

Principals' preferences when hiring teachers: a conjoint experiment

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429

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Abstract

Purpose – What do principals look for when hiring teachers? The purpose of this paper is to extend the knowledge concerning what aspects of teacher quality are in demand among the individuals who administer schools and make hiring decisions.

Design/methodology/approach – Rather than employing interviews or surveys, the authors utilized a conjoint instrument that assembled teacher characteristics into fictitious applicant profiles. Participating North Carolina public school principals ($n = 467$) then chose among the computer-generated options and regression analysis allowed the authors to identify preferences in the aggregate.

Findings – Principals in this study preferred applicants with classroom experience, but those with 15 years were no more preferred than those with 5. They also preferred applicants with more education, but an advanced degree was no more preferred than a bachelor's from a highly selective institution. Preference for teachers who are committed to state standards varied with schools' performance on state tests.

Originality/value – Conjoint analysis is a useful tool for measuring preferences but is underutilized in research on education administration. This paper contributes not only to the body of knowledge about school principal behavior but also to the field's familiarity of research techniques.

Keywords Principals, Methodology, Accountability, Teachers

Paper type Research paper

Introduction

Research on the market for teachers often focuses on the quality of new cohorts (Giersch, 2015; Goldhaber and Walch, 2014), motivations to teach (Giersch, 2016; Richardson and Watt, 2006) or whether teacher characteristics pay off in improved student performance (Rivkin *et al.*, 2005). Such studies examine the supply of teachers. Less research has been conducted about the demand side of the market for teachers and scholars are only beginning to explore what principals want in candidates for teaching positions (Harris *et al.*, 2010).

Research from the field of education administration suggests that schools might benefit from hiring teachers with more experience (Harris and Sass, 2011) and education (Darling-Hammond, 2000), although scholarship on the latter is more mixed (Hanushek and Rivkin, 2006). We use a conjoint instrument to see how principals perceive these characteristics in applicants for teaching positions. Conjoint analysis is an approach to survey research that allows participants to express their preference between choices with randomly assigned attributes. Our study also addresses a more recent question in the field, that of whether embracing state standards makes an applicant more attractive to hire (Honig and Hatch, 2004).

This study makes three contributions to the field. First, we present conjoint analysis as an underutilized method for modeling preferences in the field of education administration. The growing importance of market approaches to education policy increases the need to study preferences. Although experts in conjoint methods occasionally use education scenarios (e.g. Sohn and Ju, 2010), experts in education rarely draw on conjoint methods to understand behavior. Second, we seek to provide insight into how principals value



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measurable teacher characteristics such as experience and education, thus building on the contributions of researchers such as Rice (2003). Third, we explore ways in which principals' preferences for teacher qualities might be conditional upon their school's performance, thus building on scholarship by Cohen-Vogel (2011) in Florida and Engel (2013) in Chicago.

Theoretical background and hypotheses

A key decision maker in the hiring of teachers is often the school principal (Liu, 2002; Rutledge *et al.*, 2010; Strauss *et al.*, 2000) and staffing a school with high-quality teachers could improve student outcomes (Grissom and Loeb, 2011; Hanushek, 2011). Principals thus make teacher hiring a high priority (Kersten, 2008) and navigate sometimes complicated barriers to hire promising teacher candidates (Donaldson, 2013). Evidence suggests that principals are generally successful at recognizing effective teachers (Jacob and Lefgren, 2008), but their procedures for hiring vary widely (Cannata *et al.*, 2014; Engel and Curran, 2016; Rose *et al.*, 2014).

This section addresses the literature on teacher education and experience, two characteristics that for decades have played prominent roles in determining compensation. For both qualities, we link the literature concerning the impact of these qualities on student outcomes to research on principals' hiring practices. We then address recent market reforms by exploring how incentives to meet standards and demonstrate school performance might influence principals' preferences for teacher characteristics.

Applicants' teaching experience

A teacher's experience in the classroom is widely regarded as beneficial to student outcomes, but policy and research tend to differ on where along the timeline of a teacher's career the rewards are concentrated. Researchers Harris and Sass (2011), for example, found that the first five years of teaching experience generated substantial improvements in student outcomes, and that smaller but still measurable gains continue beyond those years. Staiger and Rockoff (2010) conducted a similar study that likewise found teacher effectiveness to improve in the very beginning of their careers but then plateau after only the first three years of teaching. For Rivkin *et al.* (2005), teacher improvements tapered off after the first two years. On the other hand, the National Education Association, one of the nation's leading teachers unions, touts a report by the Learning Policy Institute arguing that teacher effectiveness continues to improve well beyond the first few years (Kini and Podolsky, 2016). The typical salary schedule for teachers tends to dole out raises over the entire career of a teacher (Vigdor, 2008), thus continuing to reward experience beyond the period in which most research suggests the largest improvements in effectiveness tend to occur.

