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Metro Atlanta Policy Lab for Education
TEACHER HIRING PRACTICES
Policy Brief
Teacher Hiring Practices

It has been well established that teacher quality is the most important school-based determinant of a child’s educational outcomes (Hanushek, Kain, Rivkin, 2005; Aaronson, Barrow, and Sander 2007; Kane, Rockoff, and Staiger 2008). There are a number of potential mechanisms for improving teacher quality, including hiring better teachers, improving current teachers’ skills, enhancing teachers’ incentives to maximize their performance, and differentially retaining superior teachers. This brief focuses on teacher hiring practices and what is known about the efficacy of various practices based on prior research.

1. Candidate Characteristics and Teacher Performance

A prerequisite to hiring better teachers is the ability to identify which applicants are most likely to become superior teachers. In most instances, teacher performance is measured by the estimated contribution of a teacher to student achievement or “value added,” though observational measures such as principal evaluations may also be employed.

1.1 College Entrance Exam Scores

Generally, college entrance exam scores are not predictive of teacher quality.

Harris and Sass 2011, Rockoff et al. 2011, and Kane, Rockoff, and Staiger 2008 all found no relationship between teacher SAT scores and teacher value-added, though Harris and Sass’s findings may be due to a small sample size. Boyd et al. 2008 found that only the math section of the SAT was positively associated with later value-added of teachers. Jacob et al. 2016 initially determined that the sum of SAT math and verbal scores were predictive of teacher performance, but when other factors were taken into account, the statistical significance, magnitude, and even the direction of the prediction changed.

1.2 College Selectivity

Using data from elementary and middle schools in North Carolina, Clotfelter, et al. (2007) found that teachers coming from elite and highly competitive institutions were no more effective at raising student achievement than those who graduated from less selective institutions. In later work on high school students in North Carolina they do find teachers from very competitive institutions are more effective those from uncompetitive institutions, though the differences are small. In contrast, Jacob et al. 2016 found that the selectivity of the college was associated with substantial increases on teachers IMPACT evaluation scores in Washington DC.

1.3 Grades

The results of Kane, Rockoff, and Staiger 2008 and Ronfeldt et al. 2013 indicate no significant relationship between a teacher’s college GPA and their later effectiveness (as measured by value added). In contrast, Kukla-Acevedo 2009, using data from a single grade in one Kentucky school district, found a positive relationship between a teacher’s college GPA and the test scores of their students. Gronqvist and Vlachos 2016 find a positive association between a teacher’s college GPA and average student achievement, but only for male teachers. Ronfeldt et al. 2013 found that many candidates with strong GPAs intend to spend less of their careers as teachers, which would mute any potential gain from
recruiting applicants with high GPAs.

The relationship between grades in college and later performance as a teacher is generally stronger when observational scores are used to rate teacher performance. Jacob et al. 2016 found that GPA was a positive predictor of teacher job performance, as measured by DC IMPACT (a combination of test-score-based and observational measures), even though GPA was not a predictor of teacher value-added scores, though this may have been due to the relatively small number of DC teachers with value-added scores. Bruno and Strunk 2018 found that GPA was predictive of evaluation performance, particularly for elementary and special education teachers, though not value-added scores.

1.4 Pathway (Traditional Teacher Preparation vs. Alternative Certification)

Clotfelter, Ladd, and Vigdor 2006, Kane, Rockoff, and Staiger 2008, and Harris and Sass 2011 all find no significant difference in effectiveness between graduates of traditional teacher preparation programs and alternatively certified teachers. However, a positive relationship between completing a traditional teacher preparation program and later effectiveness as a teacher was found in Cavalluzzo 2004, Boyd et al. 2008, and Clotfelter et al. 2010.

There is little direct evidence on the relationship between pre-service content knowledge of teachers and their later effectiveness as teachers. One exception is a recent study, Jacob et al. 2016, which analyzes the teacher hiring system in Washington, DC. They found that an average of subject-specific essay scores on content and writing quality plus scores on a test of knowledge and skills for math teachers positively predicted teacher DC IMPACT performance scores.

A larger body of work provides indirect evidence of the importance of subject matter knowledge through the analysis of TFA teachers. TFA recruits recent college graduates, often from highly selective universities, who possess strong academic credentials and content-area degrees, but little or no training in education. Several studies compare the performance of TFA teachers and traditionally prepared teachers (i.e. teachers with backgrounds and credentials that are similar to those of traditionally prepared teachers (Sass 2015). In contrast, some programs, such as the American Board for Certification of Teacher Excellence (ABCTE) and Teach for America (TFA) require no education-specific coursework before one begins teaching. Such programs reduce the cost of entering the teaching profession and tend to attract individuals with strong academic credentials. ABCTE and TFA teachers tend to outperform traditionally prepared teachers in Math and are typically have comparable value-added scores in reading (Sass 2015; Boyd et al. 2006; Kane, Rockoff, and Staiger 2008; Glazerman, Mayer, and Decker 2006; Xu, Hannaway and Taylor 2011).

