbach's alpha reliability = .89), and is measured on a seven-point Likert scale, with "1" indicating strong disagreement and "7" indicating strong agreement.

	4-States n=486	CA n=112	FL n=113	MA n=144	MI n=117
Mean PREVIEW score*	4.10 (.16)	4.03 (.18)	4.47 (.19)	4.56 (.09)	4.81 (.15)
Percentage of new teachers with a PREVIEW score of 5 (somewhat agree) or above*	29.0 % (4.5)	27.0 % (5.0)	40.0 % (8.1)	34.7 % (6.6)	51.5 % (7.6)
Percentage of new teachers with a PREVIEW score of 6 (agree) or 7 (strongly agree)	7.7 % (3.1)	6.9 % (3.5)	13.2 % (4.1)	7.8 % (2.4)	15.3 % (3.1)

Note: For categorical variables, a corrected Chi-Square statistic (converted to an F-statistic) was calculated as a global test of independence. For continuous variables, t-statistics were calculated. Differences across the states (or at least some of them) are statistically significant if an item is marked by a tilde or asterisk. ~ p<.10; * p<.05; ** p<.01; *** p<.001

Figure 1 - Box plots depicting the distribution of unweighted values of PREVIEW by state (1=CA, 2=FL, 3=MA, 4=MI). Scale runs from 1=strongly disagree to 7=strongly agree that the new teacher received an accurate picture of their job and school from the hiring process.



Reported Fit Between New Teachers' Skills, Interests, and Expertise and Their Teaching Positions

Table 11 presents statistics describing the reported fit between new teachers and their positions (FITJOB) and between new teachers and their schools (FITSCH). The two measures are composite variables with high levels of internal reliability—alpha is .73 for FITJOB and .83 for FITSCH—and their values range from 1 to 5, where 1=very poor match and 5=very good match. See Appendix 3.

Overall, new teachers in the pooled group of four states report a “good” fit with their position (mean FITJOB = 4.04) and just a “moderate” to “good” fit with their school (mean FITSCH = 3.50). The .54 difference between new teachers' mean fit with position and their mean fit with school is statistically significant ($t=5.90$; $p<.001$).

Table 11: Measures of Fit with Position and School (n=486).

Mean fit with position and school as reported by new teachers in the total population of the pooled group, and by state (standard errors in parentheses). The scale for these measures ranges from 1=very poor match to 5=very good match.

	4-States n=486	CA n=112	FL n=113	MA n=144	MI n=117
Mean Fit with Position (FITJOB)	4.04 (.08)	4.04 (.09)	3.98 (.10)	3.96 (.10)	4.12 (.08)
Mean Fit with School (FITSCH)*	3.50 (.11)	3.48 (.12)	3.52 (.16)	3.53 (.09)	3.88 (.08)

Note: Differences across the states (or at least some of them) are statistically significant if an item is marked by a tilde or asterisk: ~ $p<.10$; * $p<.05$; ** $p<.01$; *** $p<.001$

While the state differences in mean fit with job are not statistically significant, the differences in mean fit with school are. New teachers in Michigan report a significantly higher fit with their schools than new teachers in the other three states. This is consistent with the state's higher PREVIEW scores. Thus, hiring practices in Michigan appear to provide new teachers with more accurate pictures of their future schools, which may be contributing to better matches between individuals and their schools. Another possible factor contributing to these higher levels of fit with schools may be Michigan schools' greater tendency to fill positions by hiring from among their student teachers.

The Extent to which Schools Hire their Student Teachers and Aides

Overall, one in ten new teachers student taught at their current school prior to being hired for their position. This figure, however, hides some of the variation across the states. In Michigan, about one in four (27.2 percent) new teachers was a student teacher at the school that ended up hiring them. See Table 12. In the four-state pool, approximately one in five (19.4 percent) new teachers either student taught *or* worked as a paid aide/paraprofessional at their school prior to their current position.

It is likely that new teachers who serve as student teachers or aides experience the hiring process differently than new teachers who are complete outsiders to a school. Indeed, for this group, the hiring process is a less important source of information about the school, since their daily work experiences provide them with much richer information. The schools also have greater opportunities to evaluate these candidates' teaching abilities or potential.