Principals also view experience as a benefit. In a survey of Chicago public school principals, Engel (2013) found that subjects gave candidate experience an average score of 3.22 out of 5 in its importance in teacher hiring decisions, ranking it more important than certification or advanced degrees. In studies by Abernathy *et al.* (2001), as well as by Theel and Tallerico (2004), principals used teaching experience more than education to select their preferred candidates. Harris *et al.* (2010) found that principals name experience as a useful factor in selecting teachers more often than candidates' education, certification or intelligence. A candidate who has been a teacher and wants to teach more, it seems, is better to hire than is a candidate with no experience but with an impressive education, a topic we turn to next.

Applicants' education

There is disagreement among scholars about the role educational background plays in teacher effectiveness (Rice, 2003; Rivkin *et al.*, 2005). Darling-Hammond's (2000) national study of hiring practices found strong positive correlations between student achievement

and the percent of teachers with degrees in the fields they teach. While teacher education may have strong correlations with student outcomes when that education matches the content of the instruction, the effects of teacher education more broadly defined draws more skepticism. Hanushek and Rivkin (2006), for example, found no association between student outcomes and teachers' possession of master's degrees. Similarly, Aaronson *et al.* (2007) found no effect associated with advanced degrees or with the quality of a teacher's undergraduate institution.

Perhaps because of the skepticism surrounding the teacher achievement–student achievement relationship, principals tend to place a low priority on academic credentials when hiring teachers in some studies (Baker and Cooper, 2005; Ballou, 1996) but not others (Engel, 2013). But research also shows that principals do seek out characteristics in teachers such as content knowledge, professional skills and intelligence, qualities that are likely to be correlated with stronger academic backgrounds when indicators of such characteristics are not so obvious. For example, Harris *et al.* (2010) found that content knowledge was a priority among some principals when hiring teachers, as was intelligence.

Among the effects of No Child Left Behind (NCLB) legislation was the prioritization of particular teacher qualifications, the combination of which could label a teacher as “highly qualified.” The policy reinvigorated the debate over whether teacher quality results from skills developed in educator training programs or from aptitude that employers could more easily identify in a pool that did not require certification (Berry *et al.*, 2004). While the “highly qualified teacher” designation under the law was fairly broad, critics tended to argue either that it blocked some talented would-be teachers from joining the profession (Hanushek and Rivkin, 2010) or did not sufficiently limit the pool to only those with sufficient training to teach (Darling-Hammond and Sykes, 2003).

The main thrust of education reforms like NCLB was not teacher certification, of course, but test-based accountability to pressure more educators to get their students to meet state standards, regardless of teacher quality. Thus, relying on applicants' easily observable credentials may satisfy teacher qualification requirements, but they are no guarantee that improved student test scores will follow (Aaronson *et al.*, 2007). Thus, asking whether teachers' commitment to state standards is on the minds of principals when making staffing decisions is the topic to which we turn next.

Applicants' focus on state standards

Studies by Heck (2007, 2009) have shown teacher quality to play a substantial role in students' performance on high-stakes tests. While some principals try to “buffer” their schools against the pressure to earn high scores, others “bridge” to the policy pressures by making test performance a priority (Rutledge *et al.*, 2010). It may not be surprising, then, that outcomes of standardized tests can affect some administrators' decisions about hiring teachers (Cannata *et al.*, 2014; Cohen-Vogel, 2011; Cohen-Vogel *et al.*, 2017). We suspect that teachers who adopt the philosophies of standards and accountability will be more attractive to principals under pressure to raise their students' achievement.

One way that teachers might improve test scores is by giving more attention to the state standards which provide the achievement benchmarks for accountability policies. The tension that exists over whether state standards should guide teachers' work can be seen in the debates over the Common Core (McGuinn, 2015), the climate of kindergarten classrooms (Goldstein, 2007) and the very role of teachers (Cochran-Smith and Lytle, 2006). While research has shown that principals do respond to pressures from testing, less is known about whether they prefer to hire applicants who make state standards a focus of their teaching. One of the few studies addressing this question is that of Engel (2013), which found preferences for teacher qualities in Chicago varied with schools' performance on tests. It is logical that paying attention to state standards would be

especially important to administrators of schools that are at risk of being labeled low performing, as the focus on standards and assessments that reflect them could be a step toward improved scores.

