MAKING THE MOST OF STUDENT TEACHING: THE IMPORTANCE OF MENTORS AND SCOPE FOR CHANGE

Dan Goldhaber
CALDER
American Institutes for Research and Center for Education Data and Research
University of Washington
Seattle, WA 98103
dgoldhaber@air.org

John Krieg
Office of Institutional Effectiveness
Western Washington University
Bellingham, WA 98225
kriegj@wwu.edu

Natsumi Naito
Center for Education Data and Research
University of Washington
Seattle, WA 98103
naiton@uw.edu

Roddy Theobald
(corresponding author)
CALDER
American Institutes for Research
Seattle, WA 98103
rtheobald@air.org

Abstract

A growing literature documents the importance of student teaching placements for teacher development. Emerging evidence from this literature highlights the importance of the mentor teacher who supervises this placement, as teachers tend to be more effective when they student teach with a mentor who is a more effective teacher. But the efficacy of policies that aim to have effective teachers serve as mentors depends a great deal on the availability of effective teachers to serve in this role. We therefore use data from Washington State to illustrate that there is ample scope for change in student teacher placements; in other words, there are far more effective teachers within fifty miles of a teacher education program (TEP) who could host a student teacher in each year than the number of teachers who serve in this role. We also discuss the considerable challenges to improvement efforts related to the need for better coordination between TEPs, K–12 school systems, and states. Finally, we argue that, if policy makers value teacher *candidate* development equivalently to teacher *in-service* development, they should be willing to pay substantially more than the current average compensation for mentor teachers to recruit effective teachers to serve in this role.

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INTRODUCTION

A significant share of the overall investment in the development of public school teachers, almost $7 billion per year, is in their preparation *before* they become teachers. This represents about a third of the total financial investment in professional development over the course of an average teacher's career (Goldhaber, Krieg, and Theobald 2017). Until recently, most research on teacher development has focused on interventions targeting in-service teachers. This trend is beginning to change, but much of the early research on the importance of teacher preparation is discouraging; for instance, von Hippel and Bellows (2018) reanalyzed six studies that compared teacher effectiveness across teacher education programs (TEPs) and found these differences to be "negligible." But an implication of this research is that the vast majority of the variation in teacher effectiveness is *within* TEPs rather than *across* TEPs, which suggests a research and policy focus on aspects of teacher preparation that vary for candidates within the same TEP.

New data systems that connect the preservice experiences of teacher candidates with their in-service outcomes has facilitated a rapid expansion of empirical evidence about these aspects of teacher preparation, and this evidence suggests that some experiences have real value in promoting the development of teacher candidates. Whom teacher candidates work with as their mentor or "cooperating" teachers (the teachers tasked with overseeing a teacher candidate's internship/student teaching experiences on the district side) appears to be particularly important (Goldhaber, Krieg, and Theobald 2020a; Ronfeldt, Brockman, and Campbell 2018; Ronfeldt et al. 2018a,b). This finding is not terribly surprising because student teaching and the role of the mentor teacher have long been viewed by teacher organizations and qualitative researchers as foundational to the development of teacher candidates (Ganser 2002; Graham 2006; Zeichner 2009; NCATE 2010; Anderson and Stillman 2013; Clarke, Triggs, and Nielsen 2014; Hoffman et al. 2015; AACTE 2018).

That said, although the literature on the importance of mentor teachers on teacher candidate development is promising, the efficacy of policies that aim to have effective teachers serve as mentors depends a great deal on the availability of effective teachers to serve in this role. We therefore briefly review the evidence on the extent to which teacher preparation experiences predict in-service teacher outcomes, and then present new evidence on the extent to which it may be possible to improve the quality of teachers who supervise student teaching. Finally, we describe challenges to improved coordination between TEPs, K–12 school systems, and states, and conclude with implications for policy and practice.

