Teacher Shortage?
What Teacher Shortage?
This report was researched and written by Paul Heiser, senior research analyst. It was edited by David Albert, director of marketing, communications and research, and designed by Barbara Bennett, communications associate.
Executive Summary

• Much has been written nationally and locally about a teacher shortage. The recession that began in 2008 caused many school districts to lay off teaching staff and cut programs to cope with losses in state financial aid. This, in turn, caused large numbers of potential teachers to turn to other career paths where the hiring outlook was more promising.

• As the economy has rebounded, schools have started resurrecting programs and looking for teachers to fill the new positions. The demand for qualified teachers has increased and, in some instances, outpaced supply.

• According to NYSSBA's analysis, teacher shortages in New York are not widespread for all instructional areas, but rather are concentrated in specific subjects, most notably science, special education, foreign languages, mathematics, and English instruction for students whose primary language is not English.

• Geographically, teacher shortages are not widespread in New York. They tend to be concentrated in certain regions of the state.

• Teacher shortage patterns observed in 2016 were similar to what they were five years earlier. Subject areas in which the greatest percentages of teachers taught without certification were in the areas of bilingual education, English as a second language, foreign language, home economics, technology and trade education.

• Existing shortages appear to be related to a mismatch in supply and demand between the types of teachers coming out of teacher preparation programs and the kinds of teachers most in demand by schools. For example, New York regularly produces a surplus of elementary level teachers, yet not enough teachers in areas such as science, math and special education.

• This report identifies both a number of strategies school districts can employ at the local level to alleviate teacher shortages and state-level strategies for policymakers to consider, such as: aligning student teaching placements with subject shortage areas; addressing pay differentials for hard-to-staff subjects; using data to refine teacher recruitment and hiring, and using social media in recruitment efforts.
Introduction

If you have picked up a newspaper or magazine within the past year, chances are you have seen more than a few headlines announcing a looming teacher shortage in the U.S.

But are these warnings real, or are they just ‘the sky is falling’ rhetoric? Is there a teacher shortage across the board in all subjects, or just in certain subjects? Do they impact the whole country, or just certain states – or specific regions?

Exploring answers to these questions is crucial. Having an adequate number of qualified teachers is vital to student learning. In times of shortage schools have few good options, such as staffing classrooms with teachers who are not fully prepared and qualified; relying on substitutes; increasing class sizes; and canceling courses. All of these options have the potential to detract from the quality of instruction students receive.

This report gives school leaders and policymakers a clearer idea of the teacher shortage landscape in New York. We provide an overview of the national teacher shortage, explore the extent of the teacher shortage in New York, examine what subjects and regional areas are most affected, and offer recommendations for state policymakers and local school boards to address any shortages.
A teacher shortage is typically defined as the inability to fill vacancies at current wages with individuals qualified to teach in the fields needed.  

In September 2016, the Learning Policy Institute (LPI), an education research and policy think tank in Palo Alto, Calif., published a report titled, “A Coming Crisis in Teaching?” to chronicle the extent of the teacher shortage throughout the nation. Using federal data from the U.S. Department of Education’s National Center for Education Statistics, LPI projected a nationwide teacher shortage of 145,000 by 2025 if current supply and demand trends continue.

LPI identified several reasons why demand for teachers is outstripping supply. Student enrollments are projected to grow in the next decade because of higher birth rates and immigration; pupil-teacher ratios are projected to revert from an average of about 16 to 1 in 2016 to pre-recession levels of about 15.5 to 1, based on modeling of both historical patterns and economic conditions; teacher attrition of about 8 percent annually, due mostly to dissatisfaction with the profession; and teacher supply is shrinking as fewer people enter teacher preparation programs; enrollment in teacher prep programs declined by 35 percent between 2009 and 2014.

According to a May 2016 report by the Education Commission of the States (ECS), a recent longitudinal study of a nationally representative cohort of teachers by the National Center for Education Statistics found that teacher turnover, as measured annually by the combined percentage of teachers who moved to other schools or districts or left the profession, was 46 percent after five years in the profession. These data, coupled with concerns about a growing K-12 student population, suggest the makings of supply deficits in the teacher labor market.