Hypotheses

Based on the previous research described above, we propose four hypotheses. First, we expect to find that teachers with either more degrees or more respected educations will be preferred by principals, but due to inconsistency in the literature we do not expect to see a preference between an observable high quantity and high quality of education. Thus:

H1. Principals prefer teacher candidates with more prestigious or more advanced degrees to candidates without.

Likewise, we expect that principals prefer applicants with experience, but we also expect that principals believe most of the benefit accrues within the first five years:

H2. Principals prefer teacher candidates with five or more years of experience to those with none.

Two more hypotheses compare the importance principals give to attributes in different school contexts. We expect that due to pressures from accountability policies, administrators at low-scoring schools will want faculty to adopt the school accountability model in their teaching by emphasizing state standards and performance benchmarks:

H3. Principals at lower performing schools will be more likely to prefer teacher candidates who emphasize state standards than principals at higher performing schools.

H4. Principals at lower performing schools will be more likely to prefer teacher applicants who implement benchmarks in their assessments of student performance than principals at higher performing schools.

Certainly, other factors could be considered in a study of how principals choose applicants to hire for teaching positions. Studying the role of demographic characteristics such as race, ethnicity, age, gender and ability or disability, for example, would make important contributions to the field, but are beyond the scope of this study.

Methods

In this section of the paper we describe the study's setting, sample, procedures, measurements and analytic strategy.

Setting

We chose to test the above hypotheses by conducting a conjoint experiment among principals from North Carolina. We selected North Carolina because it is a medium-sized state with diverse school settings. Its schools include rural, urban and suburban locations and a degree of racial diversity that resembles the country overall. Furthermore, teacher hiring in North Carolina tends to be a decentralized process occurring mostly at the building level (Cain-Caston, 1999), similar to processes in other states as described by Cohen-Vogel (2011), Ingle *et al.* (2011) and Liu and Johnson (2006).

North Carolina is also a state with a relatively long history of school accountability policies using high-stakes tests to measure school performance. As required under the NCLB legislation, the state's use of test results included measures of student proficiency, or an estimate of what percentage of students in a school reached the required benchmarks, which the state based upon the Common Core standards. In North Carolina's accountability

policy student proficiency accounts for 80 percent of the school performance rating; student growth makes up the remaining 20 percent[1]. The state reports these results to the public and considers them for administrative decisions. Thus, a school principal has a vested interest in getting as many students as possible to meet the required benchmarks by passing the high-stakes exams.

Sample

We developed our own unique data set by inviting all 2,674 K-12 public school principals whose e-mail addresses appear on the website of North Carolina's Department of Public Instruction to participate in a brief online survey about their preferences when hiring teachers in their schools. Between two waves of data collection (one in 2016 and another in 2017), 507 principals participated in the survey but only 467 generated usable responses, making a response rate of 19 percent. We used the second and smaller wave of data collection as a holdout sample to confirm model fit. Participants serve both elementary and secondary schools and represented both charter and traditional public schools at rates similar to those of the state as a whole. Table I compares the schools represented in the sample to those in the state on these measures.

The data resembled characteristics of the state's public schools in other ways as well. Roughly 52 percent of North Carolina's public school students are economically disadvantaged and about 51 percent are white. In our sample, schools averaged 59.8 and 51.6 percent on those measures, respectively, and ranged from 0 to 100 percent on both. Statewide, about 57 percent of all public school students earned proficient scores on state exams in the 2015–2016 school year; the schools in our sample had proficiency rates ranging from 0 to 100 percent and averaging 57 percent. Participating principals were diverse as well. Approximately 62 percent of the subjects were female and approximately 28 percent were people of color. According to the University of North Carolina General Administration, in 2014–2015, 60 percent of the state's school principals were female and 26 percent were racial or ethnic minorities[2].

Procedure

The online Qualtrics survey completed by participants included a conjoint experiment. Conjoint analysis is a technique in which participants are provided with two options, each with its own combination of randomly assigned characteristics. The respondent chooses one of the two options based on the characteristics provided and after multiple pairings and over many respondents the typical preferences among participants in the sample can be made apparent. The strategy is familiar to professionals in marketing research who wish to know which characteristics of a product are most appealing to consumers (Green and Srinivasan, 1990; Green *et al.*, 2001). We intend our use of a conjoint instrument to provide a more rigorous test of principal preferences than the traditional surveys used in previous studies described above.

