

EDUCATION FINANCE RESEARCH CONSORTIUM

CONDITION REPORTS

**TEACHER HIRING PRACTICES IN
NEW YORK STATE SCHOOL DISTRICTS**

Dana Balter
William Duncombe
Syracuse University

January 2005

EDUCATION FINANCE RESEARCH CONSORTIUM

The Education Finance Research Consortium is an on-going collaborative research and policy analysis venture between the New York State Education Department, the New York State Board of Regents, and education scholars, researchers and policymakers from New York and around the country. By bringing education researchers together with policymakers, the Consortium seeks to address critical questions about the state of public education in New York. The Consortium's mission is to foster an exchange of information and ideas that informs education policy decisions, assist education policy decision-makers in identifying issues that require initial or further study, and produce quality and timely research that contributes to the development of sound education policy. The Consortium is housed in the Center for Policy Research, Rockefeller College of Public Affairs & Policy, University at Albany – SUNY.

Condition reports are written using education data compiled by New York State agencies and from data independently collected by the researchers. Consortium researchers work closely with agency staff to identify and analyze trends in school district spending, school staffing and student performance. The condition reports describe various characteristics of New York State's public school systems and also identify potential areas for further study.

The Consortium's Governing Board would like to thank the New York State Education Department and the New York State Board of Regents for their intellectual and financial support. We are particularly indebted to Commissioner Richard Mills and Deputy Commissioner James Kadamus. Deborah Cunningham of the New York State Education Department is liaison between the Consortium, researchers and Department policy makers, provides feedback on draft reports and reviews research findings for their relevance to Regents' policies. Barbara Downs of the Center for Policy Research works with researchers to coordinate the presentation of their findings at public forums and symposia, and to publish Condition reports.

This Condition Report is one in a series of published Consortium reports. To access other Consortium publications or to get information on Consortium-sponsored research, please visit the Consortium's website at <http://www.albany.edu/edfin>, phone (518) 442-3862, or email edfin@albany.edu.

The research in this report is solely attributed to the authors. The statements made and the views expressed do not necessarily represent the New York State Board of Regents, the New York State Education Department or the Education Finance Research Consortium.

TEACHER HIRING PRACTICES

IN NEW YORK STATE SCHOOL DISTRICTS

Dana Balter

William Duncombe

Educational Finance and Accountability Program
Center for Policy Research
The Maxwell School
Syracuse University

January 2005

Note: The formatting of this report is different from that printed and distributed by the Education Finance Research Consortium and available on their website: <http://www.albany.edu/edfin>.

Acknowledgements: This project would not have been possible without significant help from a number of individuals. Tom Rogers at NYSCOSS graciously sponsored the survey. We want to especially thank Briggs McAndrews at NYSCOSS, who provided significant help with all aspects of the survey. Several superintendents and district administrators provided valuable advice on survey design including Marilyn Dominick, Superintendent at Jordan Elbridge School District; Martin Swenson, Superintendent at Fabius-Pompey School District; Yvonne Young, Associate Superintendent for Support Services at Syracuse City School District; Rudy Rubeis, Superintendent at West Genesee School District; Joe Proscia, Assistant Superintendent for Curriculum and Instruction at West Genesee School District; and Sally Romano, Director of Personnel at West Genesee School District. Deborah Cunningham, Charles Szuberla, Johanna Duncan-Poitier, Nancy Willie-Schiff, and Joe Porter of the New York State Education Department reviewed the survey and provided helpful comments. Dan Goldhaber and Michael DeArmond of the University of Washington had a number of valuable suggestions on both the content and design of the survey. Willow Jacobson at the University of North Carolina, Pat Ingraham at Syracuse University, and Mark Robbins and Bill Simonsen, at the University of Connecticut, critiqued the survey instrument, and proposed a number of revisions to reduce length and improve clarity. We also want to thank Jeff McLellan, Kim Kirsch, and Bob Bifulco for their comments on preliminary draft of the report. We appreciate the willingness of Robert Strauss of Carnegie Mellon University to allow us to borrow from his survey on teacher hiring practices in Pennsylvania. Errors and omissions are, of course, solely the responsibility of the authors.

TEACHER HIRING PRACTICES IN NEW YORK STATE SCHOOL DISTRICTS

TABLE OF CONTENTS

i. Executive Summary	i
I. Introduction	1
II. Review of Previous Research	2
III. Survey Design and Implementation	7
IV. Survey Results – Recruitment	11
V. Survey Results – Screening and Selection	26
VI. Conclusions and Recommendations	38
VII. References	46

Appendices – Available on website:

<http://www-cpr.maxwell.syr.edu/faculty/duncombe/teacher-hiring.htm>

- A. Survey Instrument
- B. Cover Letter Sent with Survey
- C. Basic Survey Results
- D. Extra Tables

TEACHER HIRING PRACTICES IN NEW YORK STATE SCHOOL DISTRICTS

Executive Summary

Decades of research on the determinants of student achievement make it clear that high quality teachers matter for student success, but measuring teacher quality can be difficult. With states under pressure to raise teacher quality to comply with NCLB and with a significant increase in demand for teachers projected for the next decade, school districts may face significant teacher recruitment challenges. Recruiting high quality teachers is likely to be all the more difficult in high poverty districts (Loeb, 2000).

Despite the recent focus on teacher quality, relatively little research exists on district practices to recruit, screen and select teachers. This study takes a first step in filling this gap by documenting teacher hiring practices in New York State. To collect information on these practices, we designed a mail (and online) survey that was sent to 684 superintendents in the state. Thanks to significant support we received from the New York State Council of School Superintendents (NYSCOSS) and the New York State Education Department (SED) we were able to obtain a very high response rate (71%) to the survey. We greatly appreciate the willingness of superintendents to carefully complete the survey. The survey respondents are very representative of the whole state. The heart of this report is summarizing the results of the survey of teacher hiring practices. The survey was divided roughly into three sections: recruitment, screening and selection, and resource needs and comments.

Summary of Survey Results

From the responses to recruitment questions, we can draw several important conclusions about the use of more and less traditional practices to expand the supply of teachers and increase applicants.

- Subjects for which districts have the most difficulty recruiting teachers are mathematics, science, foreign language, vocational education, and ESL. Low enrollment districts have greater difficulty recruiting math, special education, music/art, vocational, and ESL teachers than high enrollment districts, and high need urban districts have more difficulty recruiting math, science, and foreign language teachers than low need districts.
- Most districts appear to use a shared process for recruitment. In small districts, superintendents, principals and teachers are most involved. As the district gets larger, human resource directors, assistant principals, and school department heads take over a part of the recruitment responsibility.
- Local newspapers remain the major form of advertising, especially in small districts. High need urban districts appear to advertise less frequently than other districts, particularly in newspapers.
- Most districts work with local colleges by supervising student teachers, posting job notices at the colleges, and contacting college faculty. Except for posting job notices in non-local New York colleges, school districts generally do not work with non-local colleges on recruitment.
- The typical district attends one job fair, and 37% of districts attend no job fairs. Attendance at job fairs goes up significantly with enrollment and use of BOCES recruitment fair services.

- The internet should be an ideal medium for teacher recruitment because, for relatively little cost, a district can have access to a national market of teachers. Approximately three-quarters of districts use the internet, primarily to post job notices on the school district websites and other recruitment websites. A much smaller share use the internet to search for job candidates. Large districts and those using BOCES online services are more likely to use the internet.
- Of the districts completing the survey, approximately half the districts use hiring services provided by BOCES, particularly for online applications, online vacancy notices, advertising and recruitment fairs. The BOCES providing the broadest range of services and serving the most districts is the Putnam-Westchester BOCES. This BOCES also operates an online application system (OLAS) used by 150 school districts.
- Most districts use compensation for extracurricular activities and crediting teachers for teaching experience outside the district as teacher recruitment incentives. A much smaller set of districts provide additional compensation for National Board Certification (NBC), subsidized tuition at local colleges, and credit for work experience outside of teaching. Teacher contract negotiations are probably a major constraint on the wider use of recruitment incentives.
- Almost 90% of districts use some strategy to increase the local supply of teachers. The main strategies are recruiting substitute teachers, alternatively certified teachers, and retired teachers as well as providing assistance for paraprofessionals to become teachers.
- Districts with more difficulty recruiting teachers are more apt to use all of the strategies to increase the local supply of teachers and to use recruiting incentives, such as compensation for extra-curricular activities, credit for non-district or non-teaching experience, and subsidized tuition for college. However, they are not more likely to use incentives such as signing bonuses, help with the purchase of a home, or compensation for National Board Certification.

Districts conduct very involved screening and selection processes. As expected, the larger the district and the higher fiscal capacity of the district the more involved the process, particularly with regard to interviewing. Some of the key findings are:

- Almost all districts require applicants to submit application forms, college transcripts, letters of recommendation, letters of interest, resumes, and proof of certification. A majority require certification exam scores and writing samples, but only 30% require teaching portfolios.
- In choosing candidates to interview, districts most often consider certification in the subject to be taught, major in the subject to be taught, and references/recommendations as important criteria. A much smaller share consider measures of a candidate's academic success including certification exam scores, grade point average, caliber of the certifying institution, and quality of the teaching portfolio. High need urban districts consider similar criteria in screening as other districts, but do put more emphasis on residence in the district and pre-screening tests. Districts with human resource managers are more likely to ask candidates to submit writing samples and to consider the caliber of certifying institutions in the screening process.
- The typical school district conducts between two and three interviews of 30 to 40 minutes each with a candidate before deciding whether to make an offer of employment. This number of interviews increases with enrollment and with the fiscal capacity of the district. New York districts appear to have, on average, one more interview per position than districts in Pennsylvania and New Jersey, based on recent studies. Small districts are more apt to involve the superintendent and teachers in the interview process and less likely to include HR managers, assistant principals, and school department heads. Low need districts are much more likely to involve parents and community members.

- The vast majority of districts discuss each of the interview topics listed in the survey, with two exceptions. Only 64% discuss issues of diversity and just 50% require candidates to teach sample lessons. Principals and teachers are most apt to observe sample lessons followed by school department heads and assistant principals, if the district has these positions.
- In districts that conduct only one interview, school level personnel participate in a large majority of interviews while district level personnel participate approximately half the time. In two interview districts, the first interview tends to be dominated by school personnel and the second by district personnel. In three interview districts, the first interview tends to be dominated by school personnel and the third by district personnel, while the second is mixed. As the number of interviews a district conducts increases, so does the likelihood that it requires a sample lesson.
- Superintendents, followed by principals, are highly involved in the selection of candidates in all districts. The most important criteria in selecting candidates are certification in the subject to be taught, major in the subject to be taught, references/recommendations, and subject knowledge demonstrated in the interviews. Similar to Strauss et al. (1998), we found that academic criteria (certification exam scores, quality of the certifying institution, quality of teaching portfolios, and MA degrees) are less frequently cited as important in teacher selection than willingness to participate in extra-curricular activities.
- Districts with difficulty recruiting teachers use a very similar screening and selection process as districts that do not have difficulty.

We asked several questions about the present use of services from SED, and the training topics and support services districts are interested in receiving.

- Presently, about half of the districts use SED services, primarily by contacting SED staff members or using the SED website. Very few districts use training materials supplied by SED. Use of SED services appears to go up with enrollment for all types of services with only one-third of small districts using these services.
- A relatively small share of districts expressed an interest in training and support on teacher hiring practices. The areas of interest identified most frequently include a common statewide teaching application, training materials on selected practices, and a statewide online recruitment website where districts could post job openings and prospective teachers could search for jobs. Districts that are experiencing more recruiting difficulty are more apt to express an interest in a statewide website to post job notices, to disseminate good practices, and provide links to other teacher recruitment websites.

Recommendations

Teacher recruitment is one of the most important activities of a school district given the relative permanence of the appointment and high cost to the district. Most school districts in New York use a range of approaches to attract applicants, and employ involved processes for screening and selecting applicants. However, their search process is generally in the local area, and most districts are not presently using the full potential of the internet in the search process. With the exception of using some BOCES hiring services, most districts tend to organize, advertise, and manage the hiring process by themselves. Assuming that the supply of prospective teachers is not fixed, the sharing of resources and technical expertise across districts could improve the hiring process for all districts. The survey suggests that school districts could benefit from a unified effort by state agencies and associations to expand common resources, provide technical assistance, and increase awareness of available resources and good practices. Specific recommendations include:

- **Increase in staffing within SED to provide technical assistance to school districts on teacher recruitment and selection practices.** Presently, there is no staff person within SED with the principal task of assisting districts with teacher hiring. We recommend that SED hire a dedicated staff person(s) to pull together available information on policies, practices, and resources on teacher recruitment and selection. Besides managing this central data base, this staff person could serve a crucial role in disseminating information, organizing training opportunities, and facilitating communication across organizations. The staff person could also keep track of teacher labor market trends, help inform policymakers about fields and geographic areas where teacher shortages are occurring, and inform school and college personnel on where employment opportunities in teaching may be available. Increased staffing within SED is crucial for the successful implementation of the other recommendations discussed below.
- **Creation of a unified website on teacher hiring practices and policies to be managed by SED.** The website would be hosted by SED and managed with the assistance of an advisory group discussed below, and would pull together information already available from SED and additional resources on teacher hiring. The website should provide information on legal requirements, technical assistance, preferred practices, and available resources. Initially, the website would be for information exchange purposes, but could be expanded to include an online application system and an interactive teacher search engine.
- **Creation of annual training sessions at the NYSCOSS annual conference,** and other venues, which address teacher recruitment and selection practices. These sessions would bring together experts from SED, NYSCOSS, and other relevant organizations to present information on innovative practices, legal changes, and major challenges districts face in hiring teachers.
- **Expansion and coordination of BOCES hiring services.** The heavy use of the OLAS system and other services provided by the Putnam-Westchester BOCES suggest that there is a strong interest in these services. However, small districts are still less apt to use them even though they are likely to benefit the most. In some cases, their BOCES may provide only a limited set of services and they may not be aware of services available from other BOCES.
- **Provision of training for district interview team members.** Since the interview process is particularly important, it would be worthwhile to ensure that district personnel are versed in sound interviewing techniques. BOCES could offer in-district training sessions for designated interview team members.
- **Creation of an advisory council to assist SED in identifying, evaluating, and disseminating promising practices.** The council should include, among others, representatives from NYSCOSS, district human resource managers, human resource professionals in other public or private organizations, and faculty at New York colleges with an expertise in human resource management. Functions of the advisory council could include:
 - Developing training sessions and training materials.
 - Advising SED in the development and maintenance of their recruitment website.
 - Evaluating online recruitment websites and other recruitment resources.
 - Coordinating research on the effectiveness of promising practices, which might evaluate:
 - The impact of online recruitment tools and non-local advertising on increasing the number of strong applicants from teachers living outside the local area.
 - The effectiveness of pre-screening tests in identifying strong teaching candidates.
 - The benefits and costs of the use of sample lessons in the interview process and examples of successful use.
 - The role of HR directors in the hiring process, how they can be used most effectively, and mechanisms for making these services available to small districts.
 - The effectiveness of particular recruitment incentives in attracting high quality candidates to apply and accept positions, particularly in high need districts.

I. Introduction

Decades of research on the determinants of student achievement make it clear that high quality teachers matter to student success (Ferguson, 1998; Goldhaber, 2002; Goldhaber et al., 1999; Hanushek et al., 2002). With states under pressure to raise teacher quality to comply with NCLB and with a significant increase in demand for teachers projected for the next decade (Hussar, 1999), school districts face significant teacher recruitment challenges. Moreover, evidence suggests that high quality teachers are unequally distributed across districts and that disadvantaged students are much more likely to be served by less qualified teachers (Lankford et al., 2002; Oakes, 1992; Loeb 2000). The success of high need districts in meeting NCLB standards will depend in large part on their success in recruiting and retaining high quality teachers.

Teacher compensation represents the largest share of a school district's budget and costs of teachers over their career can exceed \$2 million (Goldhaber 2003). Given the difficulty of removing teachers once they receive tenure, teacher hiring choices are among the most important decisions made by school districts. Unfortunately, empirical research has not consistently identified a set of basic measurable teacher characteristics, such as education and experience, associated with improved student performance (Goldhaber, 2002). Therefore, hiring high quality teachers depends on the processes used by districts to go beyond basic characteristics to identify the underlying attributes of successful teachers.