PRIOR LITERATURE: TEACHER PREPARATION AND IN-SERVICE TEACHER OUTCOMES

As discussed in the introduction, studies in several states have found modest differences between the effectiveness (as measured by value added, or teachers' contributions to student achievement gains) of teachers who graduate from different TEPs.[1] But several studies that focus on the features of teacher education that vary within

1. See von Hippel and Bellows (2018) for an overview of this specific literature, and Goldhaber (2019) for an overview of the broader literature relating teachers' preservice experiences to in-service outcomes.

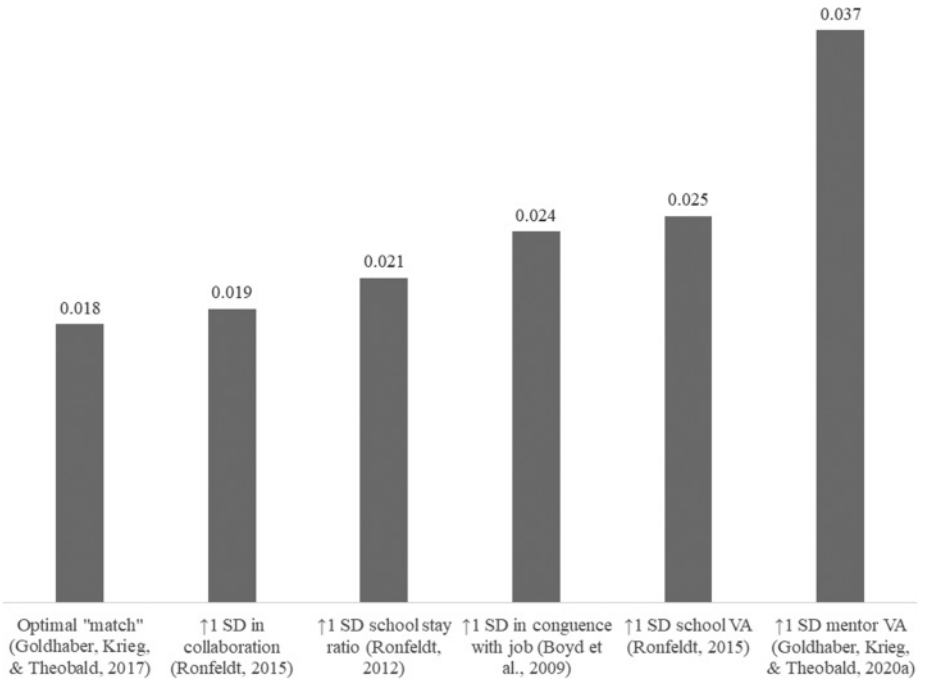
TEPs and their relationships to teacher effectiveness have generated more promising evidence about the importance of teacher preparation. In a seminal study, Boyd et al. (2009) found that many aspects of teacher preparation, including the amount of focus on practice, the alignment between preservice curriculum and their current teaching placement, and whether the teacher was required to do a student teaching placement, are all positively predictive of their value added upon entering the workforce. Ronfeldt (2012, 2015) extended this work with a particular focus on candidates' student teaching placements; he found that teachers who student taught in schools with less teacher turnover and more staff collaboration are more effective once they enter the workforce. Similarly, Goldhaber, Krieg, and Theobald (2017) found that teachers tend to be more effective when they teach in a school with similar student demographics as their student teaching school.

Recent quantitative work has focused specifically on the characteristics of mentor teachers of candidates' student teaching placements, which is motivated by numerous qualitative studies (Ganser 2002; Graham 2006; Zeichner 2009; Clarke, Triggs, and Nielsen 2014; Hoffman et al. 2015) that document the myriad roles cooperating teachers play in the development of teacher candidates: They provide concrete examples of classroom preparation, instructional leadership, and student engagement, and help induct teacher candidates into school practices and processes. As such, there is a widespread belief that mentors "influence the career trajectory of beginning teachers for years to come" (Ganser 2002, p. 380).