Conjoint analysis is different from traditional survey research about individuals' preferences because its design shares characteristics with true experiments in that it randomly assigns treatments to participants. Participants reveal their preferences for

School type	In sample (%)	In NC (%)
Elementary (K-8)	72	71
Secondary (9-12)	15	19
Combined	3	4
Charter	9	6

Note: NC values obtained on the website of the NC Department of Public Instruction (www.dpi.state.nc.us)

Table I.
Public school types in sample and in the state

characteristics without stating them, ranking them or even necessarily being aware of them. Analysis of the data resulting from a conjoint survey allows researchers not only to identify the preferred value of each attribute, but also to rank the attributes in order of importance to the participants in the study. Hainmueller *et al.* (2014) demonstrated the usefulness of conjoint analysis in the social sciences with examples of voter behavior and attitudes toward immigrants. Their study highlights the ability of conjoint techniques to analyze multiple components of a single decision. A traditional survey may ask the subject whether she values a particular characteristic or not while a conjoint design embeds the characteristic among others, all randomly assigned. In this way, the conjoint design is more similar to real-life decisions with multiple components made by subjects than a typical survey would be and allows preferences to be more revealed than reported.

In the case of this study, we presented principals with a pair of fictitious candidates for a teaching position and sets of five characteristics, each randomly assigned by the Qualtrics software used to construct the instrument. We chose attributes that we believe a principal could reasonably infer about a candidate from typical teacher job application materials, such as a resume (for experience and education), a teaching portfolio (for an emphasis on standards or use of benchmarks) or a letter of recommendation (for getting along well with others). For example, a participant may see one candidate with a lot of experience, modest educational background, good rapport with students and an enthusiasm for state standards while the other candidate has no experience, similar educational background, good rapport with parents and enthusiasm for innovative teaching. The participant would choose one of the two candidates to “hire.” Each principal completed up to five conjoint comparisons of pairs of teacher candidates, yielding 4,554 usable observations.

Measurements

In our study we utilized a “choice-based” or “stated choice” conjoint design which is distinguishable from other methods in that participants choose one of two applicant profiles, as they might do during an actual candidate hire, rather than simply evaluating characteristics one at a time. The software randomly ordered the attributes for each pairing to cancel out effects of appearing high or low on the list. See the Appendix for an example of what participants would see during the conjoint portion of the survey. For each pair of candidates, the Qualtrics software recorded which candidate the participant chose and which value of each attribute appeared for the selected candidate. The dependent variable, therefore, is whether the principal chose a candidate and is binary.

We created an attribute that assessed two dimensions of teacher education. One is the number of degrees. In North Carolina, teachers are required to have a bachelor’s degree, but some hold an advanced degree. The second dimension of teacher education is the selectivity of their university, which can vary widely in the state. North Carolina is home to many institutions of higher education, including an extensive public system known collectively as the University of North Carolina (UNC). The UNC system includes 14 campuses that offer teacher licensing programs representing a wide range of academic competitiveness. At three of the campuses, education students have average SAT scores greater than 1,100. At three others, education students have average SAT scores below 900. The remaining eight institutions have education students with average SAT scores in between. It is therefore not unusual for a principal in North Carolina to see teacher applicants with degrees from institutions of varying selectivity. The values appearing in the education attribute were a bachelor’s degree from a less selective institution (serving as the baseline in our analysis), a bachelor’s degree from a highly selective institution and a master’s degree (see Table II).

To test for preferences within the attribute of teaching experience, we provided three values: 0 years, 5 years and 15 years. We chose these years to reflect the findings of multiple studies of teacher experience and effectiveness suggesting that the most

		Principals' preferences when hiring teachers
Attribute	Values	
Level of education	BA from a less selective institution BA from a more selective institution Advanced degree	
Years of experience	0 5 15	
Prefers to assess students...	By benchmarks With flexibility	
Enthusiastic about...	Current research Innovative instruction School mission State standards	
Gets along with...	Students Administrators Other faculty Parents	

Table II.
Attributes and their randomly assigned values in the conjoint instrument

improvement occurs in the first few years of teaching. The conjoint format allows us to see not only whether principals prefer experience, but whether they prefer experience beyond five years.