Despite the suggestion that differences in hiring processes may contribute to the teacher quality problem (Loeb, 2000), most policy proposals are aimed at the state level and focus on how to increase the supply of teachers and improve teacher retention. Research documenting the effectiveness of particular district hiring practices for teachers is very limited. This study starts to fill this research gap by documenting the practices used in New York school districts for teacher recruitment, screening, and selection. We will also examine the relationship between practices used by districts and district organization and external characteristics.

The report is organized into five major sections. In the first section of the paper we review briefly the literature on teacher labor markets, human resource management and the hiring process in the public sector, and empirical research on recruitment and selection policies in education. The second section describes survey design and implementation and analyzes our sample's representativeness of all districts in New York. In the third section, we present the survey results for the first section of the survey on teacher recruitment practices. We then turn to survey results on the screening and selection process used by districts. Finally, we offer conclusions and recommendations that could be used to provide support and training to help districts improve their hiring processes.

II. Research on Teacher Recruitment and Labor Supply

If teacher quality is important, and difficult to measure, how can a district design its hiring process to attract the best quality candidates within its budgetary constraints? In this section we will briefly discuss the growing literature on what influences teacher career decisions. We then turn to the limited research on the teacher hiring practices of school districts.

Teacher Labor Supply

Recent concerns about teacher shortages first emerged in the 1990s as a result of demographic changes (a baby “boomlet”) and class size reduction programs in many states increased the demand for teachers after several decades of stagnant or declining demand. The National Center for Education Statistics forecast a demand for 2 million new teachers during the coming decade (Hussar, 1999). Recruiting challenges are likely to be much more severe in certain fields and in school districts serving disadvantaged students (Loeb, 2000).

From the standpoint of state policy to improve teacher quality, it is important to identify how teacher choices affect the overall quality and distribution of the teaching workforce. Are teacher shortages caused by a lack of strong candidates entering teaching; significant attrition of individuals entering teaching early in their careers; teachers’ choices to change school districts; or market imperfections that create localized teacher shortages?

According to Strauss, et al. (2000) teacher quality problems are not caused by a lack of teacher supply. In Pennsylvania, he estimates that 20,000 teaching certificates are issued per year, and only one-tenth this number of new teachers is hired on an annual basis. Even with optimistic assumptions about increased retirements over the next decade, he concludes that teacher shortages on aggregate are unlikely. Instead, states should be more worried about improving the quality of students entering the teaching profession (Strauss et al., 2000; Murnane, 1996) and increasing the retention of high quality teachers. Nationally, 11% of teachers leave the profession after the first year, and 39% leave after five years (Ingersol, 2002).¹

A large body of empirical research on teacher mobility confirms that compensation can significantly affect teacher decisions about leaving and moving (Baugh and Stone, 1982; Murnane and Olsen, 1990; Stinebrickner, 1998; Imazeki, 1999; Dolton and Van Der Klaauw, 1999). If compensation is a key factor affecting mobility, then in theory districts serving disadvantaged populations can attract and retain qualified teachers by raising salaries sufficiently. However, several factors suggest that solving the teacher shortage will be more difficult. Recent research indicates that teacher mobility across schools and districts may be driven in large part by the characteristics of the students that they are teaching and less by salary differences (Loeb, 2000; Hanushek, Kain, and Rivkin, 2001). Of equal concern, are the findings of Boyd, Lankford,

¹ Recent estimates from the NCES (2004) indicate that 13 percent of teachers with 1 to 3 years of experience moved to another district, and 8.5 percent left teaching as an occupation from 1999-2000 to 2000-2001. Movers cited most frequently improvements in the assignments, working conditions, and salaries as very important to their decision to move. Leavers cited salary, working conditions, and interest in pursuing a family or another career.

Loeb, and Wyckoff (2004) that the teacher labor market is very localized. “Most public school teachers take their first public school teaching job very close to their hometowns or where they attended college” (p. 117) or in districts that share similar characteristics to their hometowns.² Strong preferences for a familiar teaching environment, implies that large central cities will have difficulty attracting and retaining teachers who grew up in suburban and rural areas, even with significantly higher salaries.

Strauss et al. (2000) finds a similar result in Pennsylvania, but attributes it not to teacher preferences, but to the search process of the school district. Specifically, districts focus their hiring process on substitute or part-time teachers and graduates of local colleges.

It also is clear that most districts do not actively seek new teacher applications through vigorous advertising and recruiting. The result is that a high proportion of hired teachers are simply those the district knows best, their own graduates. This finding is also consistent with a nepotism model of the hiring process... (p. 405)

Concerns over the quality of the public teacher hiring process have been raised in several comparisons of teacher recruitment policies in public and private schools (Ballou, 1996; Ballou and Podgursky, 1998). Ballou (1996) argues that “public school officials undervalue cognitive skills and subject matter knowledge when screening new applicants” (p. 130).³

Unfortunately, it is difficult to separate the effect of teacher preferences for the local area from district hiring decisions; districts may recruit locally because of the ineffectiveness of broader regional or national searches. Understanding this process is also hindered by a lack of information on teacher hiring processes. “We know little about how effective districts are in their hiring decisions” (Loeb, 2001, p. 109).

Human Resource Management and the Hiring Process in Education

Significant research exists in the public and private sector on the impact of human resource management (HRM) practices on organization performance. In 2003, the Government Performance Project (GPP) published the results of a six year study of management capacity of federal, state, and local governments.⁴ The GPP research suggested that these strategic human resource management practices have important implications for public organizational outcomes and performance (Selden, Ingraham, and Jacobsen, 2001; Selden and Jacobsen, 2003; Kellough and Selden, 2003). In addition, a growing body of evidence from private sector firms suggests that HRM practices do indeed make a meaningful difference to a firm’s bottom line (Arthur, 1994; Becker & Gerhart, 1996; Ichinowski, Shaw, & Prenzushi, 1997).

² In fact, they found that 82 percent of New York teachers were employed in jobs teaching at schools that were within 40 miles of their hometowns.

³ Ballou’s (1996) analysis of data from the *Surveys of Recent College Graduates* (1976-1991) suggests that a stronger academic background does little for a candidate’s job prospects in public schools.

⁴ The Government Performance Project (GPP), which was a project directed in the Maxwell School of Syracuse University, and funded by Pew Charitable Trusts, involved surveying governments in five management areas including human resource management. Surveys were sent to key staff in all 50 states, the 40 largest county governments, and 35 largest city governments. These surveys were used to assess the state of HRM in these large governments. For more on the GPP, see the following website, <http://www.maxwell.syr.edu/gpp/>

In contrast to growing research on HRM in other public organizations and private firms, very little conceptual or empirical work has focused on strategic human resources practices and their effects on hiring decisions in education. This section briefly reviews the relevant literature and provides some context for the topics included in the survey. Teacher recruitment is a problem of uncertainty because school districts have imperfect information on how teachers will actually perform in the classroom. Districts can reduce this uncertainty by either increasing the pool of high quality applicants through better recruitment practices or gathering more information on attributes of prospective teachers relevant to future job performance through better screening and selection practices.

Recruitment

Recruitment, like all aspects of HRM, requires careful planning to be successful (Pynes 1997). Ideally, a strategic human resource planning process would be used to determine the district's personnel needs. Based on the plan, the school district should develop a recruitment plan that delineates: 1) when will the district recruit (i.e. timing with respect to the school year); 2) how will the district recruit (e.g. newspaper ads, on-line job banks, etc.); and 3) where will the district recruit (e.g. locally, colleges and universities, nationally)?

Most of the literature on recruitment in education focuses on state policies and is case study based. These studies examine teacher recruitment, training, and compensation policies in particular states, and use these case studies to make broad recommendations (The Southeast Center for Teaching Quality, 2002; Pathways to Teaching Careers, 1997; Hirsch, 2001; Fox and Certo, 1999; Education Research Service, 2001; Clewell, et al., 2000). The focus of most of this research is on potential changes in state certification and compensation policy that can increase the supply of teachers.

The little evidence that does exist on actual recruitment practices in education suggests that districts engage in a fairly limited search for candidates. Using a detailed survey of superintendents, school board presidents, and teacher union presidents in Pennsylvania, Strauss et al (1998, 2000) find, for example, that 75% of districts only advertise in Pennsylvania and 17% only advertise locally. The media outlets used most frequently in order of importance include education trade publications (e.g., Pennsylvania School Board Association bulletin), education school placement offices, word of mouth, and newspapers. The internet was used at least sometimes by 29% of respondents. Only 30% of districts had partnerships with colleges for teacher training and placement, although 50% were contacted by colleges marketing their graduates.

While the Strauss study is valuable, it is for only one state and is seven years old. As might be expected for a 1997 survey, Strauss had only one question about the use of the internet. In addition, the survey didn't ask about district programs to expand the supply of teachers or the use of monetary recruitment incentives. These are topics included in our survey of New York districts.

Screening and Selection

After recruiting applicants, school district staff attempt to identify the strongest candidates in the applicant pool. The selection process involves identifying a set of selection criteria, determining the methods for assessing teacher quality, and deciding on who will participate in the process. As in most organizations (Pynes, 1997), districts typically begin the process by putting a set of applicants through a rough screen to determine which applicants do not meet predetermined minimum requirements. In the case of education this might be applicants who aren't certified or whose test scores are too low.

Once eligible candidates are identified, districts select among them using a process that might include interviews, portfolio assessments, and observations of sample lessons. Districts need to decide on what criteria will be used, and who will be involved in the selection process. One organization decision that has received attention is the degree to which the hiring process is decentralized (David, 1988, Shivers, 1989, Wise et al, 1987). Decentralized hiring processes are often promoted as leading to improved hiring decisions, because school-level staff can better identify teachers that match their school's particular staffing needs (Wise et al, 1987). Relatively little empirical evidence exists on the effectiveness of decentralized hiring processes.

Strauss et al. (1998, 2000) found that districts conducted between one and two interviews (44% had at least two interviews), each of which lasted between 40 and 45 minutes. Principals are very involved in both the screening and first interview process, followed by assistant principals, superintendents, and department heads. If there is a second interview, the superintendent and principal are the most common attendees. Besides applications, districts most often require applicants to submit written recommendations, college transcripts, and proof of certification. First interviews cover a wide range of topics but almost always focus on managing classroom problems, discipline, experience, subject matter, curriculum, and learning styles. Only 43% of districts in Pennsylvania require candidates to teach a sample lesson as part of the hiring process. In screening and selection, respondents most frequently cited past performance in teaching, references, major in area of teaching, grade point average, and experience as important. Caliber of certificating institution, dual certification, advanced degrees, writing samples, and test scores were cited less frequently as important. Strauss et al. (2000) conclude that "insufficient emphasis is placed on content knowledge other than what is reflected in grade point averages (but not college of preparation). Performance on test scores is weighted, on average, as heavily as willingness to engage in extra-curricular activities." (p. 405)

In contrast to the district level survey of Strauss, Liu and colleagues (Liu, 2002; Liu and Johnson, 2003) have conducted teacher-level surveys in five states asking teachers to characterize the hiring process they experienced. They found that fully or partially decentralized selection processes may be the norm among districts. Teachers took part in one to two interviews. Principals and, to a lesser extent, superintendents and other district administrators are involved in the interviews. Teachers in public schools were asked most frequently to submit resumes, references, college transcripts, and cover letters. Less frequently, teachers had

to submit portfolios, lesson plans, and writing samples.⁵ Only 10% to 20% of public school teachers were asked to teach sample lessons, compared to over 50% of charter school teachers in New Jersey. Liu (2002) concludes that, “Taken together 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 those who do the hiring and teaching candidates” (p. 1).

⁵ Liu (2002) compared teacher response in public and charter schools in New Jersey and found that charter schools asked teachers to submit portfolios and lesson plans more frequently than public schools.

III. Survey Design and Implementation

Survey Objectives

The literature on hiring practices in school districts has been primarily prescriptive and anecdotal in nature. The primary objective of this survey is to document important teacher hiring practices used by school districts in New York State. Examining actual practices is important for several reasons. First, it is valuable to provide baseline information on present practices used by districts before evaluating the impacts of future policy changes or training programs. Second, we want to document the use of potentially “innovative” practices, such as the use of the internet for recruitment. Third, actual practices may vary significantly across districts due to characteristics that are outside of district control, such as enrollment. It is important to document these differences and to examine what may underlie these choices of practices, before identifying possible training or policy changes. Fourth, the survey will provide information to organizations, such as SED and NYSCOSS, on what types of training and outreach would be valuable to school district staff.

Survey Design

The list of topics that could be included in a survey of teacher hiring practices is extensive and would require at least several surveys. To keep the survey to manageable length, choices had to be made about the focus of the survey; we wanted to limit the survey to important practices and to emerging practices as identified in the literature. In selecting questions, we eliminated questions for which we expected there would be little variation across New York school districts. We also removed questions to which we felt it would be difficult for superintendents to provide a meaningful response without significant research or where the question would be vulnerable to misinterpretation.

In constructing the survey, we borrowed extensively from the detailed survey developed by Strauss (1998), particularly in the section on screening and selection. The research of Liu (2002) indicated the importance of examining whether the hiring process was centralized, decentralized, or shared; therefore, we asked several questions about staff involvement in the recruitment, screening, interview, and selection processes. In addition, several studies of state recruiting programs were used to identify a range of recruiting incentives and strategies for increasing teacher supply (Clewel et al., 2000; Hirsch, 2001; The Southeast Center for Teacher Quality, 2002). We tried to keep questions as simple and direct as possible and to keep the format of questions fairly similar. Most questions are of three types: simple binary response categories, multiple responses (check all that apply), and ordinal scales. For some questions we allowed respondents to select the “other” category and to provide a description. Finally, a few open-ended responses were included primarily at the end of the survey.

In terms of content, the survey was organized into three broad topics. (The full survey instrument is available in Appendix A to this report.) The first section of the survey focuses on recruitment; including traditional and non-traditional practices. The second section focuses on screening and selection; including

questions about the number of interviews, their length, and whether interview questions are determined in advance. The third section of the survey asks about the use of SED services, interest in training and support, major constraints faced by districts, and innovative practices.

Survey Implementation

In implementing the survey, we followed closely the recommendations of Dillman (2000). After a review of the literature, we designed the initial draft of the survey during the winter of 2004. The survey audience was superintendents or human resource directors they designated to complete the survey. The first draft of the survey was reviewed by several superintendents and human resource staff. Drafts of the first survey were also sent to staff members at SED and academic experts in human resource management and survey design for review. Based on the feedback we received from reviewers, significant modifications were made to the survey instrument. We used the district mailing list developed by SED, modified in some cases using information from district websites. The final list of districts excluded New York City and “special act” districts resulting in a sample of 684 districts.

A number of steps were taken to maximize the response rate to the survey. The director of NYSCOSS, Tom Rogers, graciously agreed to endorse the survey, put the NYSCOSS logo on the survey instrument, and send a joint cover letter (with William Duncombe) with the survey. NYSCOSS also allowed us to put a link to the online survey on their website. To provide the greatest flexibility possible, the survey was available in both hardcopy and online.⁶

We sent several waves of mailings to superintendents. The first mailing was sent in early May of 2004 and included a copy of the survey, a sheet of instructions on how to use the online survey, a postage paid return envelope, and a cover letter explaining the objectives and importance of the survey (A copy of the cover letter is available in appendix B). Approximately two weeks after the first mailing, we sent out a postcard to all districts on our mailing list, reminding them about the survey that had been sent out and encouraging completion. Five weeks after the first mailing we sent a second packet to non-responding districts, which included a second letter, with a copy of the survey, online instructions, and a return envelope. Two months after the initial mailing, we sent out a third packet of the same material to non-respondents. The survey was formally closed in mid August. A thank you letter was sent to respondents in early September.