1.5 Subject Matter Knowledge

Evidence on differences in teacher effectiveness across pathways is mixed. However, two alternative routes that require no education coursework prior to teaching, the American Board for Certification of Teacher Excellence and Teach for America, yield teachers that tend to outperform traditionally prepared teachers in math and science, particularly in middle and high school.

The dichotomy between traditionally prepared teachers and alternatively certified teachers can be deceptive, as there is significant heterogeneity among alternative routes. For example, some alternatively certified teachers have backgrounds and credentials that are similar to those of traditionally prepared teachers (Sass 2015). In contrast, some programs, such as the American Board for Certification of Teacher Excellence (ABCTE) and Teach for America (TFA) require no education-specific coursework before one begins teaching. Such programs reduce the cost of entering the teaching profession and tend to attract individuals with strong academic credentials. ABCTE and TFA teachers tend to outperform traditionally prepared teachers in Math and are typically have comparable value-added scores in reading (Sass 2015; Boyd et al. 2006; Kane, Rockoff, and Staiger 2008; Glazerman, Mayer, and Decker 2006; Xu, Hannaway and Taylor 2011).
with degrees in education) and find that TFA teachers perform better in Math and no worse in English than traditionally prepared teachers in elementary and middle school (Boyd et al. 2006; Glazerman, Mayer, and Decker 2006; Kane, Rockoff, and Staiger 2008). The difference between TFA and traditionally prepared teachers is magnified in high school, particularly in math and science (Xu, Hannaway and Taylor 2011).

Similar to the TFA results, other studies have found the importance of subject matter competency decreases when selecting elementary school teachers. (Rowan et al. 2002; Betts et al. 2003; Aaronson, Barrow, and Sander 2007).

### 1.6 Licensure Exams

The Praxis II, a licensure test used in many states, measures both subject matter and pedagogical knowledge. Clotfelter et al. 2010 found the Praxis II was related with higher student achievement, especially within subject area. However, others have found that the predictive ability of the Praxis II varies across teacher race (Goldhaber and Hansen 2010; Angrist and Guryan 2008). Further, Angrist and Guryan 2004 found that the Praxis II favors those who attended education schools, relative to those who obtained degree in fields outside of education.

**In a number of studies, teacher licensure exam scores have been found to be predictive of teacher performance, though the relationship between licensure exam scores and teacher effectiveness can vary across different types of teachers.**

Goldhaber, Gratz, and Theobald 2016 find that for middle school math, ninth grade algebra, geometry and biology, teachers’ test scores on Washington State’s Educator Skills Test-Basic have a positive, albeit modest, positive impact on teacher effectiveness in math and biology. They find a similar relation with subject specific licensure tests, the Washington Educator Skills Test-Endorsement, though these results were not statistically significant.

Clotfelter et al. 2007, 2010 also find that teacher licensure test scores are associated with higher student achievement, particularly in math. Hendricks 2015 found that teacher certification scores were predictive enough to be used to proxy for teacher ability. Bruno and Strunk 2018 found that subject matter scores were more predictive for secondary teachers’ evaluation scores, suggesting that content knowledge matters more in upper grades.

### 1.7 Educational Attainment

In the vast majority of studies, teachers possessing a master’s degree are found to be no more productive than teachers with only a baccalaureate degree (Rockoff 2004; Hanushek et al. 2005; Jepsen 2005; Rivkin, et al. 2005; Clotfelter et al. 2007; Clotfelter, et al. 2010; Chingos and Peterson 2011; Ladd and Sorensen 2017; Bruno and Strunk 2018). When positive correlations are found, it is typically for a single subject or grade level (Harris and Sass, 2011).

**In the vast majority of studies, attainment of a master’s degree does not increase teacher effectiveness.**

The recent work of Jacob et al. 2016 found a Masters’ degree, when used alone, was predictive of performance and value-added scores in Washington DC. However, the relationship between master’s degrees and performance became insignificant when used with other predictors.

### 1.8 Non-Cognitive Ability and Screening Tools

Bastian, McCord, Marks, and Carpenter 2017 found teacher conscientiousness was positively related with improved student achievement, evaluations, and retention rates. Gronqvist and Vlachos 2016 found that a
teacher’s social ability can decrease the gap between high and low achieving students by about 4.5 percent. They also note that teacher cognitive and social ability appear to be complements. Another study found that the relative effectiveness of national board certified teachers seemed to emanate from their non-cognitive classroom management ability (McColskey et al. 2006). Jacob et al. 2016 found that interview scores were positively predictive of teacher productivity.

There is emerging evidence of a link between the non-cognitive skills of teachers and positive student outcomes. However, there is mixed evidence on the ability of commercially available screening instruments to predict teacher performance.

Many districts throughout the U.S. utilize commercial screening instruments, which measure various components of non-cognitive skills, in their hiring process. There are four main commercial screeners; the Haberman Star Teacher Interview, the Distinctive Competencies of Successful Teachers, the Gallup TeacherInsight, and Ventures for Excellence. Haberman and Gallup also provide predictions on teacher capability and retention prospects from the achieved score. (Smith 2014).

Scores on the Haberman tool have been found to be positively related with teacher retention (Frey 2003) and measures of teacher performance (Rockoff et al. 2011; Jacob et al. 2016).