The ECS report said teacher shortages may be attributed in large part to the overall condition of the teacher labor market. It cited data from the U.S. Department of Education and ACT that fewer high school graduates are majoring in education and fewer college students are becoming teachers. The report also noted that many of those who do enter the profession report overall job dissatisfaction, a loss of autonomy, and limitations in feedback, recognition, advancement and reward, all of which contribute to teacher turnover.

The National Council on Teacher Quality (NCTQ), a Washington, D.C.-based think tank that advocates for tougher teacher standards, believes warnings about a national teacher shortage are overstated. Kate Walsh, the president of NCTQ, said teacher shortages are confined to certain regions and certain subject areas.

“Even with the normal ebb and flow in the numbers of individuals who enter teacher prep programs (and we are in an ebb), the actual teacher shortage is no different than it was 2, 5, 10, or 15 years ago,” said Walsh. “By that I mean that all schools, as they have for decades, continue to struggle mightily to find certain kinds of teachers (STEM, ELL, special education).”

Moreover, Walsh contends that teacher shortages are due more to a misalignment between the types of teachers coming out of teacher preparation programs and the kinds schools actually need, rather than a lack of teachers applying to teacher preparation programs. “Higher education institutions have continually over-produced teachers, yet shortages remain,” said Walsh. “Why? Because teacher preparation programs graduate an overabundance of elementary school teachers, but the fields in which they are most needed are in areas such as science, math, special education and English as a second language.”

The LPI report agrees that teacher shortages generally are not national in nature, but differ from state to state and among subject areas. The report said that subjects such as math, science and English as a second language have seen the greatest shortages. It also said teacher shortfalls have been particularly acute in special education: 48 states plus the District of Columbia have identified shortages of teachers in special education and related services.

But the report also points out that since a quarter of teachers move to other states at some point in their careers, and many leave the profession because of barriers to transferring their licenses and pensions, solving national labor market problems would be beneficial.
What’s the Picture in New York?

To determine the extent of the teacher shortage in New York, NYSSBA looked at three separate sources of information: annual report data from the U.S. Department of Education; a NYSSBA analysis of teacher certification data from the State Education Department; and a NYSSBA survey of school superintendents across the state. The combination of these data is then used to draw conclusions about the nature of the teacher shortage in New York.

**U.S. Department of Education data**

The U.S. Department of Education issues an annual report on teacher shortages in each state. The document is intended to provide information to both recent graduates of teacher preparation programs and trained, experienced teaching professionals about the subject areas and geographic regions with shortages in pre-K through grade 12.

The most recent report, published in August 2016, did not find widespread shortages across New York for the 2016-17 school year. Rather, the subject areas where teacher shortages exist were specifically in bilingual education, career and technical education, and special education.

The report said New York City is experiencing shortages in a greater number of subject areas, including arts (all grades), bilingual education (all grades), English (grades 7-12), health education (all grades), foreign languages (all grades), reading/literacy (all grades), sciences (grades 7-12), and special education.

**NYSSBA analysis of State Education Department data**

One of the best indicators of a teacher shortage is the proportion of teachers without certification in a particular subject, according to the Learning Policy Institute. In most cases, districts can only hire a teacher without certification if a fully prepared teacher cannot be found. Thus, the prevalence of these substandard credentials signals schools are experiencing shortages of qualified teachers.