To measure preferences for candidates whose approach to teaching emphasizes state standards, we included an attribute about applicants' enthusiasm for of any of four possible values: state standards, current research, school mission and innovative instruction. We reasoned that principals in schools who have had difficulty meeting proficiency benchmarks would want to hire teachers who use state standards as their guide. Taking that rationale one step further, we included an attribute that described the teacher applicant as preferring to grade students either "by benchmarks" or "with flexibility." A teacher who assesses by benchmarks, we reason, is a teacher whose philosophy matches that of the accountability movement. After drafting the conjoint instrument we asked a panel of experts, including one principal in a North Carolina public school and two researchers with experience in the method, to review the design and recommend improvements before we settled on the final draft.

Analytic strategy

After collecting the data, we used the "cjoint" package[3] in the R statistical program to estimate the average marginal component effect (AMCE) of each value in the conjoint survey on the dependent variable, the selection of a candidate. The AMCE technique produces estimates of the change in probability of a principal choosing a candidate with a value for an attribute rather than a designated baseline value across all combinations of other attributes (Hainmueller *et al.*, 2014). Results can be interpreted both in terms of effect size and statistical significance (for our study we chose 95% confidence intervals). Because AMCE relies on randomly generated combinations of values within attributes, validity is threatened whenever a combination appears that is impossible or when the subject is overwhelmed by the number of attributes to consider at one time. We address these concerns by selecting attributes and values that are sufficiently limited in their scope as to be unlikely to contradict each other.

One advantage of using AMCE to analyze conjoint survey data is the ease with which researchers can test for interaction effects. By simply restricting the sample along a particular variable, we can see whether estimates change under those conditions. We use this strategy for two purposes. One is to test the robustness of our results, the results of

which we discuss later. The other purpose is to test the third and fourth hypotheses which predict that approaches to standards and assessments will have stronger effects at schools with lower proficiency rates on high-stakes tests.

Results

We used the two waves of data collection to check for model fit by treating the second wave as a holdout sample. In a comparison of results from the 2016 wave to the 2017 wave, estimates were similar. Results from 2016 included 10 statistically significant values (out of 11). The second smaller wave included seven significant estimates, all of which were also significant in the first wave and included the same sign. We take the similarity between the two samples' results to be evidence of good model fit.

As shown in Table III, principals in our sample prefer candidates with more education, both in terms of advanced degrees and prestige of undergraduate institution, which they seem to value equally, which we interpret as support for *H1*. The probability of choosing a candidate increased by more than 7 percentage points when the candidate had a master's degree or a bachelor's degree from a highly selective institution rather than a bachelor's degree from a less selective institution.

We also find support for the second hypothesis. Principals in our sample prefer teacher candidates with some experience over those with no experience but showed no preference between 5 and 15 years' experience. Each of the more experienced levels increased the likelihood of the candidate being chosen by more than 13 percentage points, suggesting that principals give greater weight to experience than education as they appear in our study. The position of each attribute in the table indicates its relative importance to the participants.

The item that asked principals whether they prefer hiring teachers with enthusiasm for state standards, current research, innovative instruction or school's mission produced results that were statistically significant and suggested greater importance than education or experience. Enthusiasm for state standards was less popular, not more, than each of the other three values, suggesting that principals have other priorities for their faculty. Principals showed greater appreciation for innovative instruction, school's mission and current research, in order of declining importance.

Table III.
Average marginal
component effects
(AMCE) in the results
of the conjoint
analysis

Attribute	Values	AMCE	SE
Gets along with	Baseline = students		
	Administrators	−0.235***	(0.020)
	Other faculty	−0.159***	(0.021)
	Parents	−0.167***	(0.021)
Enthusiasm for	Baseline = state standards		
	Current research	0.058**	(0.021)
	Innovative instruction	0.163***	(0.021)
	School's mission	0.081***	(0.021)
Experience	Baseline = 0 years		
	5 years	0.137***	(0.019)
	15 years	0.155***	(0.018)
Education	Baseline = less selective institution		
	BA highly selective institution	0.076***	(0.019)
	Advanced degree	0.073***	(0.018)
Grading	Baseline = by benchmarks		
	With flexibility	0.014	(0.016)

Number of observations = 4,554
Number of respondents = 467
Notes: ***p* < 0.01; ****p* < 0.001