Most research has found little relation between the Gallup compatibility scores and teacher quality. However when there was an association, it was positive. Novotny 2009 found a small positive relationship of GALLUP scores with a Texas measure for teacher effectiveness, the Professional Development and Appraisal System Domain Scores. Metzger and Wu 2008 in a meta-analysis found a modest positive relationship between GALLUP and principal ratings, student gain scores, and teacher attendance. Koermer 2007 and Stewart 2014 found no relation between GALLUP scores and student performance, retention, and teacher absenteeism.

Commercial screening instruments are not meant to be used exclusively for hiring decision and while they are no worse than unstructured interviews in identifying quality teachers, there is little evidence on whether they are superior to more informal mechanism, such as unstructured interviews. Consequently, Metzger and Wu 2008 suggest caution in relying on such measures in the hiring process.

2. Teacher Selection Procedures

Observable teacher characteristics are important for the hiring process as they can be signals of quality. However, the placement of teachers through the hiring process, the quality and the satisfaction they bring about, are dependent on the selection process; such as what tools are used, preferences of the those making the hiring decision, and how much information is conveyed before the decision.

2.1 Principal Preferences

Principals appear to prefer a mix of personal and professional characteristics both within a teacher and across the pool of employees.

Surveyed principals report that a mix of professional and personal characteristics in a candidate are preferred, and creating a balanced workplace from hiring teachers with a mix of characteristics is desirable. (Harris et al. 2010; Engel 2013) Hence, preferences over teacher characteristics may vary based on the current teachers in the school. Responses also indicate principals not relying on knowledge indicators may be due principals believing all candidates have the minimum knowledge necessary to teach the subject. Principal
preferences also influence which hiring tools they use (Harris et al. 2010). Engel 2013 also found principals’ preferences varied greatly between high and low achieving schools. This variation may be partially explained by principals having high mobility out of low achieving schools, leaving these schools with inexperienced principals leading the hiring process (Loeb, Kalogrides, and Horng 2010).

2.2 Hiring Tools and their Usage

Characteristics that seem related to teacher productivity and characteristics increasing hiring chances bear little relation to each other in the works of Jacob et al. 2016 and Goldhaber, Grout, and Huntington-Klein 2017. Jacob et al. 2016 found some positive performance predictors, SAT and college GPA, were negative hiring predictors, and that some of the most consistent hiring predictors were experience and the applicant having attended post-secondary school nearby. Due to limited information on offers, they were unable to determine if this lack of weight placed on academic performance was due to principal demand or teacher supply decisions, but from the few tests believed it was demand oriented. They also found that of the extensive screening process used in DC public schools, mainly just the teacher recommendations were used.

Bruno and Strunk 2018 examined the teacher hiring process in the LA Unified School District and found that total screening outcomes were predictive of hiring decisions, attendance, productivity, and year-end evaluation scores, but not mobility or retention. The different assessment components were also found to have different predictive ability, which they indicated meant any district narrowly defining teacher quality through specific components would be focused on specific teacher attributes, possibly neglecting aspects of benefit to their students. They found that math and special education certified teachers scored lower on the overall process relative to elementary certified teachers, and that teachers applying later in the process were scoring lower than those applying earlier. Of the components the only positive predictor of value-added was the score on the sample lesson assessment. In addition, a weak correlation between component scores also indicated that little redundant information was being collected across measures. Also of interest is the outcome relations with component scores are present despite this information not being provided to principals. They also have partial evidence that the screening processes adoption improved teacher quality in the district.

Rutledge et al. 2008 found that in the presence of interview structure tools such as Gallup’s teacher perceiver, the interview was still prominent in the decision making process and that Gallup’s tool, while used by a significant proportion of schools in the sample, was relied upon by a small portion of principals. Novonty 2009 found that GALLUP scores were not being used in the hiring decisions. Theel and Tallerico 2004 found principals rejected using portfolios, citing their inability to be a good assessment tool.

3. Summary

Research relating observable characteristics of prospective teachers to their later productivity in the classroom has uncovered many attributes of prospective teachers that have little or no relationship to their later productivity. However, there are a few pre-service attributes that hold promise for identifying future superior teachers. These include the pathway to becoming a teacher, subject content knowledge (particularly for middle and high school math and science teachers), licensure exam scores (particularly scores on the Praxis II exam) and non-cognitive skills. Challenges remain, however, in how best to measure these attributes and the
potential heterogeneity in the predictive power of these attributes across different types of teachers.

There appears to be a disconnect between current hiring practices of school districts and what is known about signals of teacher productivity. The factors that predict the likelihood a candidate is hired frequently bear little resemblance to characteristics that are positively related to teacher productivity. At present, teacher hiring processes frequently may not be able to select the most capable applicants for employment regardless of amount of application information. However, providing additional information on candidate characteristics does appear to at least improve satisfaction of the involved parties.

References


Frey, Patricia. (2003). Ability of the urban teacher selection interview to identify teachers who are likely to be retained in the Buffalo Public Schools. Unpublished doctoral dissertation, Seton Hall University, South Orange, NJ.


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