This qualitative work pointed to the need for quantitative evidence about the importance of mentor teachers, and in fact, the qualitative focus on mentor teachers does appear to be reflected in the quantitative findings from the literature. Specifically, quantitative evidence from Tennessee (Ronfeldt, Brockman, and Campbell 2018) and Washington (Goldhaber, Krieg, and Theobald 2020a) suggests that teachers tend to be more effective once they enter the workforce when they student teach with a mentor who is a more effective teacher.

Although all the research mentioned previously is useful for improving the preservice experiences of teacher candidates, we focus on the value of mentor teachers because the estimated effects of working with a skilled mentor seem to be larger than the estimated effects of changing other types of preservice experiences. This is illustrated in figure 1, which compares estimated "effect sizes" on student achievement in math from the papers discussed previously. In each case, the effect size represents an estimate of how much student achievement would change in standard deviation terms if a student with an average teacher instead had a teacher with a substantially (also one standard deviation) better preservice student teaching experience; for reference, the national black–white achievement gap is about 0.8 standard deviations, and students with an experienced teacher tend to score about 0.05 standard deviations higher than students with a novice teacher (Goldhaber, Theobald, and Tien 2019).

As figure 1 illustrates, the predicted change in student achievement associated with a one standard deviation increase in mentor teacher value added—that is, equivalent to replacing a mentor teacher who is about average with one who is more effective than 83 percent of teachers—is about 0.04 standard deviations of student performance (Goldhaber, Krieg, and Theobald 2020a), which, although smaller than the examples above, is actually considerably larger than the other effect sizes in the literature on student



Notes: Each bar represents an estimated effect size (i.e., an estimate of the expected change in math value added associated with a one standard deviation change in an input) with the exception of the effect from Goldhaber, Krieg, and Theobald (2017). This estimate of the "optimal match" is based on the authors' calculation, assuming that student teaching occurs in schools that are estimated to be optimal for value added, according to figure 5 in Goldhaber, Krieg, and Theobald (2017). SD = standard deviation; VA = value added.

Figure 1. Estimated Relationships between Preservice Education Experience and Value Added in Math

teaching. But while upgrading mentor teaching appears theoretically promising, policy makers and practitioners might reasonably question whether there are enough skilled mentors and, relatedly, whether they can be induced to serve in a mentor-teacher role.

THE POTENTIAL FOR CHANGES TO THE MATCH BETWEEN MENTORS AND TEACHER CANDIDATES

There are only a few studies that explore what predicts the likelihood that teacher candidates are matched to particular internship schools and mentor teachers. The limited quantitative evidence on this topic (Krieg, Theobald, and Goldhaber 2016; Krieg, Goldhaber, and Theobald 2020) suggests that geographic proximity to a TEP and a match between the TEP of the mentor and the student teacher are the strongest predictors of where and with whom student teaching occurs. These quantitative findings are supported by qualitative evidence (Maier and Youngs 2009; St. John et al. 2018) of the important role that social networks play in student teaching placements.

Krieg, Goldhaber, and Theobald (2020) found that only 3 percent to 4 percent of teachers in Washington mentor a student teacher in an average year, which closely mirrors back-of-the-envelope estimates of the national percentage.[2] Thus, at first it seems

2. There are about 3.2 million public school teachers in the United States (NCES 2018) and approximately 130,000 graduates of traditional (college- and university-based) TEPs, who require student teaching, in the most recent