Using data from the State Education Department, NYSSBA conducted an independent analysis to determine the subject areas and regions of the state where teaching without proper certification was most prevalent. Data from 2016 were analyzed to determine what subjects and regions had higher percentages of teachers without certification in the state outside of New York City. The most complete dataset available for New York City was for 2015, so that year was substituted. Data from 2011 were also analyzed to see what patterns, if any, could be detected. [Note: Since the New York City school system’s approximately 1 million students represent nearly 40 percent of all students in the state, data is presented separately for New York City and the rest of the state to avoid skewing the statewide data.]
Based on the data, it appears that outside of New York City, only a handful of subject areas and geographical regions had significant proportions of teachers without certification in the subjects they were teaching. As Table 1 illustrates, the subjects that had the greatest percentages of teachers without certification were bilingual education, English as a second language, foreign language, home economics, technology and trade education. For example, 25 percent of bilingual education teachers in the Genesee-Finger Lakes region had no certification in that subject, and one in five bilingual education teachers in the Upper Hudson region did not have the appropriate certification in that field, while nearly 15 percent of bilingual teachers in western New York were without certification.

Lack of certification was more pronounced in New York City, where 5 percent or more of teachers were without subject-specific certification in nine of the 20 subject areas, including: technology (35 percent), bilingual education (19 percent), home economics (16 percent), special education (14 percent), trade education (14 percent) and health education (12 percent).

In addition, there were another nine subjects where between 2 and 5 percent of teachers were without the appropriate certification. By contrast, the subjects with the lowest percentages of teachers without certification were math, physical education, common branch (elementary school grades), and computer science.

Table 1. Percentage of teachers without certification in each subject area

<table>
<thead>
<tr>
<th>Subject Area</th>
<th>Statewide excluding NYC</th>
<th>NYC (2015)</th>
<th>Nassau-Suffolk</th>
<th>Mid-Hudson</th>
<th>Upper Hudson</th>
<th>Lake Champlain-Lake George</th>
<th>Black River-St Lawrence</th>
<th>Upper Mohawk Valley</th>
<th>Central</th>
<th>Southern Tier - East</th>
<th>Southern Tier - Central</th>
<th>Southern Tier - West</th>
<th>Genesee-Finger Lakes</th>
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</table>

Source: NYSSBA analysis of the New York State Education Department’s Basic Educational Data System Personnel Master File

Each cell shows the percentage of teachers who were not certified to teach the particular subject they were teaching for each region of the state. Cells shaded in orange indicate that between 2 and 5 percent of teachers lacked the proper certification in a particular subject. Cells shaded in green indicate that more than 5 percent of teachers lacked the proper certification in a particular subject. The table includes the 20 subjects with the greatest number of teachers. See Appendix A to see which counties are in each region.
How does 2016 compare with five years earlier? There are very similar patterns between the two years. New York City once again had high proportions of teachers without certification in a particular subject. More than 5 percent of teachers were without proper teacher certification in eight of the 20 subject areas, and between 2 and 5 percent of teachers without certification in another eight subjects. In the rest of the state, the subject areas in which the greatest percentages of teachers taught without certification were in the areas of bilingual education, trade education, technology and English as a second language (see Figure 1).

Figure 1. Percentage of teachers without certification - statewide (not including NYC)

* Trade education programs are those that help students develop technical knowledge and skills to prepare them for employment in semi-professional or technical occupations.
NYSSBA survey

NYSSBA conducted a survey of school superintendents across New York to determine whether their districts had experienced a shortage of qualified teachers in any subjects over the past year and, if so, the subjects that were impacted. The survey was sent to 630 superintendents on February 23, 2017 and received 275 responses—a return rate of 44 percent.

Statewide, there were eight subjects in which 10 percent or more of responding superintendents said there was a shortage of qualified teachers (see Figure 2). Nearly six in 10 superintendents (59 percent) said they had difficulty finding qualified teachers in one or more science specialties, particularly physics, chemistry and earth science. Special education (42 percent) and foreign languages (39 percent) garnered the second and third highest percentages of superintendents who indicated a teacher shortage exists in their districts. Rounding out the top eight were technology (34 percent), English language learners (ELL)/English as a second language (ESL)/English as a new language (ENL) (32 percent), math (29 percent), library media specialist (20 percent), and home economics (15 percent).