Characteristics of the Sample

From the initial set of responses, we removed districts with significant missing observations or where the survey was returned twice (both paper and online). The resulting sample included 488 responses for a response rate of 71.3%. However, 3 of these districts removed their district identification and, therefore, cannot be merged with other district data. While most respondents (79%) completed the paper survey, a significant number used the online survey. The response rate to the survey was excellent, especially

⁶ The online survey package, Survey Monkey, was used to design the online survey, and store survey results.

considering the busy schedules of superintendents. We greatly appreciate their willingness to carefully complete the survey.

To examine how representative the sample is of all school districts in New York, we compared average characteristics for districts completing the survey with those of districts not completing it (Table 1). Included in our comparison are enrollment, fiscal, teacher, and region variables.

Table 1. Evaluation of Whether Sample Responding to Teacher Hiring Survey Is Representative of All Districts In New York¹

	All Districts	Districts In Survey	Districts Not in Survey
Enrollment Variables:			
Enrollment (dcaadm)	2,676	2,681	2,545
Percent nonwhite enrollment	11.5	10.9	13.0
Percent Hispanic enrollment	4.5	4.1	5.3
Percent LEP students	1.4	1.2	1.8
Percent of free lunch students	29.4	29.0	30.3
Child poverty rate (2000)	11.6	11.5	12.1
Percent single mother families	6.3	6.2	6.5
Financial Variables:			
Per pupil total spending	\$16,565	\$16,284	\$17,269
Per pupil operating spending	\$14,389	\$14,256	\$14,725
Per pupil spending on teaching	\$8,539	\$8,420	\$8,839
Per pupil state aid	\$5,680	\$5,694	\$5,645
Per pupil local taxes	\$7,940	\$7,871	\$8,115
Local property tax rate (per \$1000 of MV)	17.1	15.8	20.3
Combined wealth ratio (CWR)	1.20	1.20	1.17
Per pupil income (AGI)	\$142,584	\$137,845	\$154,467
Per pupil market property values	\$657,545	\$688,163	\$580,604
Teacher Variables (all teachers):			
Salary	\$46,465	\$46,694	\$45,890
Adjusted salary index ²	1.00	1.00	1.00
Total experience	16.5	16.6	16.2
Percent with graduate degree	73.6	73.2	74.5
Percent probationary	25.4	25.0	26.2
Percent tenured	71.5	71.8	70.5
Percent female	73.6	73.5	73.8
District Classifications (percent of all districts):			
SED regions			
Large and small city districts	8.8	8.8	8.8
Upstate and downstate suburban districts	60.5	60.0	61.7
Upstate rural districts	30.2	30.5	29.5
Downstate districts	26.0	23.8	31.6
Upstate districts	74.0	76.2	68.4
Need/resource capacity categories			
High need urban districts ³	6.0	5.5	7.3
High need rural districts	23.5	21.7	28.0
Average need districts	50.2	54.9	38.3
Low need districts	19.7	17.2	25.9

Data Sources: New York State Education Department, New York State Office of State Comptroller, U.S. Bureau of the Census, 2000 Census of Population.

¹Bold and italics indicates a statistically significant difference between districts completing the survey and those not completing survey (at 5% level).

²Teacher salaries adjusted for years of experience and education level.

³Includes the categories for large cities and other high need urban districts.

Districts completing the survey have similar enrollment size and student socio-economic composition as non-respondents. The one exception is the share of limited English proficient (LEP) students, which was higher in districts not in the survey. Regarding district finances, districts in the survey have 6% lower spending overall and 3% lower operating spending. None of the other differences in fiscal variables are statistically significant from zero. The teacher work force in responding districts is very similar to non-respondents, except that non-respondents have slightly less experienced teachers and a slightly lower share of tenured and permanently certified teachers. Respondents and non-respondents tend to be distributed evenly between urban, suburban, and rural districts. Respondents are less likely to be located in downstate districts than non-respondents. A slightly higher share of districts completing the survey are average need districts and a lower share are low need districts.

IV. Survey Results -- Recruitment

The high response rate and representative nature of the sample provides us the opportunity to examine, in depth, the teacher hiring practices of New York school districts. We will organize the results into two sections corresponding the two main sections of the survey. In this report, we will present primarily simple bivariate relationships between recruitment practices and district characteristics. Specifically, we examine differences in results based on enrollment size and the resource capacity, and student needs of the district as classified by SED.⁷ Using the results of question 3 on the difficulty of recruiting teachers in specific fields and schools, we constructed a measure of the difficulty of recruiting teachers in the district.⁸ We examined how use of practices varied with the difficulty of recruiting teachers in the district. A multivariate analysis was conducted using enrollment and the need/resource capacity categories. While these results are not displayed in report tables, important results are discussed in the text.⁹ Basic results for each survey question are presented in Appendix C.

Difficulty in Recruiting

Before examining the recruitment practices used by districts, we wanted to examine the severity of the recruiting problems faced by New York districts. We asked districts to indicate the degree of difficulty they had in recruiting teachers during the last three years by subject area, type of school, and demographics of the teachers. As indicated in Table 2, there is wide variation across subject areas and types of schools in whether districts were recruiting. Over 85% of districts were recruiting math, science, English, special education, foreign language, elementary, middle school, and high school teachers. Not surprisingly, the probability of recruiting a teacher went up with the size of the district. As expected, high need urban districts were more likely to recruit a diverse teaching force to serve schools with a high share of minority and low income students (Table 3), however, over 70% of low need districts also recruited Latino and African American teachers.

⁷ The SED classification uses the share of free lunch students in K-6 as the measure of needs, and CWR as the measure of fiscal capacity. We have combined the categories for the Big 4 cities and “other high need urban” districts to preserve confidentiality of the survey responses. Bivariate results are also available by income, subsidized lunch, and non-white enrollment categories in tables in Appendix D.

⁸ To calculate the difficulty of recruitment, we took the average share of teacher categories (subject areas, types of schools, and demographics of teachers) where districts had recruited in the last 3 years, which they identified as very difficult to recruit for. If a district had less than 8% of these categories identified as very difficult, they were categorized as low difficulty, 8% to 31% as medium difficulty, and above 31% as high difficulty.

⁹ The regressions are exploratory in nature, because they are not based on a model of policy adoption, thus, may suffer from omitted variable bias. Regression results for models including a variable for teacher recruitment difficulties should be viewed cautiously since the direction of causation is unclear.

Table 2. Difficulty Recruiting by Enrollment Class
(percent of responses)¹

	Share Recruiting In Last 3 Years ²				Share Indicating "Very Difficult" If Recruiting			
	Low	Medium	High	All Districts	Low	Medium	High	All Districts
Subject Area:								
Mathematics	80.4	92.2	99.3	90.2	52.1	40.3	38.3	43.0
Science	70.6	91.7	99.3	86.8	45.3	40.3	41.6	42.2
English/language arts	69.9	92.2	98.7	86.2	6.9	1.3	1.4	2.7
Special education	75.2	96.1	100.0	90.3	19.6	9.6	8.1	11.7
Foreign language	70.6	90.0	98.0	85.4	68.6	66.0	68.0	67.4
Social studies/history	64.1	88.9	98.7	83.2	1.0	0.6	1.4	1.0
Computer science	31.4	48.3	48.7	40.5	23.3	13.9	16.2	16.8
Music or art	63.4	81.1	98.7	80.5	19.1	11.6	4.1	11.1
Vocational	39.9	51.7	72.4	52.4	60.0	40.7	36.5	43.3
ESL	22.2	45.6	80.3	46.9	62.1	40.5	31.6	38.6
Type of School:								
Elementary	85.0	97.8	99.3	93.6	1.0	0.0	0.0	0.2
Middle/junior high	90.2	94.4	98.7	93.4	10.8	1.9	4.3	5.0
High school	85.6	96.7	98.7	92.7	26.9	16.8	13.0	17.9
Low income	58.8	52.8	46.7	38.3	22.7	6.9	12.2	13.3
Minority students	35.9	33.3	44.7	17.7	0.0	9.1	16.7	12.3
Demographics of Teachers:								
Latino	35.9	56.1	79.6	49.9	67.9	74.7	60.0	66.3
African-American	38.6	59.4	82.2	53.1	70.0	68.2	71.4	69.7
Male	66.7	79.4	88.2	74.2	10.8	4.3	8.0	7.2

¹ Bold and italics indicates that there is a statistically significant difference between the categories (10% level). "Low" enrollment is below 30th percentile, "medium" is 30th to 70th percentile, and "high" is above the 70th percentile. The enrollment measure is dcaadm.

² Respondents asked to check NA if district has "not recruited a teacher in a given category or the category does not apply."

Table 3. Difficulty Recruiting by Need/Resource Capacity Category
(percent of responses)¹

	Share Recruiting In Last 3 Years ²				Share Indicating "Very Difficult" If Recruiting			
	High Need Urban	High Need Rural	Average Need	Low Need	High Need Urban	High Need Rural	Average Need	Low Need
Subject Area:								
Mathematics	88.9	87.7	94.0	84.5	54.2	48.3	43.1	30.9
Science	88.9	81.1	90.7	84.5	52.2	43.9	40.4	42.0
English/language arts	92.6	79.2	90.3	85.7	8.0	6.3	1.3	1.4
Special education	100.0	82.1	93.3	90.5	15.4	22.6	9.5	5.4
Foreign language	92.6	76.4	89.9	85.7	84.0	72.7	66.5	58.6
Social studies/history	88.9	74.5	86.9	85.7	0.0	0.0	0.9	2.9
Computer science	40.7	39.6	40.7	56.0	9.1	27.0	14.1	16.3
Music or art	100.0	68.9	82.5	85.7	18.5	14.5	9.0	8.7
Vocational	63.0	41.5	59.0	53.6	29.4	41.5	46.3	39.5
ESL	85.2	24.5	48.9	69.0	52.2	81.0	40.2	13.0
Type of School:								
Elementary	100.0	88.7	95.1	96.4	0.0	0.0	0.4	0.0
Middle/junior high	100.0	93.4	94.8	92.9	12.5	3.8	4.8	4.6
High school	100.0	92.5	94.8	90.5	12.5	26.6	16.4	14.3
Low income	92.6	74.5	46.3	33.3	10.5	14.6	13.9	0.0
Minority students	81.5	35.8	35.1	34.5	20.0	0.0	12.8	0.0
Demographics of Teachers:								
Latino	85.2	41.5	56.0	71.4	73.7	71.4	69.7	54.2
African-American	88.9	42.5	59.3	75.0	75.0	71.4	69.3	69.2
Male	92.6	67.9	79.5	82.1	4.8	10.2	6.3	8.8

¹ Bold and italics indicates that there is a statistically significant difference between the categories (10% level). The "High Need Urban" category includes both the Big 4 and "other high need urban" districts.

² Respondents asked to check NA if district has "not recruited a teacher in a given category or the category does not apply."

Of the districts recruiting for a given position, the subject areas where at least a third of districts found recruiting certified teachers to be very difficult are mathematics, science, foreign language, vocational education, and ESL (Table 2). Interestingly, special education was identified by only 12% of districts as very difficult to recruit for. Among types of schools, no category was identified by 20% of districts as very difficult to recruit for, although 60% of districts indicated that it was “somewhat difficult” to recruit for high schools, middle schools, and schools serving significant numbers of low income students . Of the districts recruiting for schools with a high share of minority students, 12% found recruitment very difficult and 38% somewhat difficult. Only half of the responding districts recruited Latino or African American teachers but of those, two-thirds found it very difficult.

We also examined how teacher recruiting challenges varied by size and need/resource capacity of schools. As suggested in Tables 2 and 3, low enrollment districts often have more difficulty than larger districts recruiting teachers in math, special education, music/art, vocational education, ESL, and high schools. High need urban districts also have more difficulty (than average need or low need districts) recruiting foreign language, math, ESL, and special education teachers. They do not seem to have any more difficulty recruiting African-American or Latino teachers or teachers for low income schools.

The multivariate analysis indicates that controlling for enrollment high need urban districts have more difficulty than average need and low need districts recruiting for English, special education, foreign languages, music/art, and ESL.¹⁰ High need rural districts have difficulty recruiting for special education and ESL teachers.

Organization of the Recruiting Process

One of the issues addressed in the literature on teacher recruitment has been whether the process is centralized or decentralized. Several education scholars have recommended decentralized hiring processes (Wise et al, 1997; Liu, 2002), although little empirical evidence exists on its effectiveness. Another organizational issue to be considered is the professionalization of the human resource staff. Specifically, we are interested in whether the district has a human resources (HR) director on staff and how the presence (or absence) of an HR director affects the hiring process. To determine how superintendents would characterize the process in their districts, we asked a series of questions about the level of involvement of staff members.

As shown in Table 4, only 40% of districts have an HR director, which is surprising given the importance of personnel in education budgets and service delivery. Thirty to forty percent of districts do not have district-level curriculum directors, assistant principals, and school department heads. As expected, the probability of having more staff positions goes up with district size. Only 5% of low enrollment districts have an HR manager compared to 87% of large districts. High need urban districts and low need districts are more likely to have an HR manager, than other types of districts. Similar patterns exist for district-level curriculum

¹⁰ Analysis was done with logistic regression, where the dependent variable was a dummy variable for very difficult to recruit. Results are reported when the coefficient is statistically significant from zero at the 10% level.

directors, assistant principals, and school department heads. Controlling for enrollment, low need districts are more likely to have an HR director than other types of districts.

Table 4. Involvement of Staff in Recruitment Process by District Characteristics
(percent of responses with position)¹

Enrollment ²	Percent with Position				Percent of Responses with Position Very Involved in Recruitment			
	Low	Medium	High	All Districts	Low	Medium	High	All Districts
Superintendent	100.0	100.0	100.0	100.0	85.3	61.9	29.1	61.9
Human resource manager	4.8	26.2	86.8	38.8	100.0	86.7	95.4	93.4
District-level curriculum director	23.4	59.1	94.5	58.6	50.0	57.7	46.7	51.3
School business official	78.9	92.7	95.3	89.1	5.2	6.6	2.8	4.9
Principals	90.8	100.0	100.0	100.0	91.3	88.3	76.2	88.3
Assistant principals	16.1	78.5	98.7	65.1	58.3	41.0	37.4	40.5
School department heads	29.1	79.1	92.0	67.4	55.8	52.9	53.6	53.7
Teachers	100.0	100.0	100.0	100.0	50.0	41.0	25.7	41.0

SED Need/Resource Capacity Categories	High Need	High Need	Average	Low Need	High Need	High Need	Average	Low Need
	Urban	Rural	Need		Urban	Rural	Need	
Superintendent	100.0	100.0	100.0	100.0	33.3	78.5	55.0	53.8
Human resource manager	77.8	8.8	39.1	66.3	85.7	77.8	95.2	92.7
District-level curriculum director	81.5	37.5	62.1	72.5	54.5	56.4	48.8	51.7
School business official	100.0	84.6	89.3	91.4	3.7	5.7	4.1	8.1
Principals	96.4	95.3	98.9	94.0	66.7	88.2	86.7	83.3
Assistant principals	85.2	36.5	69.1	82.7	30.4	39.5	38.8	49.3
School department heads	85.2	52.9	70.7	69.6	34.8	52.7	54.9	58.2
Teachers	100.0	100.0	100.0	100.0	22.2	44.1	40.6	33.3

¹ Bold and italics indicates that there is a statistically significant difference between the categories (10% level).

² "Low" is below 30th percentile, "medium" is 30th to 70th percentile, and "high" is above the 70th percentile.

Examining involvement of the staff in the recruitment process, principals and superintendents are very involved in recruitment in a majority of districts. HR managers are very involved in recruiting in 93% of the districts that employ them. A majority of districts also indicate that assistant principals and district-level curriculum directors are very involved. Superintendents, principals, and teachers are more involved in recruitment in small districts as compared to large districts. Controlling for enrollment, neither need/resource capacity nor difficulty recruiting teachers appears to be related to the involvement of the staff. The organizational structure for recruitment does not fit neatly into labels of centralized and decentralized. Most districts appear to use a shared process for recruitment. In small districts, superintendents, principals, and teachers are the major players. As the district gets larger, specialized district staff, particularly the HR director, appear to take over for the superintendent. At the school level, assistant principals appear to assume some of the recruitment responsibility from principals, and school department heads become more involved in this process than teachers.