Our third hypothesis predicted that prioritization of state standards would vary by school performance. When we break the sample out by school proficiency into top (above 66 percent proficient), middle (50–66 percent proficient) and low-scoring schools (below 50 percent proficient), we find that principals at lower performing schools were more likely to choose candidates emphasizing state standards than principals at higher performing schools, who were much more likely to choose candidates with other priorities. At the middle- and low-scoring schools, principals in our sample saw only “innovative instruction” as preferable to “state standards” (and to half the degree of the other principals) and “current research” and “school’s mission” as on par with “state standards,” statistically speaking. The cutoff points of 50 and 66 percent not only divided our sample into nearly equal-sized thirds, but also approximated the distribution of letter grades for North Carolina’s Report Cards on the Schools in that schools near 50 percent proficiency tend to be near the division between D and C grade schools while schools near 66 percent proficiency tend to be near the division between B and C grade schools. The grade divisions are not precise because 20 percent of the grade comes from growth in test scores and the other 80 percent from proficiency.

The fourth hypothesis also suggested that preferences would vary by school performance. Results for the attribute for how a teacher assesses students, by benchmarks or by flexibility, were not statistically significant in any of our models. However, we note that in Table IV a job applicant who graded with flexibility increased her odds of being selected by a principal over a candidate who graded by benchmarks by a greater degree in schools with higher performing students (AMCE = 0.024) than in middle (0.017) or low (0.008).

Additional analysis

We tested for interactions by splitting the sample along variables that might theoretically affect principals’ preferences for characteristics of teachers. Specifically, we tested for the effects of elementary vs secondary schools, charter vs traditional public schools, majority white vs majority non-white schools, majority free and reduced lunch schools vs

	< 50% Proficiency	50–66% Proficiency	> 66% Proficiency
<i>Gets along with (baseline = students)</i>			
Administrators	–0.185***	–0.271***	–0.263***
Other faculty	–0.134***	–0.213***	–0.146***
Parents	–0.162***	–0.161***	–0.217***
<i>Emphasizes (baseline = state standards)</i>			
Current research	0.027	0.030	0.126**
Innovative instruction	0.102**	0.124**	0.264***
School’s mission	0.072	0.042	0.133***
<i>Experience (baseline = 0 years)</i>			
5 years	0.181***	0.099**	0.134***
15 years	0.160***	0.143***	0.189***
<i>Education (baseline = less selective institution)</i>			
Advanced degree	0.103**	0.064*	0.048
Highly selective institution	0.087*	0.065*	0.094**
<i>Assesses students (baseline = by benchmarks)</i>			
With flexibility	0.008	0.017	0.024
Number of observations	1,410	1,542	1,398
Number of respondents	144	158	144

Notes: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Table IV.
Average marginal
component effects
(AMCE) in the results
of the conjoint
analysis separated by
percent of students
proficient on
high-stakes tests
in each school

minority free and reduced lunch schools, schools facing more school choice competition vs schools facing less and schools that met growth on tests vs schools that did not. We also tested for interactions among the attributes in the conjoint instrument, such as by restricting the sample to only observations in which the candidate “gets along with students,” expressed enthusiasm for “innovative instruction,” or had zero years of experience. Aside from losing statistical significance in the instances of substantially reduced sample sizes, we saw no evidence of interactions occurring.

Discussion

This study set out to identify characteristics that North Carolina public school principals look for in candidates for when hiring new teachers. Conjoint analysis allowed us to determine the preference principals had for certain characteristics as well as the strength of those preferences relative to other characteristics. Of particular importance is that conjoint instruments reveal the relative strength of preferences while asking participants to consider characteristics in various combinations, a feature that makes the survey more similar to an actual decision situation than more common survey methods.

The first two hypotheses in this study address familiar questions in education policy. Education and experience are perhaps the most easily observed characteristics when reviewing applications for a teaching position and for decades most teacher salary schedules reward advancement in both measures. But multiple studies in various contexts have raised doubts about their relationship with student achievement. Do principals subscribe to the findings of Hanushek and others in his camp who are skeptical of teacher education and experience as indicative of teacher quality (Aaronson *et al.*, 2007; Hanushek and Rivkin, 2006)? Our results suggest that they do not.

Why is there a premium on teachers' education, even when research is inconclusive, overall, on whether it pays off in terms of student achievement? It could be that principals simply are not informed enough to judge whether an advanced degree is any better than a degree from an elite school, but we suspect that it has to do with outcomes other than student achievement. Principals rely on their teachers to complete a host of tasks, from assessing to collaborating to documenting to problem solving. Principals may see well-educated teachers as being more apt to complete those tasks effectively, thus making the principal's job easier. Another explanation could be that because principals have invested time and resources into their own educations, they may be more likely to appreciate others doing the same. An additional reason might be that as school choice options increase, it becomes more important that schools be able to point to strong credentials among their faculty for marketing purposes.