Figure 2: Percentage of superintendents indicating their district had a teacher shortage – by subject area

Source: NYSSBA survey of superintendents
Different geographic areas of the state showed similar teacher shortage patterns as the state as a whole. For instance, superintendents in all 12 geographic areas of the state delineated in this report identified science and special education as two of their top five most difficult-to-staff subjects, while superintendents in 10 of the 12 areas reported foreign languages and technology as among their top five most difficult subjects in which to find teachers. Figure 3 shows the top five most difficult-to-staff subjects for each of the 12 regions based on the percentage of superintendents who reported having teacher shortages in their districts. [Note: New York City did not respond to the survey.]

**Figure 3. Top 5 teacher shortages by geographic location (based on the percentage of superintendents indicating a shortage of teachers in their districts)**

**Area 1**
- Math: 44%
- Foreign language: 43%
- Science: 38%
- ELL/ESL/ENL: 38%
- Business: 19%
- Special education: 19%

**Area 2**
- Foreign language: 73%
- Science: 58%
- ELL/ESL/ENL: 46%
- Math: 39%
- Special education: 31%

**Area 3**
- Science: 70%
- Special education: 70%
- Foreign language: 44%
- English: 30%
- Technology: 30%
- Math: 19%

**Area 4**
- Science: 63%
- Foreign language: 44%
- Special education: 41%
- Math: 37%
- Technology: 33%

**Area 5**
- Science: 77%
- Technology: 46%
- Special education: 41%
- Math: 32%
- Foreign language: 23%

**Area 6**
- Special education: 65%
- Science: 46%
- Technology: 35%
- Math: 31%
- Music: 31%

**Area 7**
- Science: 62%
- Special education: 53%
- ELL/ESL/ENL: 44%
- Math: 41%
- Technology: 38%

**Area 8**
- Science: 63%
- Special education: 63%
- Math: 44%
- Foreign language: 38%
- Technology: 38%

**Area 9**
- Science: 73%
- ELL/ESL/ENL: 58%
- Technology: 54%
- Foreign language: 35%
- Special education: 23%

**Area 10**
- Science: 60%
- Foreign language: 60%
- ELL/ESL/ENL: 38%
- Technology: 27%
- Special education: 20%

**Area 11**
- Science: 44%
- Special education: 44%
- Technology: 28%
- ELL/ESL/ENL: 22%
- Foreign language: 22%

**Area 12**
- ELL/ESL/ENL: 71%
- Foreign language: 47%
- Science: 35%
- Technology: 29%
- Special education: 18%

*Source: NYSSBA survey of superintendents*
What factors are related to teacher shortages?

Walsh, of the National Council on Teacher Quality, believes schools struggle to find teachers in such hard-to-staff subjects as science, math, special education, foreign languages, and English as a second language because of a fundamental misunderstanding of how labor markets work: higher salaries are needed to attract people who have skills which are marketable elsewhere (especially in industries where they can earn much higher pay), to induce them to live in undesirable locations, or to work in tougher environments.13

“One answer to the problem is to pay such teachers more than others, but most districts continue to reject that solution because it is untenable with unions,” she said.14 “We also could ramp up the availability of part-time positions for science, technology, engineering and math (STEM) teachers, but — again — few schools and states embrace this option because unions worry that districts will seek to replace full-time employees and their costly benefits with part-timers.”

Walsh also points to the imbalance of students in teacher preparation programs between fields where teachers are needed and ones in which there is an overabundance. For example, in 2012-13, New York had a supply of 6,119 new elementary teachers but only 2,470 openings.”15

Northville in Fulton County is one school district that has had trouble recruiting qualified teachers due to its rural location and inability to offer competitive salaries.

“I could write a volume about hiring in the Adirondacks!,” said Leslie Ford, the Northville superintendent. “I have never encountered such difficulty! It is hard to attract teachers — even beginners — to a rural district where the pay scale does not attract you through to retirement. We have been trying to hire a technology teacher for two years. We currently have an opening for FACS (Family and Consumer Sciences) that we reopened due to no certified applicants. Math and science are also very difficult.”16

The Dolgeville school district is experiencing similar difficulties in attracting teaching talent. The district has experienced severe shortages in grades 7-12 math, special education, and early childhood education.