Traditional Recruiting Methods

The goal of teacher recruitment is to increase the number of high quality applicants to the district. Traditional methods of recruiting have focused on increasing the number of applicants from the local pool of teachers using fairly passive methods. Strategies would include advertising locally, attending local job fairs, and partnering with local colleges. In periods of teacher surplus, districts may be able to produce sufficient

numbers of high quality applicants by only tapping the local pool. When there are teacher shortages, districts may have to consider more aggressive (and expensive) strategies. One possibility is to expand traditional approaches such as advertising, job fairs, and college partnerships to other areas of the state or outside the state. Another alternative is to search for “innovative” approaches to both expand the number of applicants from outside the local area and to try to expand the local supply of teachers available to a district. The term “innovative” is put in quotation marks because innovative does not necessarily imply effective; the research on the effectiveness of these strategies is anecdotal at best. We will focus initially on the more traditional approaches and then turn, in the next section, to “innovative” approaches. This is one of the few surveys that we are aware of that systematically documents the use of these strategies by school districts.

Advertising. A simple and fairly passive strategy for recruitment is to put an advertisement in a newspaper, trade publication, or on radio or television. The least expensive option would probably be local newspapers and possibly local radio stations. We asked districts to identify the media outlets they use and whether the newspapers are local (within 50 miles), in other areas of the state, or based out of state.¹¹ The typical district begins advertising in March or April and makes an offer in June (Table 5); an early advertising date is associated with making earlier offers to prospective teachers.¹² Large districts start advertising a month earlier than small districts and make their offers a half a month earlier. High need urban districts begin advertising around the same time as average need and low need districts, but make their offers one-half to one month later (even controlling for enrollment).¹³

Table 5 suggests that most advertising is in local papers, with a smaller subset of advertising in other New York newspapers. A third of districts indicated that some of their advertising was in education trade publications and almost no districts report using radio or TV advertisements. Small districts are more apt to use local newspapers and less apt to use other New York newspapers than districts with high enrollment. High need urban districts and average need districts are less apt to use newspaper advertising in general than high need rural districts but are not more likely to use other media (even controlling for enrollment). Unexpectedly, high need rural districts are more apt to use radio and TV advertising than other districts (use is still very limited).

¹¹ We did not clarify in this question whether a New York newspaper with national circulation, such as the *New York Times*, is considered an out-of-state paper. The distinctions across the three categories could be handled differently by districts if they advertise in the *New York Times*. Given the expense of such an advertisement, we are assuming that relatively few districts outside of the New York City area advertise in this paper.

¹² The correlation between the date of advertising (in months) and offering date is 0.44. For districts that gave us a range of months for advertising date and offer date, we used the middle date in the calculations (using fractions of months).

¹³ We asked superintendents to identify the number of hires after the first day of school to identify emergency hires. Unfortunately, the results suggest that there was variation in how they interpreted the questions, so the results are not reported.

Table 5. Advertising for Teachers in Media Outlets by District Characteristics
(percent of responses with "most" or "all" advertisements)¹

Enrollment²	Low	Medium	High	All Districts
Date of first advertisements (months)	4.1	3.7	3.0	3.6
Date of typical offer (months)	6.1	5.8	5.7	5.9
Local newspapers/periodicals (within 50 miles)	86.6	81.0	71.1	79.7
Other newspapers/periodicals in New York	24.5	19.0	31.8	24.8
Newspapers/periodicals in other states	1.4	1.8	0.7	1.3
Education trade publications/periodicals	2.1	3.0	5.5	3.5
Radio/television	2.2	0.6	0.7	1.1
	High Need	High Need	Average Need	Low Need
SED Need/Resource Capacity Categories	Urban	Rural		
Date of first advertisements (months)	3.5	4.1	3.6	3.1
Date of typical offer (months)	6.4	6.1	5.9	5.4
Local newspapers/periodicals (within 50 miles)	70.4	86.8	81.7	66.3
Other newspapers/periodicals in New York	19.2	26.7	19.2	42.0
Newspapers/periodicals in other states	0.0	3.2	1.1	0.0
Education trade publications/periodicals	7.7	6.1	1.5	5.0
Radio/television	0.0	3.1	0.8	0.0

¹Bold and italics indicates that there is a statistically significant difference between the categories (10% level).

²"Low" is below 30th percentile, "medium" is 30th to 70th percentile, and "high" is above the 70th percentile.

Recruiting from Colleges. While advertising may be a successful strategy for experienced teachers, for new teachers a more effective approach may be to work with the colleges producing them. The contact can be fairly passive, such as asking colleges to post job notices on bulletin boards or in placement newsletters, or can involve a more direct contact with the college by visiting the campus or talking to faculty about job candidates. School districts and colleges can establish even stronger partnerships through student teaching arrangements and the interaction of college faculty and district personnel on curricular and pedagogical issues. Due to space limitations on the survey, we combined questions about the types of strategies and where districts use these strategies into one question.

The most common college recruitment strategies used by districts at local colleges are supervision of student teachers (87% of districts), posting of job notices at the college (83%), and contacting college faculty (81%). Over 60% of respondents also visit local colleges or advertise in placement newsletters distributed by local colleges (Table 6). Not surprisingly, utilization of non-local colleges is substantially less, and more apt to be a passive strategy (post job notices, advertise in placement newsletters). Approximately 30% of districts indicate that they visit campuses or contact faculty of non-local colleges. With regard to non-New York colleges, the share of districts working with these colleges on recruitment drops to 10% or less for most strategies. This might be expected for active strategies such as student teaching, campus visits, and contacting college faculty but it is unclear why more districts do not post job notices or advertisements with colleges in the northeast region. When asked to list the 5 colleges with which the district conducts the greatest number of activities, only 34 districts (7% of sample) identified colleges in other states. The vast majority of these

districts are close to state borders, and the colleges used are in neighboring states, particularly Pennsylvania (60% of out-of-state colleges listed).¹⁴

Table 6. Location of Colleges Where Districts Using Recruitment Strategies By District Characteristics (percent of responses using recruitment strategy)¹

Enrollment ²	Local Colleges ³				Non-Local Colleges			
	Low	Medium	High	All Districts	Low	Medium	High	All Districts
Post job notices at the college	77.7	83.6	86.8	82.7	54.5	50.7	54.4	53.0
Visit campus to actively recruit job candidates	42.6	63.0	82.5	67.8	23.4	17.8	42.7	30.0
Advertise in placement newsletter distributed by college	54.7	59.7	69.4	61.7	42.2	36.1	47.2	41.6
Contact specific college faculty to identify potential job candidates	76.3	80.7	84.5	80.5	31.2	26.9	37.3	31.3
Supervise student teachers from the college	84.4	86.1	90.0	86.8	18.0	21.2	37.1	25.3
SED Need/Resource Capacity Categories	High Need Urban	High Need Rural	Average Need	Low Need	High Need Urban	High Need Rural	Average Need	Low Need
Post job notices at the college	73.9	76.7	86.6	79.2	34.8	59.3	54.0	45.8
Visit campus to actively recruit job candidates	92.3	46.7	71.9	70.5	30.8	26.7	32.8	25.0
Advertise in placement newsletter distributed by college	58.3	57.1	66.9	48.3	33.3	46.9	43.5	27.6
Contact specific college faculty to identify potential job candidates	78.9	81.7	79.9	82.0	31.6	31.0	32.3	28.0
Supervise student teachers from the college	80.0	86.2	86.5	91.2	44.0	21.3	25.4	23.5

¹Bold and italics indicates that there is a statistically significant difference between the categories (10% level).

²Low" is below 30th percentile, "medium" is 30th to 70th percentile, and "high" is above the 70th percentile.

³Local colleges are those within 50 miles of the district.

The use of college recruitment strategies (particularly active strategies) increases with the size of the district, especially with non-local colleges. High enrollment districts are twice as likely to visit campus or supervise students of non-local colleges than low enrollment districts. High need urban districts are more apt to visit campuses of local colleges and supervise student teachers from non-local colleges but otherwise use strategies similar to those of other districts. Controlling for enrollment, high need rural districts are actually more likely to post job notices and advertise in placement newsletters in local and non-local colleges than low need districts, while high need urban districts are not.¹⁵

Job Fairs. Another common approach to teacher recruitment is for a district to be present at education job fairs. The typical district in New York attends one job fair and 37% of districts attend no job fairs (Table 7). Over 90% of districts attend three or fewer job fairs and less than half have a recruiting brochure (or other

¹⁴ The colleges listed by state include Pennsylvania (24), Vermont (5), Connecticut (4), Massachusetts (3), New Jersey (1), and other states (2). The colleges mentioned most often are all in Pennsylvania—Mansfield University (8), Marywood University (6), and Edinboro University (4).

¹⁵ We also examined whether districts with an HR resource director are more likely to work with non-local colleges. Districts with HR directors are less apt to advertise in local newspapers and more apt to advertise in other New York newspapers. With regard to college recruitment, districts with HR directors are more apt to work with local and non-local colleges for most strategies. This is particularly the case with college visits and for supervising student teachers in other New York colleges. However, the effects of an HR director are not statistically significant when enrollment, and need/resource capacity of the district are controlled for.

literature) to inform candidates about the district. The attendance at job fairs goes up significantly with district enrollment. Large districts, for example, attend between two and three job fairs and 20% attend four or more. By contrast, the use of recruiting brochures goes down with enrollment and share of non-white enrollment. One-third of large districts use brochures compared to 55% of small districts. It is not clear why the use of recruiting brochures is negatively related to attendance at job fairs and to district enrollment. High need districts or those with difficulty recruiting teachers are not more likely to attend job fairs or use recruiting brochures once enrollment is controlled for. The attendance at job fairs is positively related to district use of BOCES services for recruitment fairs; 81% of districts using these services attend job fairs, compared to 55% of districts that do not.

Table 7. Use of Recruiting Brochures and Attendance At Job Fairs By District Characteristics (percent of responses)¹

Enrollment²	Low	Medium	High	All Districts
Has recruiting brochure	55.0	40.4	32.9	42.8
Number of jobfairs:				
None	54.2	38.3	16.4	37.0
1	28.8	27.2	16.4	24.6
2 to 3	14.4	30.6	46.1	30.4
4 to 5	0.7	2.8	12.5	5.2
More than 5	0.7	0.6	7.9	2.9
SED Need/Resource Capacity Categories	High Need Urban	High Need Rural	Average Need	Low Need
Has recruiting brochure	25.0	46.7	40.4	48.8
Number of jobfairs:				
None	17.9	44.9	32.7	40.5
1	17.9	25.2	25.8	20.2
2 to 3	42.9	27.1	30.5	32.1
4 to 5	17.9	2.8	4.7	4.8
More than 5	3.6	0.0	4.0	2.4

¹Bold and italics indicates that there is a statistically significant difference between the categories (10% level).

²"Low" is below 30th percentile, "medium" is 30th to 70th percentile, and "high" is above the 70th percentile.

Emerging Approaches for Teacher Recruitment

Districts continue to focus their recruitment efforts primarily on traditional methods, particularly in the local area. Relatively few districts advertise outside the local area or work with non-local colleges. The fact that the use of traditional methods, especially outside the local area, goes up with enrollment suggests that the costs of teacher recruitment are perceived to be relatively fixed, in the sense that costs per position recruited go down with the number of positions recruited.¹⁶ The first emerging approach we examine may provide the opportunity to reduce some of the fixed costs of recruiting.

Use of the Internet. The internet should be the ideal medium for teacher recruitment. For the cost of posting job notices on a website, a district can potentially have access to a national market of teachers. Districts can

¹⁶ Ideally, we would like to test this assumption, but we do not have recruitment costs disaggregated from other central office expenditures.

post job notices on their own websites and can provide recruiting brochures online for candidates to download. Prospective teachers can communicate with the districts by email and can even submit their applications online. Districts can use the internet to do a national search for the right teachers as inexpensively as if they were doing a local search.

To understand internet use, we asked superintendents if their districts use the internet for recruiting and, if so, for which functions. Approximately three-quarters of districts say that they use the internet for recruiting. Among districts using the internet, over half post job notices on the school district website or on teacher recruitment websites (Table 8). The principal recruitment websites districts use are operated by BOCES, particularly the OLAS system provided the Putnam-Westchester BOCES, or are run by college placement offices. Almost half of the districts allow candidates to submit applications online. A much smaller share of districts using the web post jobs on general recruitment websites or search for candidates online. These findings suggest that most districts are reaping only a portion of the potential benefits of the internet.

Table 8. Use of the Internet for Recruitment by District Characteristics
(percent of responses)¹

Enrollment²	Low	Medium	High	All Districts
District uses the internet to recruit teachers	64.1	77.2	85.5	75.4
Posts job openings on school district website	37.9	57.2	76.3	57.0
Post job openings on online recruitment websites targeted to teachers	37.9	43.9	47.4	43.0
Posts job openings on general online recruitment websites	9.2	7.2	12.5	9.4
Searches for candidates on a recruitment website	15.7	13.3	24.3	17.4
Allows candidates to submit applications online	24.8	37.8	48.7	37.1
	High Need	High Need		
SED Need/Resource Capacity Categories	Urban	Rural	Average Need	Low Need
District uses the internet to recruit teachers	85.7	67.3	80.0	70.2
Posts job openings on school district website	64.3	47.7	60.7	59.5
Post job openings on online recruitment websites targeted to teachers	57.1	39.3	44.7	40.5
Posts job openings on general online recruitment websites	10.7	8.4	11.3	7.1
Searches for candidates on a recruitment website	28.6	13.1	18.9	17.9
Allows candidates to submit applications online	35.7	28.0	37.8	46.4

¹Bold and italics indicates that there is a statistically significant difference between the categories (10% level).

²"Low" is below 30th percentile, "medium" is 30th to 70th percentile, and "high" is above the 70th percentile.

We examined how the use of the internet varies with district characteristics. Larger districts are more likely to use the internet for recruiting, particularly to post job notices on the district website, search for job candidates, and to accept online applications. They also post job notices on recruitment websites more frequently but these differences are not statistically significant. The use of the internet does not appear to be strongly related to resource capacity or student needs of a district, especially when controlling for the size of the district. High need urban districts use the internet at similar rates as average need districts. We also examined whether districts with recruiting difficulties are more apt to use the internet (Table 9). Districts with medium to high recruiting difficulty are more apt to use a range of internet services than districts with low recruiting difficulty, even when controlling for the size and need/resource capacity of districts.

**Table 9. Use of the Internet and BOCES Hiring Services
By Difficulty of Recruiting Teachers¹**

	Difficulty Recruiting Teachers		
	Low	Medium	High
District Uses the Internet to Recruit Teachers	63.6	78.0	83.3
Posts job openings on school district website	46.6	61.6	61.1
Post job openings on online recruitment websites targeted to teachers	30.5	49.6	43.7
Posts job openings on general online recruitment websites	3.4	12.8	10.3
Searches for candidates on a recruitment website	11.9	18.0	23.8
Allows candidates to submit applications online	23.7	40.8	42.1
Uses BOCES	43.1	54.4	56.0
Services (percent of districts using BOCES):			
Online application system	16.4	25.3	30.4
Online placement of vacancy notices	16.4	29.7	31.2
Advertising	26.7	34.1	38.4
Recruitment fairs	23.3	32.9	36.0
Assistance with interviewing	0.0	3.2	1.6
Applicant screening	2.6	4.4	8.8
Fingerprinting	17.2	17.7	17.6

¹Bold indicates statistically significant differences by recruiting difficulty at 10% level. Difficulty of recruiting teachers is based on the percent of positions that a district is recruiting for, where they indicate "very difficult." "Low" is less than 8% of positions, "medium" is 8% to 31%, and "high" is above 31% of positions.

Use of BOCES Recruitment Services. Small districts are less likely to use the internet, even though it may have greater benefits for small districts by potentially broadening their searches. Using the internet for recruitment requires staff time and some technical competence in the use of the internet. In addition, some small districts may not have district websites on which they can post job notices and accept applications. BOCES can help to bridge this technical divide by providing recruiting services to school districts. We asked about a range of BOCES services including assistance with online application systems, online placement of vacancy notices, advertising, and recruitment fairs.