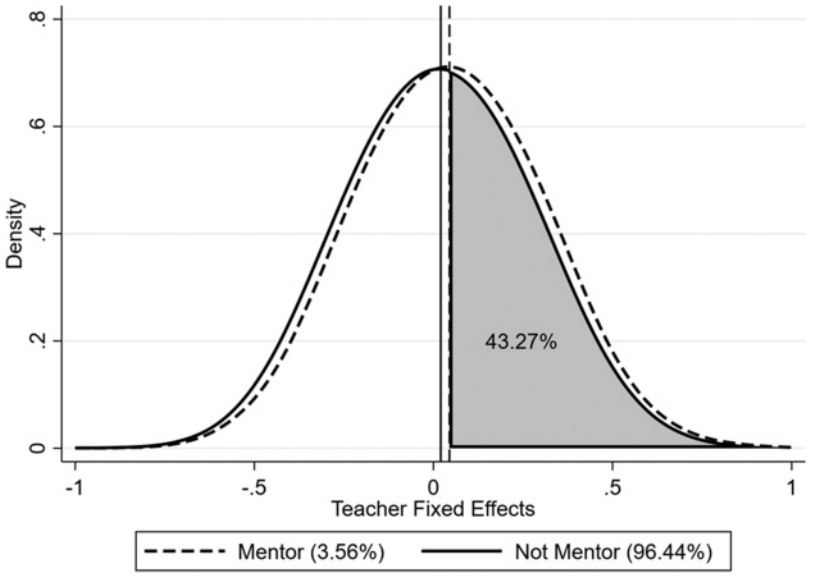


Figure 2. Distribution of Math Value Added for Teachers Within Fifty Miles of a Teacher Evaluation Program Who Do and Do Not Serve as Mentor Teachers

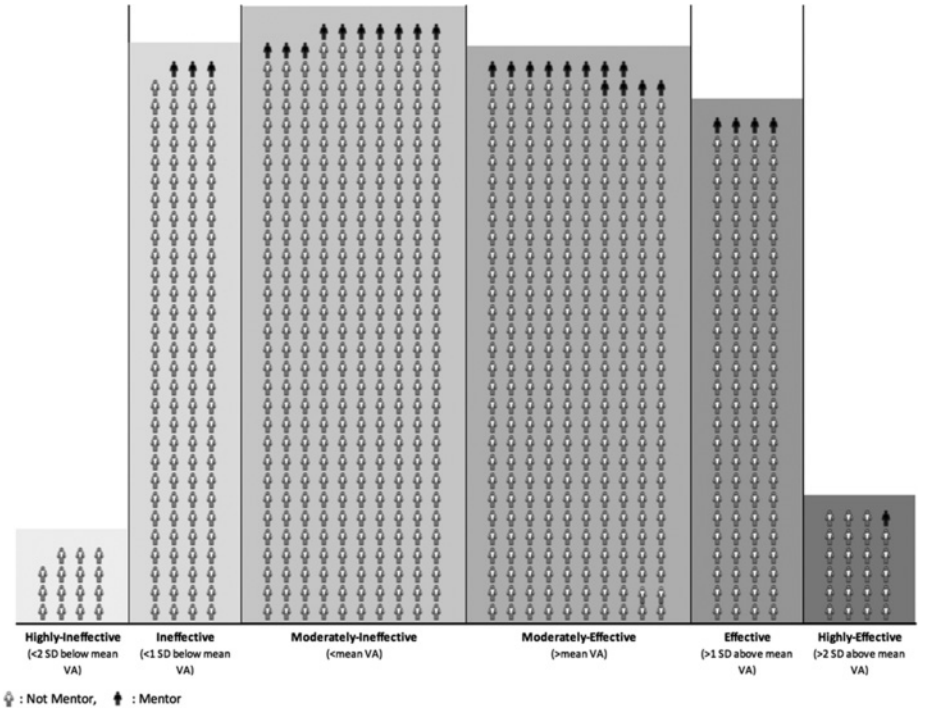
straightforward that there is a significant scope for change in mentor assignments. Yet this is not entirely clear as we recognize that it is more logistically challenging for TEPs to oversee internships that are more geographically dispersed. We are particularly interested in whether there are more effective teachers in the schools and districts that already tend to host student teachers who might serve as mentors. For instance, if we found that 80 percent of the effective teachers in these schools were already serving as mentors, there are clearly fewer potential gains from recruiting more effective mentor teachers than if only 5 percent are currently serving as mentors.

