STRATEGIC DATA PROJECT

KEY FINDINGS REPORT:
Colorado Department of Education

Mathematics Teacher Placement Patterns:

Colorado Integration Project Districts

Introduction

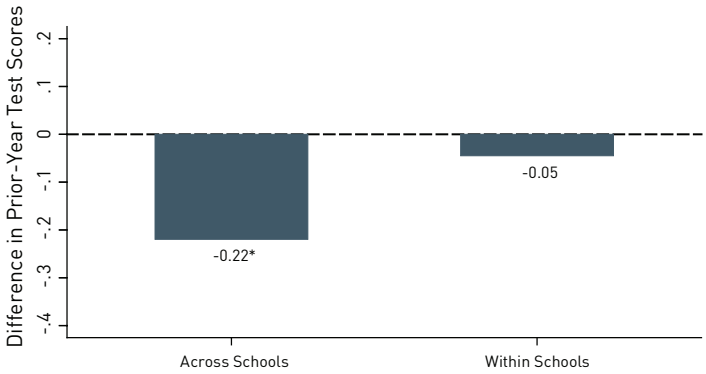
There is general agreement that novice teachers are less effective than their more experienced peers.[1] There is also evidence that novice teachers, despite their early career struggles, are often given the most challenging teaching assignments.[2] Assigning the students who are most academically behind to the teachers who need the most support and development may have a number of negative consequences, such as exacerbating gaps in student achievement and hastening new teachers' departure from the classroom.

To help practitioners and policymakers in the state of Colorado investigate these and other related questions, the Strategic Data Project (SDP) partnered with the Colorado Department of Education (CDE) and the Colorado Education Initiative (CEI)[3] to conduct SDP's Human Capital Diagnostic during the 2013–14 school year. This key finding report highlights the results of our placement analysis, which investigates whether Colorado public school students who are academically behind their peers are disproportionately placed with novice teachers. A summary of the results from the entire diagnostic can be found here: cepr.harvard.edu/sdp.

Evidence

We find that, in the 11 school districts participating in the Colorado Integration Project, as in many education agencies with whom SDP has partnered, students placed with novice teachers tend to be less academically prepared than students placed with non-novice teachers. Specifically, as the left bar in the figure below demonstrates, between 2008 and 2012, Grade 4–8 students who were placed with novice teachers in elementary and middle schools across the state had prior-year math scores that were 0.22 standard deviations lower than the students who were placed with all other, non-novice teachers. The magnitude of this difference suggests that, statewide, novice teachers are instructing students whose math achievement is about six months behind their peers, on average.[4]

Figure 1. Difference in Average Prior Math Performance of Colorado Students Assigned to Newly Hired Novices Compared to All Other Teachers: Integration Project Districts



*Significantly different from zero, at the 95% confidence level.
Note. Sample includes comprehensive and magnet school teachers with teacher job codes and their students in Grades 4 through 8 with prior-year test scores in the 2008–09 through 2011–12 school years in the 11 Integration Project Districts participating in the study. This includes 778 teacher years, 28,584 student years, 347 unique teachers, and 14,530 unique students. Test scores are normalized to have an average of zero and a standard deviation of one, and are shown in standard deviation units. All data are from state administrative records.

However, this placement pattern in Integration districts seems to be the result of lower-achieving students attending schools with less experienced teachers. When we examine placement patterns within schools (the right bar in the figure above), we do not see a statistically significant difference in the prior math performance of students who are placed with novice teachers.

Implications and Next Steps

These results are simultaneously encouraging and sobering. On the one hand, the lack of an apparent placement pattern within schools suggests that building leaders appear to be equitably distributing students across teachers to ensure that no group of students is disproportionately assigned to less effective, less experienced teachers and, similarly, that no group of teachers has to bear the sole responsibility of educating the students who need the most academic support. However, the across-school results reveal the ongoing need to ensure that experienced, effective teachers are staffed in high-need schools.

Current initiatives underway in Colorado—many of them tied to the stipulations in Colorado Senate Bill 10-191—are intended to help address some of the placement patterns described here. For example, under this new legislation, districts are meant to use data on teachers' effectiveness to make decisions regarding student placement and teachers compensation—a tactic aimed at increasing the number of high-performing teachers who work with lower-performing students, though this will not impact inequities across districts. Further, there are a number of efforts underway across the state to develop better, and earlier, measures of effectiveness. Teach 360, a research project led by CEI, and efforts by various teacher preparation programs in the state aim to introduce rigorous assessments of preservice teachers' instructional proficiency and help ensure that novice teachers are prepared to be effective in their first year on the job.

Simultaneous to these broader policy efforts, district- or school-based initiatives designed to reduce turnover of effective novice teachers could help minimize the perpetual churn of new teachers, especially among those placed in high-need schools. At present, districts across the state are in the process of developing their facility with the new evaluation systems; however, in the coming months and year, CDE and CEI aspire to gather examples of promising practices related to teachers' development, placement and retention that can be disseminated and replicated across the state. In distributing this Key Finding report at a critical time in the development of Colorado's public education policy and practice, SDP, CDE and CEI collectively hope to help districts to think about human capital issues, broadly, as well as specific district- and school-wide practices related to student placement and novice teachers' assignments.

Endnotes

[1] e.g., Rivkin, Hanushek, & Kain, 2005; Rockoff, 2004. For examples of SDP's research on teacher effectiveness with other agencies, see http://www.gse.harvard.edu/sdp/diagnostics/published-findings.php

[2] e.g., Clotfelter, Ladd, & Vigdor, 2005.

[3] The Colorado Education Initiative was formerly called the Colorado Legacy Foundation.

[4] Hill, Bloom, Black, & Lipsey, 2008.

References

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