Approximately half of the districts purchase BOCES hiring services (Table 10). Of those districts that use BOCES, the majority use the recruiting services that BOCES offer. Small districts are not more likely to use BOCES for most recruiting services and are less likely to get assistance with online application systems. High need urban districts are not more likely to use BOCES recruiting services than average need districts and low need districts. High need rural districts are less likely to use assistance with online applications even controlling for enrollment. Districts with medium to high difficulty recruiting teachers are more likely to use BOCES online recruitment services and assistance with recruitment fairs (Table 9).¹⁷

¹⁷ The higher use of online services remains even after enrollment and need/resource capacity are controlled for.

**Table 10. Use of Recruitment Services Provided by BOCES
By District Characteristics
(percent of responses)¹**

Enrollment²	Low	Medium	High	All Districts
Uses BOCES	49.3	52.8	55.0	52.5
Services (percent of districts using BOCES):				
Online application system	19.1	23.0	31.8	24.4
Online placement of vacancy notices	23.7	28.1	29.8	27.0
Advertising	30.3	36.0	33.8	33.2
Recruitment fairs	28.9	29.2	36.4	31.1
Assistance with interviewing	2.0	2.8	1.3	2.0
Applicant screening	7.2	5.6	2.0	4.9
Fingerprinting	17.1	19.7	15.9	17.6
SED Need/Resource Capacity				
Categories	High Need Urban	High Need Rural	Average Need	Low Need
Uses BOCES	53.6	45.7	56.6	45.2
Services (percent of districts using BOCES):				
Online application system	25.0	11.3	27.9	29.8
Online placement of vacancy notices	32.1	17.9	30.9	23.8
Advertising	25.0	33.0	34.6	33.3
Recruitment fairs	35.7	32.1	33.1	23.8
Assistance with interviewing	0.0	1.9	2.6	1.2
Applicant screening	0.0	8.5	5.5	1.2
Fingerprinting	21.4	11.3	17.6	23.8

¹Bold and italics indicates that there is a statistically significant difference between the categories (10% level).

²"Low" is below 30th percentile, "medium" is 30th to 70th percentile, and "high" is above the 70th percentile.

One reason that we may not see more use of BOCES by smaller districts is that only a limited set of BOCES provide recruiting services and they are located in more urban areas. Table 11 lists the major BOCES used for recruitment, screening and selection services. Of the 38 BOCES in New York, nine are used for several hiring services by nine or more districts. The most heavily used is the Putnam-Westchester BOCES; thirty-two districts use this BOCES for hiring services (even though there are only 18 districts in the BOCES) and 60% use four or more of their services. The Putnam-Westchester BOCES provides a full range of teacher recruitment services, including assistance with online applications, online placement, recruitment fairs, advertising, candidate interviews with videoconferencing, and fingerprinting.¹⁸ They have also partnered with several other BOCES in an online application system (OLAS).¹⁹ As indicated by columns three and four, the share of small districts using BOCES recruitment services is strongly related to the share of small districts served by the BOCES. A majority of the BOCES providing significant recruitment services, including the Putnam-Westchester BOCES, serve primarily medium to large enrollment districts. A policy question for SED is how to expand access to BOCES recruitment services to small districts.

¹⁸ More information is available on their website: <http://www.pnwboces.org/regionalPersonnel.htm>

¹⁹ The OLAS system is used by 150 school districts in the Southern Region, Capital Region, Nassau, Western Central Region, Mohawk Valley, Mid-Hudson Valley, and Lower-Hudson Valley. For more information see: <http://www.olasjobs.org/#candidate>

Table 11. Major BOCES Used for Hiring Services

BOCES Used for Hiring Services	Number of Districts Using BOCES Services	Number of Districts Using 4 or More BOCES Services	Percent of Districts Using BOCES Services With Low Enrollment¹	Percent of Districts in BOCES With Low Enrollment¹
Putnam-Westchester	32	19	12.5	11.1
Washington-Saratoga-Warren-Hamilton-Essex	15	6	66.7	41.9
Rensselaer-Columbia-Greene (Questar III)	14	2	28.6	19.0
Nassau	13	2	7.7	0.0
Jefferson-Lewis-Hamilton-Herkimer-Oneida	12	4	50.0	38.9
Broome-Delaware-Tioga	11	6	9.1	6.7
Dutchess	9	7	0.0	7.7
Madison-Oneida	9	5	44.4	44.4
Oneida-Madison-Herkimer	9	4	33.3	33.3

¹"Low" enrollment is below 30th percentile (1,111 students). Count of districts in BOCES eliminate Big 4 districts, "special act" districts, and districts with less than 8 teachers.

Given that assistance with online recruitment services are one of the principal services provided by some BOCES, we should expect that districts using BOCES services are more likely to use the internet. Table 12 confirms this fact. Of the districts that use online services from BOCES, over 90% use the internet for recruiting. Whereas, only 69% of districts not using these BOCES services recruit online. The differences are particularly dramatic for posting job notices on teacher websites, searching for candidates on the web, and allowing online submission of applications. Small districts using BOCES services are also much more likely to use the internet for recruitment. These findings suggest that BOCES can help reduce the potential fixed costs and staffing challenges of using the internet for recruiting faced by small districts. BOCES recruitment services should be made readily available to districts all over the state.

Table 12. Relationship Between BOCES Hiring Services and Use Of Internet for Recruitment (percent of responses)¹

	All Districts				Small Districts²			
	Use Boces for Recruitment and Selection Services		Use BOCES for Online Recruitment Services³		Use Boces for Recruitment and Selection Services		Use BOCES for Online Recruitment Services³	
	Yes	No	Yes	No	Yes	No	Yes	No
Uses Internet	83.1	67.9	91.0	68.9	72.7	55.8	86.4	55.9
Post job openings on:								
District website	60.4	55.1	60.9	56.5	44.2	33.8	45.5	36.0
Teacher recruitment website	53.7	32.5	66.0	33.1	46.8	29.9	65.9	27.0
General recruitment website	11.0	8.5	12.2	8.9	13.0	5.2	13.6	7.2
Search for candidates on recruitment website	27.1	8.1	35.9	9.8	24.7	9.1	34.1	9.9
Allows online submission of application	45.1	28.6	57.1	27.8	33.8	16.9	40.9	18.9

¹Bold indicates statistically significant differences in internet use by whether district used BOCES at 10% level.

²"Small districts" are those with enrollment below the 30th percentile (1,111 students).

³Includes using "online application system," or "online placement of vacancy notices" from BOCES.

Teacher Recruitment Incentives. Complementing the use of the internet to broaden the search beyond the local area are monetary incentives to increase the attractiveness of working in the district. Given the potential costs to teachers for taking a job in a new area, both monetary and non-monetary, districts may be able to

attract new teachers by providing them a higher salary or some other form of compensation. For example, the district could offer prospective teachers a signing bonus or could credit teachers for experience in other districts or even for work experience in non-teaching occupations. Opportunities to supervise extra-curricular activities for compensation could be made available for teaching candidates. Other incentives used in some states include compensation for National Board Certification, subsidized tuition at local colleges, additional compensation for teaching in hard to staff schools or fields, and assistance with the purchase of a home. In a heavily unionized state such as New York, it is likely that most of these incentives would need to be negotiated with the union as part of the collective bargaining process.

Almost three-quarters of superintendents responding to the survey said they used some type of recruitment incentive (Table 13). However, only two of the incentives—compensation for extracurricular activities and crediting teachers for experience outside the district—are used by almost half the districts. The fact that these are the most common incentives is not surprising given that they are not likely to be controversial provisions of teacher contracts. Approximately 16% of districts provide subsidized tuition at local colleges, offer additional compensation for National Board Certification, and give credit for work experience in non-teaching occupations. The only other incentive used by at least 25 school districts is additional compensation in hard-to-staff fields.

Table 13. Use of Teacher Recruitment Incentives by District Characteristics
(percent of responses)¹

Enrollment²	Low	Medium	High	All Districts
District offers recruiting incentives	66.0	75.6	76.3	72.8
One-time compensation for new teachers (signing bonus)	1.3	2.8	2.6	2.3
Additional compensation for extra-curricular or administrative functions	45.1	48.9	55.9	49.9
Flexibility in crediting teaching experience in other districts or states	41.8	49.4	50.7	47.4
Flexibility in crediting job experience in non-teaching occupations	19.0	15.0	18.4	17.3
Additional compensation for National Board Certification	8.5	13.3	25.7	15.7
Subsidized tuition in local college	15.7	16.1	17.8	16.5
Additional compensation for teaching in hard-to-staff fields	9.2	6.1	7.2	7.4
Additional compensation for teaching in hard-to-staff schools	0.7	0.6	0.0	0.4
Help with purchase of a home	0.7	1.1	0.7	0.8
	High Need	High Need	Average	
	Urban	Rural	Need	Low Need
District offers recruiting incentives	89.3	75.7	71.3	67.9
One-time compensation for new teachers (signing bonus)	10.7	4.7	1.5	0.0
Additional compensation for extra-curricular or administrative functions	64.3	52.3	49.1	41.7
Flexibility in crediting teaching experience in other districts or states	39.3	45.8	48.0	47.6
Flexibility in crediting job experience in non-teaching occupations	10.7	15.0	17.8	19.0
Additional compensation for National Board Certification	28.6	9.3	16.4	16.7
Subsidized tuition in local college	21.4	14.0	19.3	8.3
Additional compensation for teaching in hard-to-staff fields	17.9	11.2	5.1	6.0
Additional compensation for teaching in hard-to-staff schools	0.0	0.0	0.7	0.0
Help with purchase of a home	3.6	1.9	0.4	0.0

¹Bold and italics indicates that there is a statistically significant difference between the categories (10% level).

²"Low" is below 30th percentile, "medium" is 30th to 70th percentile, and "high" is above the 70th percentile.

The use of incentives tends to go up with district size, particularly additional compensation for National Board Certification.²⁰ High need urban districts are more likely to use incentives than other types of districts, particularly signing bonuses, additional compensation for National Board Certification, subsidized college tuition, additional compensation for hard-to-staff fields, and for extra-curricular or administrative functions. It is possible that the use of incentives requires a staff person, such as an HR director, to develop them, negotiate with the union, and implement them. However, we did not find that use of recruitment incentives goes up in districts with an HR director, except for compensation for National Board Certification.

Strategies to Increase Supply. Besides broadening the search outside the local area and using incentives to increase applications, districts can try to expand the pool of potential teachers in the local area. Strategies to increase supply could include recruiting substitute teachers, retired teachers, former teachers, and alternatively certified teachers, or providing incentives for paraprofessionals to become certified teachers. The first three strategies can be implemented relatively easily (assuming these teachers are certified). Recruitment of alternatively certified teachers could be a matter of dispute with the teachers' union and assisting paraprofessionals to become teachers is a longer term strategy.

Almost 90% of districts use some strategy to increase supply with recruiting of substitutes being the most commonly used strategy (Table 14). Over 40% of districts recruit teachers certified through alternative routes and 28% recruit retired teachers or provide assistance to paraprofessionals to become teachers. Only 7% recruit former teachers. Use of supply strategies is not strongly related to district size but larger districts are more likely to recruit substitutes and to assist paraprofessionals. High need districts are not more apt to use these strategies than average need districts. Presence of an HR director in the district is associated with a greater probability of recruiting alternatively certified teachers but is negatively associated with assistance to paraprofessionals.

While most recruiting incentives and strategies to increase supply do not vary systematically with district characteristics besides enrollment, of greater importance is whether districts facing significant teacher recruitment challenges use these approaches. The results in Table 15 suggest that districts with high recruiting difficulties are more apt to use all of the strategies to increase supply except recruiting former teachers. Use of recruiting incentives also goes up with recruiting difficulty, particularly additional compensation for extra-curricular activities and flexibility in crediting previous experience. However, districts with high recruiting difficulty are not more likely to use nontraditional incentives such as signing bonuses or help with the purchase of a home.

²⁰ Controlling for need/resource capacity, district size is positively related (and statistically significant) to use of all incentives except extra compensation for extracurricular activity and hard to staff fields and schools.

**Table 14. Use of Strategies to Increase Supply of Teachers by District Characteristics
(percent of responses)¹**

Enrollment²	Low	Medium	High	All Districts
Use Strategy to Increase Supply	83.0	87.8	89.5	86.8
Recruit teachers certified through alternative routes	40.5	40.0	50.0	43.3
Recruit substitute teachers	73.2	81.1	83.6	79.4
Recruit retired teachers	27.5	27.2	30.3	28.2
Recruit former teachers who have left teaching	9.2	5.0	8.6	7.4
Provide assistance to paraprofessionals to become certified teachers	24.2	24.4	35.5	27.8
	High Need	High Need	Average	
SED Need/Resource Capacity Categories	Urban	Rural	Need	Low Need
Use Strategy to Increase Supply	85.7	86.0	89.5	79.8
Recruit teachers certified through alternative routes	46.4	41.1	46.5	36.9
Recruit substitute teachers	82.1	71.0	83.6	73.8
Recruit retired teachers	28.6	27.1	28.7	26.2
Recruit former teachers who have left teaching	7.1	8.4	7.6	6.0
Provide assistance to paraprofessionals to become certified teachers	39.3	26.2	25.8	28.6

¹Bold and italics indicates that there is a statistically significant difference between the categories (10% level).

²"Low" is below 30th percentile, "medium" is 30th to 70th percentile, and "high" is above the 70th percentile.

**Table 15. Use of Recruitment Incentives or Strategies to Increase Supply
By Difficulty Recruiting Teachers
(percent of responses)¹**

	Difficulty Recruiting Teachers		
	Low	Medium	High
District Offers Recruiting Incentives	63.8	75.7	75.4
One-time compensation for new teachers (signing bonus)	1.7	2.5	2.4
Additional compensation for extra-curricular or administrative functions	41.4	50.6	56.3
Flexibility in crediting teaching experience in other districts or states	35.3	52.3	49.2
Flexibility in crediting job experience in non-teaching occupations	7.8	19.8	21.4
Additional compensation for National Board Certification	10.3	18.1	15.9
Subsidized tuition in local college	11.2	17.3	19.8
Additional compensation for teaching in hard-to-staff fields	6.0	7.4	8.7
Additional compensation for teaching in hard-to-staff schools	0.0	0.4	0.8
Help with purchase of a home	0.9	0.8	0.8
Use Strategy to Increase Supply	77.6	88.5	92.1
Recruit teachers certified through alternative routes	23.3	51.4	46.0
Recruit substitute teachers	71.6	81.5	82.5
Recruit retired teachers	19.0	26.7	39.7
Recruit former teachers who have left teaching	7.8	7.0	7.9
Provide assistance to paraprofessionals to become certified teachers	20.7	28.4	33.3

¹Bold indicates statistically significant differences by recruiting difficulty at 10% level. Difficulty of recruiting teachers is based on the percent of positions that a district is recruiting for, where they indicate "very difficult." "Low" is less than 8% of positions, "medium" is 8% to 31%, and "high" is above 31% of positions.

V. Survey Results – Selection and Screening

Screening

We asked districts which administrative level manages the screening process. Almost half (44.9%) indicated the school level, just under one fifth (19.6%) indicated the district level, and the remaining 35.6% indicated that the management of the screening process is shared by the district and school.

The screening of candidates must be performed based on information obtained from submitted application materials. Table 16 summarizes the percent of districts that require most applicants to submit specific materials with their application for a position. Almost all districts require applicants to submit application forms, college transcripts, letters of recommendation, letters of interest, resumes, and proof of certification. Approximately two-thirds of districts request writing samples and certification exam scores. Only 30% of districts require applicants to submit teaching portfolios, even though a portfolio potentially provides a good overview of a candidate's experience and skills.