To assess the potential to change who serves as a mentor teacher, we use data on student teaching placements from fifteen TEPs in Washington State collected as part of the Teacher Education Learning Collaborative (TELC); this same dataset was used in Goldhaber, Krieg, and Theobald (2020a) and Krieg, Goldhaber, and Theobald (2020) discussed previously. Graduates of these TEPs constitute more than 81 percent of the new teachers prepared in Washington State between 2010 and 2015, and 92 percent of the new teachers in the western half of the state. The TELC data therefore likely represent nearly a census of student teaching placements in the western half of the state during these years, so we focus this analysis on school districts in this region.

Figure 2 compares the value added of math teachers in grades 4–8 within fifty miles of a TEP who do and do not host a student teacher between 2010 and 2015.[3] We focus on this group of teachers because more than 99 percent of all student teacher placements in the TELC data are within fifty miles of a participating TEP, and value added can be calculated for nearly all math teachers in these grades. Figure 2 shows, consistent

year of national data reporting (USDOE 2017). These data suggest that the percentage of teachers nationally who host a student teacher in a given year is likely about 4 percent.

3. For details on the data used to estimate teacher value added and model specification, see Krieg, Goldhaber, and Theobald (2020).



Note: VA = value added.

Figure 3. Distribution of Mentor Teachers by Estimated Effectiveness

with Krieg, Goldhaber, and Theobald (2020), that mentor teachers in this sample are somewhat more effective than teachers in this sample who do not serve as mentors in the same year. But, more striking is the fact that more than 40 percent of math teachers within fifty miles of a TEP who do *not* host a student teacher are more effective than the average math teacher who does serve as a mentor teacher. This suggests that perhaps less emphasis is being placed on recruiting effective mentor teachers than would be optimal.

To make these numbers more concrete, figure 3 divides into six groups all teachers in Washington for whom we can observe value added and who teach within fifty miles of a TEP: highly ineffective/effective (more than two standard deviations less/more effective than the average teacher in the state); ineffective/effective (between one and two standard deviations less/more effective than the average teacher in the state); and moderately ineffective/effective (less than one standard deviation less/more effective than the average teacher in the state). Each icon in the figure represents ten teachers in this sample, and the highlighted teachers represent teachers who serve in the mentor teacher role in a typical year. The first takeaway from the figure is that, as discussed above, very few teachers serve as a mentor teacher in a given year. And relatedly, given that there are a large number of highly effective and effective teachers who are not serving in a mentor teacher role in a given year, it is theoretically possible for every student teacher in the state to be mentored by one of these teachers.

CHALLENGES AND IMPLICATIONS FOR POLICY AND PRACTICE

Although the evidence presented in the previous section paints a rosy picture of the potential scope of change for student teacher placements and mentor teacher assignments, the processes by which mentors are selected are not well understood and appear to range across institutions from haphazard to highly systematic (Borko and Mayfield 1995; Clark, Triggs, and Nielsen 2014; NCTQ 2016, 2017). Recent qualitative evidence from Washington (Goldhaber et al. 2019; St. John et al. 2018) suggests that there are also considerable challenges to changing the status quo for placement processes. Specifically, St. John et al. (2018) analyzed interviews with the individuals responsible for student teacher placements in TEPs and school districts in Washington, and Goldhaber et al. (2019) described potential reasons for lack of take-up in an intervention in Spokane Public Schools in Washington in which effective teachers (according to district performance evaluations) were incentivized to host a student teacher. Both studies highlight skepticism within TEPs and districts about whether teachers who are effective according to observable measures (e.g., performance evaluations or value added) are also effective mentors for student teachers. St. John et al. (2018) further documented the considerable barriers to effective communication between TEPs and districts about student teaching placements, while Goldhaber et al. (2019) noted some teachers' discomfort at being differentiated from their peers (even in a positive way) in being recruited to serve as a mentor teacher.