Table 12: Percentage of New Teachers Hired After Serving as Student Teachers or Aides

Selected weighted statistics regarding prior work relationships that new teachers had with their schools, reported by total population of new teachers in the pooled group, and by state (with standard errors in parentheses).

	4-States n=486	CA n=112	FL n=113	MA n=144	MI n=117
Percentage of new teachers who <i>student taught</i> at their school prior to their current position~	10.3 % (4.0)	9.2 % (4.5)	13.9 % (4.7)	6.5 % (3.4)	27.2 (5.6)
Percentage of new teachers who <i>student taught or worked as aides/paraprofessionals</i> at their school prior to their current position	19.4 % (5.2)	19.2 % (5.9)	14.1 % (4.7)	19.2 % (4.6)	29.2 % (5.4)

Note Note: A corrected Chi-Square statistic (converted to an F-statistic) was calculated as a global test of independence. Differences across the states (or at least some of them) are statistically significant if an item is marked by a tilde or asterisk. ~ p<.10; * p<.05; ** p<.01; *** p<.001

CONCLUSIONS AND IMPLICATIONS

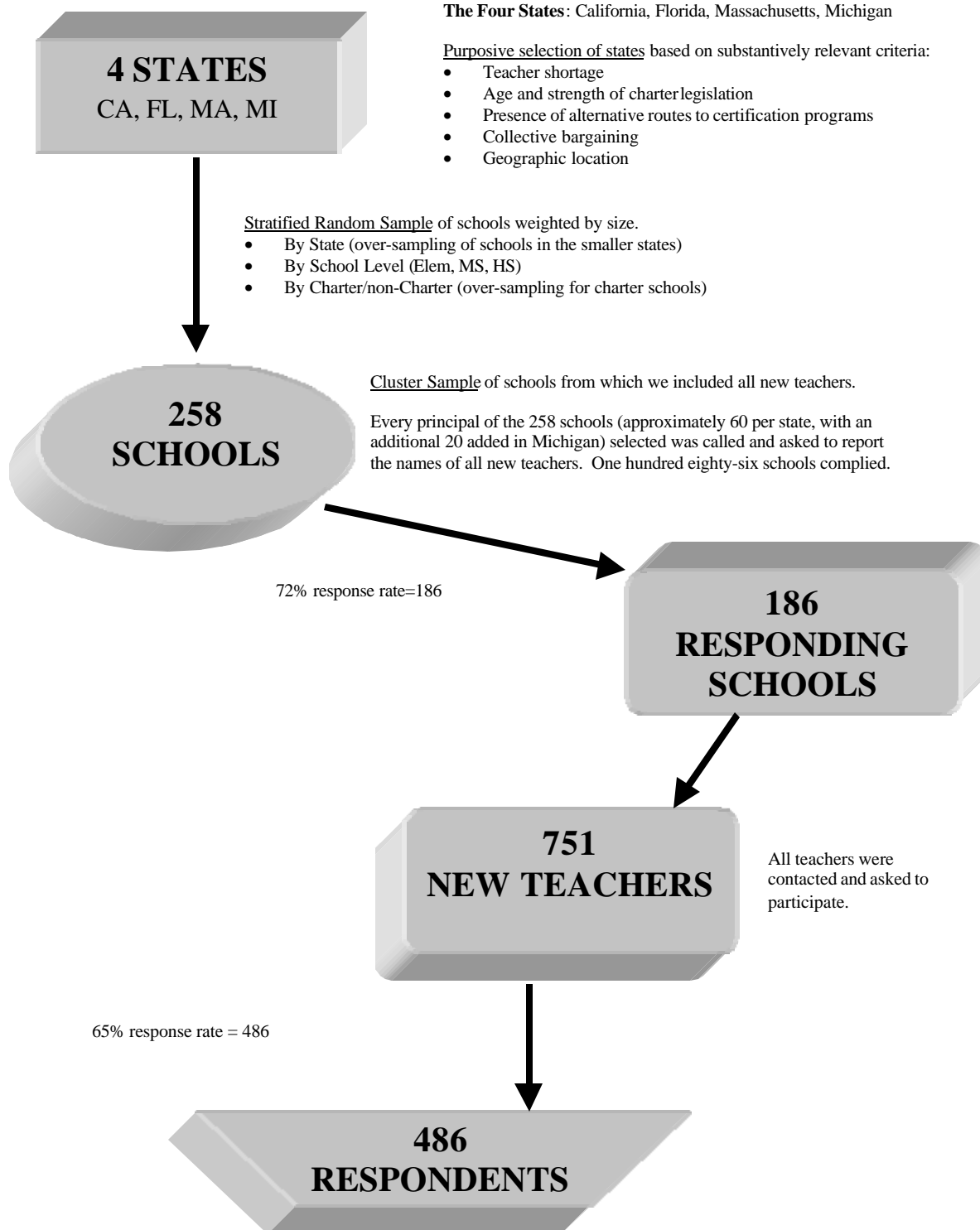
My analysis has revealed that the majority of new teachers in the four states are hired through a decentralized process. Despite this, however, most new teachers have limited interactions with school-based personnel as part of the hiring process. While the vast majority of new teachers interview with the school principal, relatively few interview with teachers, department chairs, students, or parents at the school. Data also suggest that the hiring process relies heavily on paper credentials and interviews, and that schools and districts make very little use of observations.