Table 16. Application Materials Required by District Characteristics
(percent of responses)¹

Enrollment²	Low	Medium	High	All Districts
Application form	94.0	92.2	91.9	92.5
College Transcripts	94.7	88.2	90.5	90.8
Certification Exam Scores	69.6	73.1	55.2	66.5
Teaching Portfolio	32.6	28.0	28.9	29.7
Letters of Recommendation	93.2	89.7	86.2	89.6
Writing Sample	54.9	56.6	75.4	62.0
Proof of Certification	99.3	93.9	98.0	96.7
Letter of Interest	96.0	98.3	94.0	96.0
Resume	99.3	99.4	97.3	98.6
SED Need/Resource Capacity				
Categories	High Need Urban	High Need Rural	Average Need	Low Need
Application form	88.5	96.2	93.2	87.8
College Transcripts	92.6	97.1	90.8	82.9
Certification Exam Scores	76.2	73.2	66.2	56.8
Teaching Portfolio	31.8	25.8	32.1	26.7
Letters of Recommendation	96.0	93.3	89.9	82.7
Writing Sample	69.6	47.4	60.3	82.5
Proof of Certification	100.0	100.0	96.2	93.9
Letter of Interest	100.0	97.1	96.6	92.7
Resume	100.0	99.1	99.2	96.4

¹Bold and italics indicates that there is a statistically significant difference between the categories (10% level).

²"Low" is below 30th percentile, "medium" is 30th to 70th percentile, and "high" is above the 70th percentile.

If reviewing writing samples, portfolios, and recommendation letters are relatively time intensive, we might expect larger districts (more HR staff) or districts with more recruiting difficulty to be more apt to request this material. The results of the bivariate analysis are mixed. Large districts are more apt to require a writing sample but less apt to require certification exam scores. High need districts are more apt to request certification exam scores and letters of recommendation than low need districts. Low need districts, on the other hand, are more likely to request writing samples than other districts. Districts with an HR manager are

more likely to request writing samples and teaching portfolios and less likely to request certification exam scores (Table 17). However, the district’s level of recruiting difficulty does not appear to be related to the material requested.

Table 17. Application Materials Required, and Topics/Criteria Considered in Screening, Interviews, and Selection by Presence of Human Resource Director and Difficulty Recruiting Teachers (percent of responses)¹

	HR Director		Difficulty Recruiting Teachers		
	Yes	No	Low	Medium	High
Application Materials:					
Application form	91.3	93.6	92.9	93.3	92.4
College Transcripts	89.2	92.1	90.9	91.1	90.9
Certification Exam Scores	57.3	72.9	60.4	66.0	65.0
Teaching Portfolio	32.4	27.9	35.9	31.3	30.5
Letters of Recommendation	86.5	92.0	92.6	89.6	90.7
Writing Sample	75.4	52.0	65.7	63.7	62.0
Proof of Certification	96.5	97.2	96.4	97.1	96.6
Letter of Interest	94.9	97.1	97.3	96.2	96.6
Resume	98.0	99.3	98.3	99.2	98.3
Important in Screening:					
Experience	76.9	76.7	78.9	77.1	77.2
GPA	60.9	54.1	54.1	55.3	57.1
References/Recommendations	94.4	96.8	96.4	96.2	95.8
Major in subject to be taught	96.5	96.1	96.5	95.0	97.2
Certification in subject to be taught	99.5	99.6	99.1	99.2	99.7
Master's degree	41.9	40.6	48.2	41.8	42.9
Caliber of certifying institution	57.4	48.9	52.7	49.2	54.7
Quality of Teaching portfolio	37.5	31.5	36.4	33.8	34.9
Residence in school district	4.6	7.2	8.0	6.8	6.3
Certification exam scores	35.4	36.0	30.3	34.3	35.0
Pre-screening tests	4.9	1.9	2.9	3.2	3.0
Topics Covered in Most Interviews:					
Teaching philosophy	97.5	96.8	97.4	97.5	96.9
Experience	98.5	98.9	98.3	99.2	98.3
Subject related knowledge	98.0	97.5	97.4	97.5	97.8
Curriculum	97.5	97.5	94.8	96.7	97.2
Discipline	97.5	99.3	99.1	98.8	98.6
Diversity	70.0	60.4	64.7	65.7	63.5
Learning styles	91.5	90.5	85.3	88.4	90.8
Willingness to serve on committees	62.5	74.4	69.8	69.4	69.6
Professional/career goals	85.5	90.5	87.1	87.2	88.9
Willingness to be involved in extra-curricular activities	59.0	83.2	70.7	73.1	72.4
Teaching sample lesson	60.0	43.2	53.4	48.3	52.4
Important in Selection:					
Experience	87.0	81.8	87.9	82.3	83.3
Grade point average	63.0	54.0	56.9	57.6	58.7
References/recommendations	96.5	97.2	96.6	98.4	94.4
Pre-screening tests	8.0	8.8	12.9	6.6	7.9
Contribution to workforce diversity	59.5	37.2	43.1	44.4	53.2
Performance in teaching sample lesson	72.5	51.9	70.7	58.8	54.0
Professional/career goals	59.0	61.4	62.1	60.1	59.5
Major in area of teaching	97.5	96.8	99.1	96.7	96.0
Certification in subject to be taught	99.5	99.3	98.3	99.6	100.0
Master's degree	45.5	43.9	47.4	43.2	44.4
Caliber of certifying institution	52.0	44.6	47.4	50.2	42.9
Quality of teaching portfolio	40.0	36.8	39.7	40.3	32.5
Residence in school district	9.5	11.2	13.8	7.4	13.5
Certification exam scores	36.0	43.2	36.2	41.6	41.3
Subject knowledge demonstrated in interview	95.0	96.1	94.8	95.9	96.0
Willingness to be involved in extra-curricular activities	48.5	67.0	57.8	63.0	54.0

¹Bold and italics indicates that there is a statistically significant difference between the categories (10% level).

We are also interested in the importance districts place on various criteria in determining which applicants will be granted interviews. Almost all districts consider certification in the subject to be taught, major in the subject to be taught, and references/recommendations when screening applicants (Table 18). The slightly lesser importance placed on experience may be due to the fact that districts are often hiring from a pool of recent graduates. There are some surprises on the list as well. A much smaller share of districts consider the applicant’s certification exam scores, grade point average, caliber of certifying institution, and quality of teaching portfolio in the screening process.

Table 18. Importance of Screening Criteria in Deciding Whom to Interview
(percent of responses)¹

Enrollment²	Low	Medium	High	All Districts
Experience	70.4	83.8	74.8	76.7
GPA	46.4	58.0	66.2	57.0
References/Recommendations	94.7	96.6	96.0	95.8
Major in subject to be taught	96.1	97.2	95.4	96.1
Certification in subject to be taught	99.3	99.4	100.0	99.6
Master's degree	41.7	41.8	39.7	41.3
Caliber of certifying institution	44.2	51.7	61.3	52.5
Quality of Teaching portfolio	32.0	31.4	39.0	33.8
Residence in school district	9.4	4.6	4.7	6.3
Certification exam scores	30.4	40.3	35.6	35.9
Pre-screening tests	2.8	1.8	5.1	3.1
SED Need/Resource Capacity				
Categories	High Need Urban	High Need Rural	Average Need	Low Need
Experience	96.3	74.5	77.4	71.1
GPA	61.5	55.7	53.6	67.5
References/Recommendations	100.0	97.1	95.8	92.8
Major in subject to be taught	92.6	94.3	97.4	96.4
Certification in subject to be taught	100.0	99.0	99.6	100.0
Master's degree	44.4	36.2	41.3	45.8
Caliber of certifying institution	64.0	40.2	54.3	57.8
Quality of Teaching portfolio	45.8	26.2	35.5	35.4
Residence in school district	18.5	5.9	5.7	3.7
Certification exam scores	46.2	34.6	36.0	32.9
Pre-screening tests	15.4	3.1	2.8	0.0

¹Bold and italics indicates that there is a statistically significant difference between the categories (10% level).

²"Low" is below 30th percentile, "medium" is 30th to 70th percentile, and "high" is above the 70th percentile.

One possible explanation consistent with the findings of Lankford, Loeb, and Wyckoff (2002) is that districts with low fiscal capacity and a high share of disadvantaged students face such a challenging recruiting environment that they cannot be as selective in the recruiting process. Based on SED’s need/resource capacity categories, we find little evidence for this proposition. High need urban districts are at least as likely to consider these academic criteria as average need or low need districts. They are also much more likely to consider the residence of the teacher and to use pre-screening tests in screening applicants.²¹ Districts with HR managers are more likely to consider the caliber of the certifying institution and less likely to consider

²¹ However, when enrollment is controlled for, only teacher experience and residence have a statistically significant positive relationship with high need districts.

the residence of the teacher in the district (Table 17).²² There are not statistically significant differences in screening criteria between districts with high difficulty recruiting teachers and those with low difficulty.

Interviewing

The average school district conducts 2.37 interviews with a candidate before deciding whether or not to make an offer of employment (Table 19). This is one interview per position more than found by Strauss et al. (1998) and Liu and Johnson (2003) in their surveys of several states. Almost all districts (93%) conduct a second interview, almost half (43%) conduct a third interview, but only a small number of districts (4%) report conducting more than three interviews. This number of interviews increases with the size of the district, but the length of interview is shorter in high enrollment districts. Low need districts average 2.7 interviews, but they are substantially shorter than other districts. High need urban districts spend the least total amount of time (number of interviews times average length) interviewing job candidates, although the differences are not large.

Table 19. Participation in the Interview Process by District Characteristics
(percent of responses with position)¹

Enrollment²	Low	Medium	High	All Districts
Average number of interviews	2.14	2.42	2.52	2.37
Average length of interviews	43.2	43.0	34.4	40.4
Superintendent	94.7	88.9	45.4	77.1
Human resource director	40.0	49.1	72.6	64.5
District level curriculum director	55.3	64.6	56.6	59.5
Principal	98.6	99.4	97.4	98.5
Assistant principal	60.7	64.1	76.8	69.8
Teachers	91.4	89.4	84.1	88.4
School department heads	66.0	82.9	82.8	80.2
Parents/Community members	22.9	33.9	34.9	30.7
SED Need/Resource Capacity				
Categories	High Need Urban	High Need Rural	Average Need	Low Need
Average number of interviews	2.15	2.08	2.41	2.66
Average length of interviews	37.8	44.5	41.4	32.7
Superintendent	51.9	89.6	78.7	64.3
Human resource director	66.7	44.4	66.4	63.2
District level curriculum director	61.9	66.7	55.2	66.1
Principal	96.2	98.0	99.6	96.2
Assistant principal	75.0	69.2	66.0	78.6
Teachers	74.1	91.5	90.2	83.3
School department heads	78.3	79.3	81.7	77.3
Parents/Community members	25.9	29.2	28.0	42.9

¹Bold and italics indicates that there is a statistically significant difference between the categories (10% level). Percent of districts with this position where this staff person participated in any of the interviews.

²"Low" is below 30th percentile, "medium" is 30th to 70th percentile, and "high" is above the 70th percentile.

A range of district-level and school-level personnel is involved in the interview process; the composition of the interview team is related to district characteristics. In small districts, an interview team

²² Only the latter result continues to hold once enrollment and need/resource capacity are controlled for.

almost always includes the superintendent, principal, and teachers, and to a lesser extent school department heads, assistant principals, and district-level curriculum directors if the district has these positions.²³ As the district gets larger, the roles of the superintendent, principal, and teachers, are frequently delegated to HR directors, assistant principals, and school department heads. Small districts are less apt to involve parents and community members in the interview process. High need urban districts are less likely to involve the superintendent and teachers, however, these differences disappear once enrollment size is controlled for. High need rural districts are less likely to include human resource directors. In contrast to the findings of Strauss et al. (1998) for Pennsylvania and Liu (2002) for New Jersey, superintendents in New York are much more likely to indicate that teachers and school department heads are part of the interview team, suggesting that the interview process may be fairly decentralized in many New York districts.

We asked districts to indicate which topics are discussed with candidates during the interview process.²⁴ Table 20 shows the share of districts reporting that these topics are covered at some point during the process with most or all candidates. A majority of districts discuss each of the topics, however a few are covered by far fewer districts than the rest. Diversity is only discussed by 64% of districts and willingness to serve on committees and willingness to participate in extra-curricular activities are discussed by 70% and 73%, respectively. Approximately half of the districts require candidates to teach a sample lesson during the interview process.

Topics covered in the interview process differ depending on district socioeconomic characteristics. High enrollment districts are most likely to require a sample lesson and less likely to discuss professional career goals, willingness to serve on committees, and extra-curricular activities. High need urban districts cover a very similar set of topics in interviews as average need districts. Low need districts are much less likely to discuss committee service or involvement in extracurricular activities than other districts. Even controlling for enrollment, high need rural districts are the least likely to require the teaching of a sample lesson. As expected, high non-white enrollment districts are much more likely to discuss diversity than districts with low non-white enrollment (see Appendix D). Districts with high recruiting difficulties appear to consider a similar set of topics as other districts (Table 17).

We examined the relationship between having a human resource director on staff and the topics covered in the interview process (Table 17). There is no statistically significant difference in some of the more “obvious” topics such as teaching philosophy, experience, subject related knowledge, curriculum, and discipline. However, districts with human resource directors are far less likely to discuss service on committees, extra-curricular activities, and professional/career goals and are far more likely to discuss

²³ If a staff person participated in any of the interviews, they are counted as participating in the interview process, even if they did not participate in the majority of interviews.

²⁴ The survey questions on interview content asked “what share of interviews do the following occur?” It included response categories for no interviews, some interviews, most interviews, and all interviews. If a topic was covered in most or all first interviews, or second interviews, or third interviews in a district, it was counted as a topic in the interview process.

diversity and require the teaching of sample lessons. These differences disappear once enrollment and need/resource capacity of the district are controlled for.

**Table 20. Topics Covered in the Interview Process by District Characteristics
(percent of responses)¹**

Enrollment²	Low	Medium	High	All Districts
Teaching philosophy	95.4	99.4	96.1	97.1
Experience	98.0	100.0	98.0	98.8
Subject related knowledge	95.4	99.4	98.0	97.7
Curriculum	94.8	99.4	98.0	97.5
Discipline	99.3	98.9	97.4	98.6
Diversity	61.4	61.1	71.1	64.3
Learning styles	88.9	93.9	89.5	90.9
Willingness to serve on committees	72.5	73.9	61.2	69.5
Professional/career goals	94.8	86.7	84.2	88.5
Willingness to be involved in extra-curricular activities	85.6	77.8	55.3	73.2
Teaching sample lesson	37.9	51.7	60.5	50.1

SED Need/Resource Capacity Categories	High Need Urban	High Need Rural	Average Need	Low Need
Teaching philosophy	88.9	99.1	97.0	97.6
Experience	96.3	99.1	98.9	98.8
Subject related knowledge	100.0	97.2	97.8	97.6
Curriculum	100.0	93.4	98.5	98.8
Discipline	100.0	99.1	98.9	96.4
Diversity	74.1	59.4	64.2	67.9
Learning styles	92.6	92.5	90.7	89.3
Willingness to serve on committees	81.5	72.6	71.6	54.8
Professional/career goals	92.6	92.5	88.1	83.3
Willingness to be involved in extra-curricular activities	63.0	86.8	73.5	58.3
Teaching sample lesson	55.6	35.8	51.1	63.1

¹Bold and italics indicates that there is a statistically significant difference between the categories (10% level). Percent of districts where this topic was covered in any of the interviews.

²"Low" is below 30th percentile, "medium" is 30th to 70th percentile, and "high" is above the 70th percentile.

One of the more time intensive activities that districts could require in the interview process is the teaching of a sample lesson.²⁵ Sample lessons have the potential of providing a glimpse of the teacher in action, and could provide evidence on communication skills with children, organizational skills, and sensitivity to classroom environment. However, there are a number of challenges in assuring the lesson provides a reasonably accurate picture of teaching skills and sample lessons can be costly in terms of time requirements and disruption to classrooms. To probe further the use of sample lessons by districts, we examine which staff persons watch these lessons (assuming that the district has these positions and requires a sample lesson). Principals and teachers are the most apt to observe sample lessons, followed by school department heads and assistant principals (Table 21). Human resource directors watch sample lessons in a third of districts, and parents and community members observe lessons in 24% of districts.