“In several cases, we have retired teachers or student teachers in full time positions and in one case have a retired teaching assistant in a teacher’s sudden absence due to a serious accident,” said Superintendent Christine Reynolds. “In addition, we had very few qualified applicants for a technology coordinator position because we cannot compete with the salaries and benefits of private industry for personnel with similar qualifications.”17

Another factor in teacher shortages in some districts stems from the perception among would-be teachers that teaching is a soft job market. Job pressures from the state’s new evaluation system also represent another potential stumbling block. “We recently attended a job fair and had numerous conversations with students in fields other than education. What we heard was alarming,” said Superintendent Douglas Wyant, superintendent of the Hornell school district in Steuben County.

“Most students we spoke with had considered education, but were advised not to enter the field due to the lack of job opportunities. In addition, the added requirements of APPR were a driving force to avoid careers in education. Students told us our teachers are advising young people to avoid entering the field.”18

In Attica, as in other districts across the state, retirements are spurring teacher shortages. “We cannot find a certified Library Media Specialist or an ESL (English as a second language) teacher currently,” said Superintendent Bryce Thompson. “We are seeing far fewer applicants for all positions and are starting to see an increase in the number of retirements. This wave of retirements is going to exasperate the situation in the next few years.”19
What Can be Done to Mitigate Existing Teacher Shortages?

There are a number of strategies that can be undertaken at both the state and local levels to mitigate any shortages. These strategies focus primarily on recruitment, retention and attrition.

**Local district level**

**Align student teaching placements with shortage areas.** Rather than taking on student teachers in subject areas where they have no shortages, school districts could work with local colleges and the State Education Department to align student teacher placements with their needs/shortage areas. This, in turn, could prepare student teachers to ultimately assume a position in the district upon completion of their teaching degree.

The Frontier school district in Erie County, for example, has partnered with its local teacher preparation colleges that allow students working on their education majors to substitute in the district in exchange for being guaranteed interviews for open positions.

**Address pay differentials.** As long as a pay gap exists between what potential teachers would earn in the teaching profession and what they could earn in other high-paying fields, chronic and severe vacancies will persist in such hard-to-staff fields as special education, English as a second language, math and science. School districts need to negotiate with their local teachers unions to increase salaries in those hard-to-staff subject areas.

**Mine data to refine teacher hiring.** In some school districts, analyzing data to identify patterns could be a key to making better hiring decisions than the typical hiring process that uses “gut instincts” or personal biases. This can help districts recruit and hire highly qualified candidates, more accurately predict whether they will be effective in the classroom, minimize teacher turnover and absenteeism, both of which negatively affect student outcomes, and help streamline their hiring processes.

For example, data often show that teachers hired well in advance of the school year typically get higher ratings than those hired in July and August. School districts could survey teachers anonymously each year to ask if they plan to return the following year. This can help districts predict the number of vacancies likely to open, thereby informing recruiting and staffing strategies. This can also help school districts be more strategic about where to take recruiting trips and avoid places that have traditionally turned out weak candidates.

**Use social media to connect with and recruit teachers.** Social media can be an important tool in teacher recruitment. While not a replacement for job postings and career fairs, tools such as Facebook, Twitter, and LinkedIn can help school districts connect with the newer generation of prospective teachers, both inexpensively and efficiently. It also allows districts to recruit continuously 12 months a year.

**Recruit abroad.** Given the shortage of bilingual educators in schools, administrators could explore the concept of recruiting teachers outside the U.S. For example, the Buffalo school district recently traveled to Puerto Rico to recruit bilingual teachers in an effort to address a steady influx of Spanish-speaking students to the district.

**State level**

**Align teacher preparation programs with areas of need.** Colleges and universities often produce an overabundance of teachers in subject areas where shortages don’t exist, such as elementary schools. The State Education Department could mitigate this problem by aligning the number of slots in teacher preparation programs with the number of teachers needed in certain subject areas.