These patterns can be explained, in part, by the timing of the hiring process. Many new teachers are not hired until the summer, when school is not in session, it is difficult to round up teachers to conduct interviews of prospective colleagues, and it is impossible for candidates to observe the school in action. Other new teachers (almost a third in two states) are hired in the middle of the school year, when principals are in a rush to fill a position and may not feel that they have the luxury of a lengthy and interactive hiring process. Some of this may not be entirely the schools' fault. It is possible that some schools are constrained by collective bargaining agreements that require that intra-district transfers by veteran teachers be completed before new teachers are hired, by uncertainty regarding student enrollments and the number of faculty positions needed, and by delayed budget approval at the state level.

Taken together, however, these findings suggest that many schools are not taking full advantage of decentralized hiring and its potential for improving the amount and quality of information exchanged between teaching candidates and those who do the hiring. In other words, the hiring process that many new teachers experience, while school-based, is still not very interactive. As a result, new teachers in California, Florida, Massachusetts, and Michigan form only moderately accurate pictures of their schools, prior to accepting their initial teaching positions. This suggests that many new teachers may be surprised by what they find in their schools. Their expectations about what they would be doing and what their work environment would be like may not be met. To the extent that this may contribute to new teachers' dissatisfaction and turnover, this should be somewhat troubling.

These findings, while preliminary, point to the importance of carefully designing hiring activities to take advantage of decentralization. Just because many schools may have significant control over hiring does not mean that they are using or know how to use hiring practices that generate quality information for both hirers and candidates. In other words, decentralized hiring does not automatically translate into more interactive hiring.

Appendix 1: Flowchart of Multi-Stage Sampling Plan For Four-State Study



Appendix 2: Item Analysis and Principal Components Analysis for PREVIEW

Table A1. Results of Item Analysis: Estimated Cronbach Alpha Coefficients
(estimated reliabilities) for a composite of nine variables measuring the extent to which new teachers were able to form accurate pictures of certain aspects of the school from the hiring process, as well as for nine other composites in which only eight out of the nine variables are composited (i.e., one variable is excluded)

Excluded Variable	Alpha
NONE	.890
PICT (Accurate picture of teachers)	.876
PICSTUD (Accurate picture of students)	.881
PICPRIN (Accurate picture of principal's leadership style)	.881
PICCURR (Accurate picture of curriculum)	.876
PICASSGN (Accurate picture of teaching assignment)	.889
PICSUPP (Accurate picture of school support)	.872
PICAUT (Accurate picture of level of autonomy)	.873
PICSHAPE (Accurate picture of opportunity to shape school)	.875
PICPHIL (Accurate picture school's philosophy)	.881

Table A2. Results of Principal Components Analysis of Eight Variables

measuring the extent to which new teachers were able to form accurate pictures of certain aspects of the school from the hiring process.