Among these three possible explanations, we see the first, education as a signal of worker competence, as the most likely given our set of results. An examination of Table IV reveals that while selectivity of the undergraduate institution is preferred across all three terciles of school proficiency, advanced degree is not: principals at the highest scoring schools see advanced degrees as no more desirable than a bachelor's from a less selective institution. If the priority were to brag about faculty members' multiple degrees or a reflection of the principal's own educational attainment, advanced degrees would still hold value in that statistical model, perhaps especially in schools with high-achieving students. Thus, we feel that it is the competence signaled by a bachelor's degree from a selective undergraduate institution that principals find appealing. Future research could explore this question further.

More than education, principals preferred applicants with more experience, perhaps reflecting the notion, often attributed to Julius Caesar, of experience being the best teacher. Our results, however, suggest that principals believe that sufficient benefit accrues in the first few years in front of a classroom. The fact that principals valued applicants with 5 and 15 years' experience similarly and both more than they valued 0 years of experience may

reflect how unified the research is and how consistent principals' experiences are with the rapid increases in teacher quality that come with the first few years of being a teacher. These are precisely the preferences that most researchers would recommend to practitioners (Harris and Sass, 2011; Rivkin *et al.*, 2005; Staiger and Rockoff, 2010).

We acknowledge that salary may be a factor in principals preferring 5 and 15 years of experience to a similar degree. As North Carolina teachers with 15 years of experience receive salaries that are, on average, nearly 20 percent higher than salaries received by teachers with only 5 years of experience[4], a principal's preference for experience may be tempered by budgetary concerns. Our survey did not inquire about principals' reasons for their choices, so we cannot say whether payroll was a factor. We did, however, compare responses of principals at charter schools to those of traditional public schools. If we assume that charter school principals have a greater stake in budgetary decisions than traditional public school principals (Gawlik, 2008), we would expect that any tempering of preference for more experienced applicants would be stronger among the charters, but our results showed no measurable difference.

More important to the participants in this study than education or experience was teachers' pedagogical focus. Interestingly, principals generally preferred applicants emphasizing current research, the school's mission and especially innovative instruction more than they did applicants emphasizing state standards. Given that North Carolina evaluates its schools on standards-based exam performance and school choice policies intensify competition among schools (Jackson, 2012), we thought that a teacher who makes state standards a priority would be more attractive to principals. Even though we distributed our survey instrument during these state exams (just before the end of the school year in 2016 and again in 2017), principals showed significantly greater preference for each of the other three choices we offered. We see this as evidence that principals want their faculty to do more than simply "teach to the test."

The preference for teachers emphasizing state standards, however, appears to be associated with school performance. Principals at the highest achieving schools firmly rejected emphasizing state standards in favor of other options, but among the lower achieving schools, principals only preferred an emphasis on "innovative instruction." We take this to be modest evidence that, as Engel (2013) found, schools are more likely to make hiring decisions with an eye on meeting state standards when they have had more difficulty meeting them. While such results are, at best, modest support for our hypothesis that lower performing schools would place higher value on teachers emphasizing state standards, the difference says something about accountability policy. In schools serving mostly high-achieving students, principals are freed from prioritizing standards. Instead, they seek out teachers with innovative instruction, awareness of current research and a focus on the school's mission, probably because they know that enough of their students will meet the required benchmarks.

The relationship between school achievement and prioritization on state standards can be interpreted in two different ways. Looking through the lens of the standards movement, schools with struggling students are helping their learners through their attention to the dominant curricular framework. Looking through a lens of equity, however, the results raise questions about access to high-quality teaching. When struggling students are concentrated in schools where educators prioritize state standards, what are those other schools giving to their students that the lower performing schools are not? What trade-off occurs when schools with weak learners feel limited to the teacher candidates who will focus on standards and other schools are able to pick up the applicants emphasizing cutting edge research and a belief in the school's mission?

Limitations

The validity of our results is limited by two important aspects of our research design. One is the fact that our sample includes only one state. According to data from the National Center

for Education Statistics, 57 percent of North Carolina public school students receive free or reduced lunch and 50 percent are white. In the USA, those percentages are 50 and 49, respectively. North Carolina stands apart from many other states, however, in that although it has a diverse and affordable system of higher education that produces many potential teachers, its K-12 schools offer salaries that are lower than those of many other states. Generalizability is limited.