Perhaps most importantly, whereas mentor teachers may wish to give back to the profession by contributing to the development of teacher candidates, there is little financial incentive for teachers to serve as a mentor teacher. Specifically, the best available evidence on mentor teacher compensation reported that an average mentor teacher receives just over $200 in compensation (Fives, Mills, and Dacey 2016). This value is a far cry from our back-of-the-envelope calculation of what schools and districts should be willing to pay effective teachers to recruit them to serve as mentor teachers. Specifically, to calculate the value of effective mentors, we return to the result in Goldhaber, Krieg, and Theobald (2020a) that the average teacher who is mentored by an effective teacher (one standard deviation above average value added) begins her career with the same effectiveness as the average second-year teacher in the state, whereas those who are mentored by a highly effective teacher (two standard deviations above average value added) begin their career with the same effectiveness as the average third-year teacher in the state. Therefore, given that second-year and third-year teachers are paid more than first-year teachers, these differences in teacher pay provide an estimate of how much policy makers should be willing to pay to recruit more effective mentor teachers if they value teacher candidate development equivalently to teacher in-service development.

We calculate these values from several different sources to produce a range of estimates of the value of more effective mentor teachers. On the low end, the four states with minimum salary schedules that differentiate pay between early-career teachers, pay second-year teachers $375–$649 more than a first-year teacher, and pay third-year teachers $657–$1,477 more (Griffith 2016). Nationally, we calculate from the 2015–16 National Teacher and Principal Survey that these average differences across all states in the country are $1,100 and $1,800, respectively. And,most relevantly for this brief, we calculate from administrative data in Washington State that the average second-year

teacher is paid $1,600 more than the average first-year teacher, while the average third-year teacher is paid $3,500 more.[4] All of these differences in in-service pay are substantially larger than the current average pay for mentor teachers (Fives, Mills, and Dacey 2016). So, although substantially increasing mentor pay may seem expensive, the benefits of having a high value-added mentor suggest it is worthwhile to encourage additional mentoring in this way.

Yet it is important to be cautious. Mentor teachers are only one component of a larger system that influences the student teaching experience, such as the general atmosphere or organizational culture in the internship school, the curriculum that student teachers experience, and so forth. We do not know the degree to which some of these other components of the system influence student teacher outcomes or whether they may interact with mentor effects. Teachers may also be more likely to respond to other incentives to serve as a mentor teacher like release time, professional development credit, and professional recognition. In fact, effective teachers in Spokane Public Schools were relatively unresponsive to a $500 incentive to serve as a mentor teacher (Goldhaber et al. 2019), although this figure is less than our back-of-the-envelope calculations suggest these mentor teachers are worth.

Additionally, as we noted above, being an effective teacher does not necessarily equate to being an effective mentor. Nor does being a teacher with high value added necessarily equate to being a high-quality teacher on other dimensions. There are many other skills we hope new teachers to have: subject knowledge, compassion, patience, ability to reach students of different abilities, to name a few. As of now, the state of research does not speak to the relationship between a mentor's value added and these other desirable characteristics.

But even with all the above caveats, the evidence about the importance of mentor teachers for teacher candidate development is compelling, and the best evidence we can generate suggests substantial underinvestment in this crucial role. Moreover, emerging evidence from Washington (Goldhaber, Krieg, and Theobald 2020b) suggests there are benefits to hosting a student teacher for the mentor teacher as well, because mentor teachers are more effective in the years after they host a student teacher than in the years before. Therefore, while there is not yet compelling evidence about *how* to recruit more effective mentor teachers, recruiting more effective teachers to mentor student teachers represents a promising area for policy interventions given the evidence about the importance of mentor teachers and the clear scope for change in mentor-teacher assignments.

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4. These are calculated from the average salaries of full-time classroom teachers with zero, one, or two years of teaching experience in the S-275, a personnel dataset of all public employees in Washington.

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