Principal Components	Eigenvalues	Variable	Eigenvector PC1
1	4.84	PICT	.344
2	.81	PICSTUD	.316
3	.75	PICPRIN	.320
4	.60	PICCURR	.340
5	.54	PICASSGN	.271
6	.46	PICSUPP	.363
7	.36	PICAUT	.362
8	.33	PICSHAPE	.352
9	.32	PICPHIL	.322

The second column of Table A2 displays the eigenvalues for each of the principal components. The first component has a much higher eigenvalue (4.84) than the other seven and accounts for 54% of the total variance. A scree plot of eigenvalues versus the component numbers indicates that the first component is important.

The first component can be composited to form an indicator (PREVIEW) that gives a measure of the extent to which new teachers were able to form an accurate picture of the school as a whole from the hiring process. Examination of the eigenvectors (loadings) of each variable on the first principal component shows that the nine variables contribute almost equally. To score high on this component, an individual would have to score high on each variable.

Appendix 3: Item Analysis and Principal Components Analysis for FITJOB and FITSCH

Table A3. Results of Item Analysis for FITJOB: Estimated Cronbach Alpha Coefficients (estimated reliabilities) for a composite of five variables measuring fit with different aspects of position, as well as for five other composites in which only four out of the five variables are composited (i.e., one variable is excluded)

Excluded Variable	Alpha
NONE	.721
FITKNOW (Fit with subject matter knowledge)	.675
FITINT (Fit with subject matter interests)	.640
FITSKILL (Fit with other skills and talents)	.689
FITLVL (Fit with grade level)	.660
FITSTUD (Fit with student population that they teach)	.708

The results of the item analysis suggest that a composite for FITJOB is most reliable when all five variables are composited together.

Table A4. Results of Principal Components Analysis of Eight Variables measuring fit with the different aspects of fit with the position.

Principal Components	Eigenvalues	Variable	Eigenvector PC1	Eigenvector PC2
1	2.45	FITKNOW	.477	-.523
2	1.06	FITINT	.520	-.417
3	.72	FITSKILL	.403	.246
4	.50	FITLVL	.448	.290
5	.27	FITSTUD	.372	.639

The second column of Table A4 displays the eigenvalues for each of the principal components. The first component has a higher eigenvalue (2.45) than the other four and accounts for 29% of the total variance. A scree plot of eigenvalues versus the component numbers indicates that the first two components are important.

The first component can be composited to form a measure of overall fit with position (FITJOB). Examination of the eigenvectors (loadings) of each variable on the first principal component shows that the five variables contribute almost equally. To score high on this component, an individual would have to score high (report a high level of fit) on each variable.

The second principal component is also important and accounts for another 21% of the total variance. Examination of the eigenvectors of each variable on this principal component suggests that it measures fit with non-subject-matter aspects of the position. However, I did not use this component for this study

Table A5. Results of Item Analysis for FITSCH: Estimated Cronbach Alpha Coefficients (estimated reliabilities) for a composite of six variables measuring fit with school, as well as for six other composites in which only five out of the six variables are composited (i.e., one variable is excluded)

Excluded Variable	Alpha
NONE	.831
FITPHIL (Fit with personal educational philosophy)	.787
FITAUT (Fit with preferred level of autonomy)	.818
FITDISC (Fit with views on discipline)	.815
FITCOLL (Fit with amount of collaboration desired)	.811
FITDDEC (Fit with amount of input on school decisions)	.799
FITDDEC (Fit with amount of input on department or grade level decisions)	.793

The results of the item analysis suggest that a composite for FITSCH is most reliable when all six variables are composited together.

Table A6. Results of Principal Components Analysis of Eight Variables
measuring fit with different aspects of school.

Principal Components	Eigenvalues	Variable	Eigenvector PC1
1	3.30	FITPHIL	.443
2	.79	FITAUT	.373
3	.66	FITDISC	.382
4	.53	FITCOLL	.396
5	.37	FITSDEC	.421
6	.35	FITDDEC	.430

The second column of Table A6 displays the eigenvalues for each of the principal components. The first component has a much higher eigenvalue (3.30) than the other four and accounts for 55% of the total variance. A scree plot of eigenvalues versus the component numbers indicates that the first component is important.

The first component can be composited to form a measure of overall fit with school (FITSCH). Examination of the eigenvectors (loadings) of each variable on this principal component shows that the six variables contribute almost equally. To score high on this component, an individual would have to score high (report a high level of fit) on each variable.

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