The second limitation results from the nature of conjoint experiments. The study asks participants to choose between two fictitious candidates, and thus is hypothetical. The principals know that there are no real consequences to their school for the choices they make, and so they may express preferences in our study that they would not when facing a real-life dilemma in hiring. However, we do not feel that the principals would have any reason to intentionally mislead us in their responses. Participants gave their answers to a computer, not a live person, so the threat of social desirability is minimal. Furthermore, our instrument did not include sensitive characteristics such as race, gender or ability. If anything, the hypothetical nature would lead principals to make careless choices to finish quickly. If they were to do so, the results would be statistically insignificant, which is not the case here.

The study is further limited by the low response rate of principals in the state. More participants would give more confidence in our findings. Nonetheless, the sample we had to work with was diverse in terms of the schools and principals and not altogether unlike the schools and principals in the state. Moreover, the sample is large enough to yield statistically significant findings.

Future studies

We believe that the next step in this vein of research would be to test hypotheses about the appeal of value-added teacher assessments. As more data about student growth measured at the teacher level become available to administrators, hiring decisions will increasingly be informed by histories of applicant's effectiveness as measured by high-stakes tests. How will principals perceive an applicant with a strong record of value added to a candidate with a weaker one? How will test-based measures of value added compare to letters of recommendation describing strong teacher effectiveness? The conjoint approach would be useful for addressing such questions.

Conclusion

This study gives voice to one of the most knowledgeable and important actors in teacher quality: the school principal. Through a conjoint experiment using public school principals in North Carolina, we found that participants valued teaching experience and educational background. Even a few years of experience makes an applicant more attractive, and either an advanced degree or bachelor's degree from a competitive institution can increase the likelihood of being hired. Furthermore, we found that a teacher's emphasis on state standards is, on average, more attractive to principals at lower performing schools than it is to principals at higher performing schools. This study contributes to the literature on education administration through its evidence that principals still view familiar assessments of teacher quality as important even in an age of test-based accountability and school choice.

This study will especially interest those seeking employment in teaching. We sum up our advice to would-be teachers this way: first, emphasize strengths in your education and experience. While a job applicant cannot easily change her educational background, she could point out academic achievements and experiences in education more broadly that a principal might view as comparable. On letters of introduction and during interviews, applicants should focus on meaningful and productive lessons and experiences as both a

student and a teacher. While knowledge of state standards is useful, applicants may want to emphasize other factors that guide their teaching philosophies. Additionally, given the premium placed on experience, a candidate might do well to accept a less desirable position for a few years and then using that experience to be competitive for a preferred position.

While administrators might benefit from learning what teacher characteristics are in demand among their colleagues, policy makers might take note of these results as they consider reforms to accountability policies. First, principals clearly have preferences that could inform policy makers' efforts to develop labels for teacher quality. Second, the manner in which preferences differed by school performance suggests that accountability is a powerful tool for guiding administrators' behavior, but it is one that could go too far and further widen the gap in quality of educational experiences provided at different schools if it distorts demand for teacher quality.

On a final note, we believe that researchers in education administration and policy should consider making more frequent use of conjoint analysis. Many of the field's most nagging questions deal with the preferences of not only principals but also teachers, students, parents and elected officials. Rather than relying on surveys and interviews which rarely ask the participant to weigh the costs and benefits of trade-offs, conjoint analysis provides a useful way of understanding multi-faceted decisions in contexts where true experiments are hard to come by.

Notes

1. See <https://ncreportcards.ondemand.sas.com/src> for more details
2. Data regarding the demographics of North Carolina school principals are available from the University of North Carolina General Administration at <http://eqdashboard.northcarolina.edu/school-administrators/>
3. See <https://cran.r-project.org/web/packages/cjoint/cjoint.pdf>
4. See <http://www.ncpublicschools.org/docs/fbs/finance/salary/schedules/2017-18schedules.pdf>

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Appendix



Question 1

Imagine that the two candidates below (named "A" and "B") are applying for a teaching position at your school. Based on the information provided, answer the questions below.
This is the first of five pairs of candidates.

	Candidate A	Candidate B
Believes teachers should answer primarily to...	families	families
Years of teaching experience	zero	15
Assesses students...	by benchmarks	with flexibility
Education	advanced degree	advanced degree
Mentions enthusiasm for...	school's mission	school's mission
Likely to get along well with...	students	administrators

Which of these teachers would you most likely hire?

☐ Candidate A ☐ Candidate B

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