²⁵ A sample lesson would typically involve preparation, and presentation of a lesson before a group of students and the interview team. Candidates would be asked to prepare the lesson in advance, and might submit the lesson plan to the committee. However, it is possible that the sample lesson would only be presented to the committee. We did not define in detail for superintendents what a sample lesson consisted of and the intended audience, so it is possible that superintendents interpreted this term differently.

Table 21. Interview Staff Who Watch Teaching of a Sample Lesson
(percent of responses with sample lesson)¹

Enrollment²	Low	Medium	High	All Districts
Superintendent	70.7	40.9	16.3	38.7
Human resource director	50.0	25.0	35.4	33.3
District level curriculum director	42.1	56.9	38.6	45.9
Principal	96.2	89.2	92.4	92.0
Assistant principal	35.7	54.5	64.1	57.9
Teachers	74.1	68.8	73.6	71.9
School department heads	38.1	68.9	69.3	65.6
Parents/Community members	15.5	25.8	26.1	23.5
SED Need/Resource Capacity Categories	High Need Urban	High Need Rural	Average Need	Low Need
Superintendent	40.0	52.6	38.7	28.3
Human resource director	41.7	25.0	34.9	29.0
District level curriculum director	33.3	44.4	45.5	51.2
Principal	85.7	94.6	91.9	92.0
Assistant principal	61.5	73.7	56.2	54.3
Teachers	73.3	86.8	71.3	62.3
School department heads	75.0	75.0	62.3	65.9
Parents/Community members	14.8	4.7	11.6	20.2

¹Bold and italics indicates that there is a statistically significant difference between the categories (10% level). Shares calculated as percent of districts that employ each respective position .

²"Low" is below 30th percentile, "medium" is 30th to 70th percentile, and "high" is above the 70th percentile.

As we might expect, size of the district is related to the interview team observing the sample lesson. In a majority of high enrollment districts, school personnel (principals, assistant principals, teachers, and school department heads) most often observe sample lessons. In medium enrollment districts, district-level curriculum directors also observe the lesson. In low enrollment districts, the same staff involved in screening and interviewing also watch the sample lesson—principals, teachers, and superintendents. District need/resource capacity does not appear to be strongly related to who watches the sample lesson, except for low need districts which are more likely to have parents and community members observe lessons.

In order to delve a little more deeply into the interview process, we examine how the number of interviews a district conducts with its candidates and the order of those interviews affects the length of the interview, who participates in them and what topics they cover. The top panel of Table 22 shows the length of interviews, and share of districts in which each person participated in the respective interviews and the lower panel focuses on interview topics covered in most or all interviews. In districts that conduct only one interview, the most frequent participants are assistant principals, teachers, principals, and school department heads (if the district has these positions). Superintendents, HR directors, and district-level curriculum directors participate in half of the districts. With regard to topics covered, single interview districts always discuss experience and discipline and almost always discuss teaching philosophy, subject related knowledge, and curriculum. Learning styles and professional/career goals are also frequently covered, whereas diversity is only discussed with 61.1% of candidates. With this one interview only 40 minutes in length, it is not surprising that the item most frequently omitted from these districts' interviews is the sample lesson (69% of districts do not include this in most or all interviews).

Table 26. Diversity in Interviewing and Selection
(percent of responses)¹

	Discuss Diversity Issues in Interviews			Consider Workforce Diversity in Selection		
	None	Some	All	Somewhat Important	Important	Very Important
Enrollment:²						
Low	<i>17.0</i>	<i>37.3</i>	<i>45.8</i>	<i>39.2</i>	<i>22.2</i>	<i>7.8</i>
Medium	<i>12.2</i>	<i>53.3</i>	<i>34.4</i>	<i>37.8</i>	<i>28.3</i>	<i>10.0</i>
High	<i>7.2</i>	<i>48.0</i>	<i>44.7</i>	<i>23.7</i>	<i>36.2</i>	<i>23.7</i>
SED Need/Resource Capacity						
Categories:						
High Need Urban	3.7	48.1	48.1	18.5	33.3	<i>37.0</i>
High Need Rural	17.9	41.5	40.6	36.8	23.6	<i>6.6</i>
Average Need	10.4	48.9	40.7	34.0	30.2	<i>12.7</i>
Low Need	13.1	45.2	41.7	34.5	29.8	<i>17.9</i>
Non-White Enrollment:²						
Low	<i>19.3</i>	42.8	<i>37.9</i>	<i>42.1</i>	<i>21.4</i>	<i>4.8</i>
Medium	<i>11.9</i>	51.0	<i>37.1</i>	<i>37.6</i>	<i>26.3</i>	<i>8.8</i>
High	<i>5.5</i>	44.5	<i>50.0</i>	<i>20.5</i>	<i>39.7</i>	<i>28.8</i>

¹Bold and italics indicates that there is a statistically significant difference between the categories (10% level).

²"Low" is below 30th percentile, "medium" is 30th to 70th percentile, and "high" is above the 70th percentile.

VI. Conclusions and Recommendations

The survey results have provided a rich picture of the hiring process in New York school districts. We have documented the use of various practices and how they vary with school district characteristics. While some factors, such as enrollment, appear to be consistently related to hiring practices, hiring practices are complex and not easily explained by socio-economic variables. In this section, we will pull together some of the conclusions that we have drawn from reviewing the survey results. These should be viewed as preliminary conclusions, which will undoubtedly be modified as we analyze the data further. In light of these results, we examine district interest in training on teacher hiring practices and present use of SED services. Finally, we will present some recommendations for action and further study to increase the effectiveness of the teacher hiring process in New York school districts.

Recruitment

Districts use a wide range of practices to recruit high quality teachers. However, large districts typically use a broader search than small districts and are more apt to use “innovative” strategies. High need urban districts, particularly those with recruiting difficulty, don’t employ all the tools at their disposal to increase the applications from certified teachers. Some of the key findings are:

- Subjects for which districts have the most difficulty recruiting teachers are mathematics, science, foreign language, vocational education, and ESL. Special education was identified by only 12% of districts as being very difficult to recruit for. Low enrollment districts have greater difficulty recruiting math, special education, music/art, vocational, and ESL teachers than larger districts. The large majority of high need urban districts are actively recruiting Latino and African American teachers and over 70% found this recruitment very difficult. High need urban districts have greater difficulty recruiting math, science, and foreign language teachers than do low need districts.
- Most districts appear to use a shared process for recruitment. In small districts, superintendents, principals, and teachers are most involved. As the district gets larger, human resource directors, assistant principals, and school department heads take over much of the recruitment responsibility.
- Advertising begins in March and April in most districts and offers to teachers are first extended in June. High need urban districts tend to make offers one-half to one month later than average or low need districts.
- Local newspapers remain the major form of advertising, especially in small districts. High enrollment districts are more apt to use other New York papers and education trade publications, but use of out-of-state newspapers is almost non-existent. High need urban districts use newspapers less frequently than other types of districts especially compared to high need rural districts, and do not compensate with higher use of other media.
- The most common college recruitment strategies used by districts are supervision of student teachers, posting of job notices at the colleges, and contacting college faculty in local colleges. The majority of districts post job notices in non-local New York colleges but otherwise have little direct contact with these colleges. With regard to non-New York colleges, the share of districts working with these colleges on recruitment drops to 10% for most strategies. Larger districts are more apt to use recruitment strategies in both local colleges and non-local colleges than smaller districts. High need urban districts are more likely to visit local colleges and supervise student teachers from non-local colleges but otherwise are not any more active working with colleges than other types of districts.

- The typical district attends one job fair, and 37% of districts attend no job fairs. Attendance at job fairs goes up significantly with enrollment and use of BOCES recruitment fair services. High need urban districts or those having difficulty recruiting teachers are not any more likely to attend job fairs than other districts with similar enrollment.
- The internet should be an ideal medium for teacher recruitment because for relatively little cost, a district can have access to a national market of teachers. Approximately three-quarters of districts use the internet, primarily to post job notices on the school district website and other recruitment websites. A much smaller share use the internet to search for job candidates. Large districts are more likely to use the internet, particularly to post jobs on district websites, allow candidates to submit online applications, and search for job candidates. High need urban districts use the internet in similar rates as average and low need districts. Districts with medium to high recruitment difficulties are more apt to use a range of internet services than districts with little difficulty recruiting teachers.
- Approximately half the districts responding to the survey use hiring services provided by BOCES, particularly for online applications, online vacancy notices, advertising and recruitment fairs. The BOCES providing the broadest range of services and serving the most districts is the Putnam-Westchester BOCES. This BOCES also operates an online application system (OLAS) used by 150 school districts. Small districts are not more apt to use BOCES services than large districts, especially for online application systems. Small districts using BOCES recruitment services are much more likely to use the internet for recruitment than those that don't.
- Most districts use compensation for extracurricular activities and crediting teachers for teaching experience outside the district as teacher recruitment incentives. A much smaller set of districts provide additional compensation for National Board Certification (NBC), subsidized tuition at local colleges, and credit for work experience outside of teaching. Teacher contract negotiations are probably a major constraint on the wider use of recruitment incentives. High need urban districts are more likely to provide subsidized college tuition and extra compensation for NBC and teaching in hard-to-staff fields.
- Almost 90% of districts use some strategy to increase the local supply of teachers. The main strategies are recruiting substitute teachers, alternatively certified teachers, and retired teachers and providing assistance for paraprofessionals to become teachers. With the exception of providing assistance to paraprofessionals to become teachers, high need urban districts are not more likely to use other strategies to increase supply than other districts.
- Districts with more difficulty recruiting teachers are more apt to use all of the strategies to increase the local supply of teachers and to use recruiting incentives, such as compensation for extra-curricular activities, credit for non-district or non-teaching experience, and subsidized tuition for college. However, districts with high recruiting difficulties are not more likely to use incentives, such as signing bonuses, help with the purchase of a home, or compensation for National Board Certification.

Screening and Selection

Districts conduct very involved screening and selection processes. As expected, the larger the district and the higher fiscal capacity of the district, the more involved the process, particularly with regard to interviewing. Some of the key findings are:

- Almost all districts require applicants to submit application forms, college transcripts, letters of recommendation, letters of interest, resumes, and proof of certification. A majority requires certification exam scores and writing samples, but only 30% require teaching portfolios. High need districts are more apt to request certification exam scores and letters of recommendation but less likely to request writing samples than low need districts.

- In choosing candidates to interview, districts most often consider certification in the subject to be taught, major in the subject to be taught, and references/recommendations as important criteria. A much smaller share consider measures of a candidate's success including certification exam scores, grade point average, caliber of the certifying institution, and quality of teaching portfolio. High need urban districts consider similar criteria in screening as other districts but do put more emphasis on residence in the district and pre-screening tests. Districts with human resource managers are more likely to ask candidates to submit writing samples and to consider the caliber of the certifying institution in the screening process.
- The average school district conducts between two and three interviews with a candidate of 30 to 40 minutes before deciding whether to make an offer of employment. This number increases with enrollment and with the fiscal capacity of the district. New York districts appear to have, on average, one more interview per position than Pennsylvania and New Jersey based on recent studies. Small districts are more apt to involve the superintendent and teachers in the interview process and less likely to include HR managers, assistant principals, and school department heads. Low need districts are much more likely to involve parents and community members in the interview process than other types of districts.
- The vast majority of districts discuss each of the interview topics listed in the survey, with two exceptions. Only 64% discuss issues of diversity and just 50% require candidates to teach sample lessons. High need urban districts are more likely to discuss willingness to serve on committees and less likely to discuss teaching philosophy than other districts. High need rural are much less likely to require a sample lesson and are more likely to discuss involvement in extra-curricular activities. Districts with HR directors are more likely to discuss diversity and require sample lessons.
- Principals and teachers are most apt to observe sample lessons followed by school department heads and assistant principals if the district has these positions. Low need districts are more likely to have parents and community members observe sample lessons.
- In districts that conduct only one interview, school level personnel participate in a large majority of interviews while district level personnel participate approximately half the time. In two interview districts, the first interview tends to be dominated by school personnel and the second by district personnel. In three interview districts, the first interview tends to be dominated by school personnel and the third by district personnel, while the second is mixed. As the number of interviews a district conducts increases, so does the likelihood that it requires a sample lesson.
- Superintendents, followed by principals, are highly involved in the selection of candidates in all districts. The most important criteria in selecting candidates are certification in the subject to be taught, major in the subject to be taught, references/recommendations, and subject knowledge demonstrated in the interviews. High need urban districts are more apt to cite diversity of workforce and residence in the school district as important criteria. Low need districts are much more likely to consider performance in sample lessons as important. Similar to Strauss et al. (1998), we found that academic criteria (certification exam scores, quality of the certifying institution, quality of teaching portfolios, and MA degrees) are less frequently cited as important in teacher selection than willingness to participate in extra-curricular activities.
- Districts with difficulty recruiting teachers use a very similar screening and selection process as districts that do not have difficulty. Specifically, they require similar application material, include similar topics in interviews, and consider similar criteria in screening and selection.

Training and Support

To examine the areas in which districts express an interest in assistance, we asked several questions about the present use of teacher hiring services from SED, and the areas in which districts would be interested in additional training and support. Table 27 summarizes superintendent responses to the question about use of SED assistance. Presently, about half of the districts use SED services, primarily by contacting SED staff members or using the SED website. Very few districts use training materials supplied by SED. Use of SED services appears to go up with enrollment for all types of services, particularly in high need urban districts.

Table 27. Use of SED for Assistance with Teacher Hiring Issues by District Characteristics (percent of responses)¹

Enrollment²	Low	Medium	High	All Districts
Use SED for teacher hiring issues	35.9	47.8	61.2	48.2
Contact SED staff member directly	20.3	24.4	39.5	27.8
Use SED's website	24.2	32.8	49.3	35.3
Use training materials supplied by SED	9.8	6.7	11.8	9.3
	High Need			
SED Need/Resource Capacity Categories	Urban	High Need Rural	Average Need	Low Need
Use SED for teacher hiring issues	60.7	43.9	48.4	51.2
Contact SED staff member directly	35.7	22.4	28.7	28.6
Use SED's website	57.1	33.6	33.8	36.9
Use training materials supplied by SED	14.3	5.6	11.6	6.0

¹Bold and italics indicates that there is a statistically significant difference between the categories (10% level).

²"Low" is below 30th percentile, "medium" is 30th to 70th percentile, and "high" is above the 70th percentile.

A relatively small share of districts, less than 30%, expressed an interest in training and support on teacher hiring practices (Table 28). Twenty percent of districts expressed interest in a common statewide teaching application, training materials on selected practices, and a statewide online recruitment website where districts could post job openings and prospective teachers could search for jobs. Less than 20% of districts are interested in centralized information on hiring practices, either through a website or conferences. It is very surprising that less than half the responding districts expressed an interest in training and support in teacher recruitment and selection given the frequent forecasts about pending teacher shortages and the teacher requirements in *No Child Left Behind*. Unfortunately, we did not ask districts to discuss in more depth their lack of interest in training and support. This may be an important area for follow-up investigation if SED and NYSCOSS are going to effectively target training and technical assistance. Small districts are less likely to express an interest in training and support, especially information on recruitment practices, than are large districts. Controlling for enrollment, high need urban districts and high need rural districts express a higher interest in training and support than low need districts.