**Make it easier for school districts to hire part-time teachers.** Some hard-to-staff subjects such as math and science have difficulty attracting qualified teachers because individuals in those fields can earn higher salaries in other professions. Relaxing restrictions on hiring part-time teachers would allow those people to teach, say, an Advanced Placement chemistry class while still remaining in positions in the corporate sector.

**Make it easier for teachers with certification in another state to be granted certification in New York.** State regulations allow teachers who attended a teacher preparation program in another state, hold comparable certification there, worked
under that certification for three years (out of the last five years) and received good evaluations to be granted immediate certification in New York without taking additional certification exams.  

However, teachers who have attended an approved teacher preparation program in another state and hold a comparable certificate in that state but do not have three years of experience teaching under that certificate are reviewed on a case by case basis to see what additional requirements are necessary to acquire certification in New York. In addition, those who have attended an approved teacher prep program in another state but did not obtain certification there must have completed a “comparable” program plus take and pass all of New York’s certification exams. 

Some believe the process could be made easier. “In my opinion, the state needs be more flexible with its certification requirements – accepting certifications from states other than New York and also looking at other methods of gaining competence beyond a traditional teacher certification route at a New York State accredited college;” said Kathleen Hagenbuch, superintendent of the Campbell-Savona school district in Steuben County. “I believe we close the door to great teachers with certifications from other states, and/or potentially great teachers with other professional work experience with our complicated and bureaucratic requirements for certification.”

The State Education Department says any certification from another state must be “comparable” with that of New York State.

“We have found that for many reciprocity applicants, the issue that comes up is that many applicants come from states where they are not required to take as many college credits in the content area or pedagogy (or student teaching) as we require,” said Ann Jasinski, assistant director of the State Education Department’s Office of Teaching Initiatives. “So a person wanting a math teaching certificate, but does not have three years of teaching experience under that certificate, may apply from another state and we find that they only had 18 credits in math. So we tell them they need more math credits. We will, however, accept college credit in closely related content areas. So for example if you do not have enough math credits, but you have several statistics type courses – deemed to be a cognate of mathematics – we will accept those courses towards the comparability standard.”

Make the teacher certification process more flexible. Dennis Creedon, the superintendent in the Mahopac school district, would like to see New York be more like Pennsylvania. He said Pennsylvania has an emergency certification process for qualified candidates within a specific field who have job offers from a school district.

Creedon said he recently hired a teaching assistant who has a bachelor’s degree in accounting but is also fluent in Spanish. In Pennsylvania, he could have hired her as a Spanish teacher with the requirement that she attend college at night and take the required courses for certification in Spanish. In New York state she was told that she had to enroll in a new four-year bachelor’s degree program to be a Spanish teacher. Ultimately, she could not afford to pay for college and still support her family.

“In Pennsylvania, this process works in every content area where we have a shortage,” said Creedon. “And in all honesty, pulling individuals from industry who have past experience in real world application of content knowledge is a big plus to the facilitation of content with an eye on the reality of what is expected by industry.”
Conclusion

Much has been written nationally and locally about a coming teacher shortage. The recession that began in 2008 caused many school districts to lay off teaching staff and cut programs to cope with losses in state financial aid. This, in turn, caused large numbers of potential teachers to turn to other career paths where the hiring outlook was more promising.

As the economy has rebounded and schools have started reinstating programs they dropped and hiring teachers to fill those positions, the demand for qualified teachers has increased and, in some instances, outstripped supply. According to NYSSBA’s analysis, teacher shortages in New York are not widespread for all subject areas and geographical areas, but rather are concentrated in a handful of subjects and regions of the state, most notably science, special education, foreign languages, mathematics, and English instruction for students whose primary language is not English. In subject areas where there is a shortage, the shortage appears to be more a mismatch in supply and demand: between the types of teachers coming out of teacher preparation programs and the kinds of teachers most in demand by schools.

Our hope with this report is for school districts to consider several key strategies they may employ to bridge whatever teacher shortages they may be experiencing. We also urge policymakers to consider the strategies presented here that could be implemented at the state level to address hiring challenges.

Appendix A.

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