Table 28. Interest in Training and Support in Teacher Hiring Practices by District Characteristics
(percent of responses)¹

Enrollment²	Low	Medium	High	All Districts
Interested in training	24.2	30.6	34.2	29.7
Training and materials on recruitment practices	17.6	16.7	24.3	19.4
Training and materials on selection practices	17.6	22.8	25.0	21.9
A common statewide teaching application	8.5	8.3	14.5	10.3
A statewide online recruitment website where districts could post job openings and prospective teachers could search for jobs	17.0	20.6	26.3	21.2
A website dedicated to providing information about teacher recruitment and selection practices	11.1	16.7	21.7	16.5
Information regarding existing recruitment websites	13.1	17.2	23.0	17.7
Organized conferences for sharing practices and training in teacher recruitment and selection	13.1	14.4	26.3	17.7
SED Need/Resource Capacity Categories	High Need Urban	High Need Rural	Average Need	Low Need
Interested in training	42.9	34.6	29.5	19.0
Training and materials on recruitment practices	32.1	19.6	20.4	10.7
Training and materials on selection practices	39.3	27.1	20.0	14.3
A common statewide teaching application	10.7	13.1	10.5	4.8
A statewide online recruitment website where districts could post job openings and prospective teachers could search for jobs	39.3	26.2	20.7	9.5
A website dedicated to providing information about teacher recruitment and selection practices	35.7	19.6	14.9	10.7
Information regarding existing recruitment websites	39.3	15.9	17.5	13.1
Organized conferences for sharing practices and training in teacher recruitment and selection	39.3	13.1	18.5	14.3

¹Bold and italics indicates that there is a statistically significant difference between the categories (10% level).

²"Low" is below 30th percentile, "medium" is 30th to 70th percentile, and "high" is above the 70th percentile.

Are districts that are experiencing more recruiting difficulty more interested in training and support? Table 29 suggests that difficulty of recruiting is associated with more interest in a statewide website to post job notices, dissemination of good practices, and provision of links to other teacher recruitment websites. However, only a quarter of districts with difficulty recruiting teachers express an interest in online support. The lack of interest among districts in support, particularly in electronic recruitment, is puzzling. Use of a statewide website to post notices, accept applications, and search for candidates would appear to have the potential to greatly expand the job search with relatively low cost, especially for small districts. The significant use of the OLAS system provides strong evidence that a number of districts have found this type of centralized system beneficial. Concerns that superintendents and other district staff have over the use of the internet for teacher recruitment is a question that should be pursued further.

**Table 29. Interest in Training and Support for Teacher Hiring
By Difficulty of Recruiting Teachers
(percent of responses)¹**

	Difficulty in Recruiting Teachers		
	Low	Medium	High
Interested in training	20.7	31.3	34.9
Training and materials on recruitment practices	15.5	20.6	20.6
Training and materials on selection practices	15.5	22.6	26.2
A common statewide teaching application	7.8	9.9	13.5
A statewide online recruitment website where districts could post job openings and prospective teachers could search for jobs	14.7	21.8	26.2
A website dedicated to providing information about teacher recruitment and selection practices	10.3	15.2	24.6
Information regarding existing recruitment websites	11.2	17.3	24.6
Organized conferences for sharing practices and training in teacher recruitment and selection	13.8	17.3	22.2
Use SED for teacher hiring issues	45.7	51.0	45.2
Contact SED staff member directly	23.3	28.8	30.2
Use SED's website	29.3	39.5	32.5
Use training materials supplied by SED	9.5	11.1	5.6

¹Bold and italics indicates that there is a statistically significant difference between the categories (10% level). "Low" is below 25th percentile, "medium" is 25th to 75th percentile, and "high" is above the 75th percentile. Difficulty in recruiting is calculated based on the share of positions (question 3) where district is recruiting in last 3 years, where district indicates it is very hard to recruit.

Recommendations

Teacher recruitment is one of the most important activities of a school district given the relative permanence of the appointment and high cost to the district. Most school districts in New York use a range of approaches to attract applicants, and employ involved processes for screening and selecting applicants. However, their search process is generally in the local area, and most districts are not presently using the full potential of the internet in the search process. The use of teacher incentives appears to be limited by teacher contracts and lack of expertise on how to structure and manage these incentives. On an encouraging note, districts with recruiting difficulties are more apt to use teacher incentives, strategies to increase teacher supply, and the internet in the search process.

With the exception of using the online application system (OLAS) system for recruitment, and some other hiring services from BOCES, districts tend to organize, advertise, and manage the hiring process by themselves. To a certain extent this reflects the unique needs of each district and their own teaching environment and philosophy. The concern for maintaining control of the hiring process may explain the lack of interest by most districts in a common statewide application form and recruitment website. However, recruiting and evaluating prospective teachers can be a time consuming process if done well. Districts with low enrollment and limited fiscal resources may have difficulty providing the human and financial resources required to effectively compete with other districts for certified teachers. Assuming that the supply of

prospective teachers is not fixed, the sharing of resources and technical expertise across districts could improve the hiring process for all districts.

The survey suggests that school districts could benefit from a unified effort by state agencies and associations to expand common resources, provide technical assistance, and increase awareness of available resources and good practices. Examples of such efforts could include:

- **Increased staffing within SED to provide technical assistance to school districts on teacher recruitment and selection practices.** Presently, there is no staff person within SED with the principal task of assisting districts with teacher hiring. We recommend that SED hire a dedicated staff person(s) to pull together available information on policies, practices, and resources on teacher recruitment and selection. Besides managing this central data base, this staff person could serve a crucial role in disseminating information, organizing training opportunities, and facilitating communication across organizations. The staff person could also keep track of teacher labor market trends, help inform policymakers about fields and geographic areas where teacher shortages are occurring, and inform school and college personnel on where employment opportunities in teaching may be available. Increased staffing within SED is crucial for the successful implementation of the other recommendations discussed below.
- **Creation of a unified website on teacher hiring practices and policies to be managed by SED.** The website would be hosted by SED and managed with the assistance of an advisory group discussed below, and would pull together information already available from SED and additional resources on teacher hiring. The website should provide information on legal requirements, technical assistance, preferred practices, and available resources. Technical assistance could include a hiring policy manual with examples of model applications, advertisements, and interview protocols, legal regulations to be followed in the hiring process, and guidelines on how to manage key stages of the process. The website would provide links to available teacher recruitment websites and would highlight good practices used by districts in New York and nationally. Initially, the website would be for information exchange purposes, but could be expanded to include an online application system and interactive teacher search engine.
- **Creation of annual training sessions at the NYSCOSS annual conference,** and other venues, which address teacher recruitment and selection practices. These sessions would bring together experts from SED, NYSCOSS, and other relevant organizations to present information on innovative practices, legal changes, and major challenges districts face in the hiring of teachers. Given the limited interest expressed for training conferences, planning for these sessions should involve district staff knowledgeable in this area to assure that the topics are of significant interest to district administrators.
- **Expansion and coordination of BOCES hiring services.** The heavy use of the OLAS system and other services provided by the Putnam-Westchester BOCES suggest that there is a strong interest in these services. However, small districts are still less apt to use them even though they are likely to benefit the most. In some cases, their BOCES may provide only a limited set of services and they may not be aware of the services available from other BOCES. BOCES services could be expanded to include assistance to districts in establishing college/district partnerships beyond the local colleges.
- **Provision of training for district interview team members.** Since the interview process is particularly important, it would be worthwhile to ensure that district personnel are versed in sound interviewing techniques. BOCES could offer in-district training sessions for designated interview team members.
- **Creation of an advisory council to assist SED in identifying, evaluating, and disseminating promising practices.** The council should include, among others, representatives from NYSCOSS, district human resource managers, human resource professionals in other public or private organizations, and faculty at New York colleges with an expertise in human resource management.

Given the limited research on the effectiveness of particular hiring practices, the advisory council would play a key role in collecting available research and coordinating new research projects. The roles of this council could include:

- Developing training sessions and training material.
- Advising SED in the development and maintenance of their recruitment website.
- Evaluating online recruitment websites and other recruitment resources and encouraging the dissemination of good practices.
- Coordinating research on the effectiveness of promising practices, which might evaluate:
 - The impact of online recruitment tools and non-local advertising on increasing the number of applications from strong teaching candidates outside the local area.
 - The effectiveness of pre-screening tests in identifying strong teaching candidates.
 - The benefits and costs of the use of sample lessons in the interview process and examples of successful use.
 - The role of HR directors in the hiring process, how HR directors can be used most effectively, and mechanisms for making these services available to small districts.
 - The effectiveness of particular recruitment incentives in attracting high quality candidates to apply and accept positions, particularly in high need districts.

VII. References

- Arthur, J. B. (1994). Effects of human resource systems on manufacturing performance and turnover. *Academy of Management Journal*, 37, 670-697.
- Ballou, D. (1996). Do public schools hire the best applicants? *Quarterly Journal of Economics*, 111(1), 97-133.
- Ballou, D., & Podgursky, M. (1998). Teacher recruitment and retention in public and private schools. *Journal of Policy Analysis and Management*, 17(3), 393-417.
- Baugh, W. & Stone, J. (1982). Mobility and wage equilibrium in the educator labor market. *Economics of Education Review*, 2(3), 253-274.
- Becker, B., & Gerhart, B. (1996). The impact of human resource management on organizational performance: Progress and prospects. *The Academy of Management Journal*, 39(4), 779-801.
- Boyd, D., Lankford, H., Loeb, S., & Wyckoff, J. (2004). The draw of home: How teachers' preferences for proximity disadvantage urban schools. *Journal of Policy Analysis and Management* 24(1): 113-132.
- Clewell, B., Darke, K., Davis-Googe, T., Forcier, L. & Manes, S. (2000). *Literature Review on Teacher Recruitment Programs*. Washington D.C.: The Urban Institute.
- Craft, J. (1980). A critical perspective on human resource planning. *Human Resource Planning*, 3, 197-211.
- Darling-Hammond, L., Berry, B., & Thoreson, A. (2001). Does teacher certification matter? Evaluating the evidence. *Educational Evaluation and Policy Analysis*, 23(1), 57-77.
- David, J. L. (1988). *Case studies of recruitment, selection, and retention of high school mathematics and science teachers in two California districts*. Washington, D.C.: National Academy of Sciences.
- Dillman, D. (2000) *Mail and internet surveys, The tailored design method*. New York, NY: John Wiley and Sons, Inc.
- Dolton, P., Makepeace, G., & Van Der Klaauw, W. (1999). The turnover of teachers: A competing risks explanation. *Review of Economics and Statistics*, 81(3): 543-552.
- Education Research Service. (2001) Finding and keeping high-quality teachers. *The Informed Educator Series*. pp. 1-12.
- Ferguson, R. F. (1998). Can schools narrow the black-white test score gap. In C. Jencks & M. Phillips (Eds.), *The Black-White Test Score Gap* (pp. 318 - 374). Washington, DC: The Brookings Institution.
- Fox, J. & Certo, J. (1999). *Recruiting and Retaining Teachers: A Review of the Literature*. Richmond, VA: Metropolitan Educational Research Consortium.
- Goldhaber, D. D. (2002). The mystery of good teaching. *Education Next*, 2(1), 50-55.
- Goldhaber, D. D., Brewer, D. J., & Anderson, D. J. (1999). A three-way error components analysis of educational productivity. *Education Economics*, 7(3), 199-208.
- Goldhaber, D. D., & Anthony, E. (2003). *Teacher Quality and Student Achievement*. New York: Teachers College, Institute for Urban and Minority Education, ERIC Clearinghouse on Urban Education.

- Hanushek, E. & Rivkin, S. 2000. Teacher quality and school reform in New York. Proceedings from the Symposium on the Teaching Workforce. Albany, New York, Education Finance Research Consortium, November 8.
- Hanushek, E. A., Kain, J.F., & Rivkin, S. G. (2001). Why public schools lose teachers. *Working Paper No. 8599*. Cambridge: National Bureau of Economic Research.
- Hanushek, E. A., Kain, J. F., & Rivkin, S. G. (2002). *Teachers, schools, and academic achievement*. Working Paper No. 6691 (No. Working Paper No. 6691). Cambridge: National Bureau of Economic Research.
- Hanushek, E. A., & Pace, R. R. (1995). Who chooses to teach (and why)? *Economics of Education Review*, 14(2), 101-117.
- Hirsch, R. (2001). *Teacher Recruitment: Staffing Classrooms with Quality Teachers*. Denver, CO: National Conference of State Legislatures.
- Hussar, W. J. *Predicting the need for newly hired teachers in the United States to 2008-09*. Washington, DC: National Center for Education Statistics.
- Ichniowski, C., Shaw, K., & Prenniski, G. (1997). The effects of human resource management practices on productivity: A study of steel finishing lines. *The American Economic Review*, 87(3), 291-313.
- Imazeki, J. (1999). Moving on or moving out? Determinants of job and career changes for teachers. Unpublished paper prepared for University of Wisconsin.
- Ingersol, R. (2002) "The Teacher Shortage: A Case of Wrong Diagnosis and Wrong Prescription." *National Association of Secondary School Principals Bulletin* 86(June): 16-31.
- Kellough, E. & Selden, S. C. (2003) "The reinvention of public personnel administration: An analysis of the diffusion of personnel management reform in the States." *Public Administration Review* 63(6).
- 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.
- Liu, E. (2002). *New teachers' experiences of hiring: New Jersey*. Unpublished paper prepared for Harvard Graduate School of Education, Project on the Next Generation of Teachers.
- Liu, E. & Johnson, S. (2003). *New teachers' experiences of hiring: Late, rushed and information-poor*. NGT Working Paper. Harvard Graduate School of Education, Project on the Next Generation of Teachers.
- Loeb, S. (2000). How Teachers' Choices Affect What a Dollar Can Buy: Wages and Quality in K-12 Schooling. Proceedings from the *Symposium on the Teaching Workforce*. Albany, New York, Education Finance Research Consortium, November 8.
- Loeb, S. (2001). Teacher quality: Its enhancement and potential for improving student achievement. In P. Monk, H. Walberg, and M. Wang (Eds.), *Improving Educational Productivity* (pp. 99-114). Greenwich, CT: Information Age Publishing
- Murnane, R. & Olsen, R. (1990). The effects of salaries and opportunity costs on length of stay in teaching: Evidence from North Carolina. *Journal of Human Resources*, 25(1): 106-124.
- National Center for Education Statistics (2004). *Teacher Attrition and Mobility: Results From the Teacher Follow-up Survey, 2000-2001*. Washington, DC.: U.S. Department of Education.

- Oakes, J., Gamoran, A., & Page, R.N. (1992). Curriculum differentiation: Opportunities, Outcomes and Meaning. In P.W. Jackson (Ed.), *Handbook of Research on Curriculum* (pp. 570-608). Washington, DC: American Educational Research Association.
- Pathways to Teaching Careers. (1997). *Recruiting, Preparing and Retaining Teachers for America's Schools*. Pleasantville, NY: DeWitt Wallace/Reader's Digest Fund.
- Pynes, J. E. (1997). *Human Resources Management for Public and Nonprofit Organizations*. San Francisco: Jossey-Bass Publishers.
- Rebore, R. (2001). *Human Resources Administration: A Management Approach* (Sixth ed.). Boston, MA: Allyn and Bacon.
- Selden, S. C., Ingraham, P.W., & Jacobson, W. (2001). Human resource practices in state governments: Findings from a national survey. *Public Administration Review* 61(5).
- Selden, S. C., & Jacobson, W. (2003). "Human resources management." In *Paths to Performance in State and Local Government*. Syracuse, NY: Syracuse University.
- Shivers, J. A. (1989). *Hiring shortage-area and non-shortage-area teachers at the secondary school level*. Cambridge, MA: Harvard Graduate School of Education.
- Southwest Center for Teacher Quality. (2002). *Recruiting Teachers for Hard-to-Staff Schools*. Chapel Hill, NC: The University of North Carolina.
- Stinebrickner, T. R. (1998). An empirical investigation of teacher attrition. *Economics of Education Review*, 17 (2), 127-136.
- Strauss, R. P., Bowes, L. R., Marks, M. S., & Plesko, M. R. (1998). *Teacher Performance and Selection in Pennsylvania*. Report prepared for the Pennsylvania State Board of Education.
- Strauss, R. P., Bowes, L. R., Marks, M. S., & Plesko, M. R. (2000). Improving teacher preparation and selection: lessons from the Pennsylvania experience. *Economics of Education Review*, 19(4), 387-415.
- Webb, L. D., & Norton, M. S. (1999). *Human Resources Administration: Personnel Issues and Needs in Education* (Third ed.). Upper Saddle River, NJ: Prentice-Hall, Inc.
- Wise, A. E., Darling Hammond, L., & Berry, B. (1987). *Effective Teacher Selection* (No. R-3462-NIE/CSTP). Santa Monica, CA: The RAND Corporation.