Measuring Teacher Conscientiousness and its Impact on Students: Insight from the Measures of Effective Teaching Longitudinal Database

**Background.** There is no doubt in the literature that teachers play an important role in improving student performance. Multiple researchers have demonstrated wide variation in teacher effectiveness towards improving student achievement on standardized tests of math and reading (Rivkin, Hanushek, & Kain 2005; Rockoff, 2004). Teachers who are effective at improving student achievement have also been found to have impacts on their students’ long-run life outcomes such as educational attainment and employment income (Chetty et al, 2014). However, research has been unable to find strong links between observable teacher characteristics, such as educational background and years of experience, and a teacher’s ability to improve student achievement (Goldhaber, 2008). Meanwhile, research from labor economics and psychology has documented the importance of conscientiousness for worker productivity (Barrick & Mount, 1991; Heckman, Stixrud, & Urzuza, 2006; Roberts et al., 2007; Borghans et al., 2008). Educational research has not thoroughly considered the role that teacher conscientiousness plays in teacher effectiveness. Moreover, educational research has rarely examined teacher impacts on student social and emotional skills as a dimension of teacher quality (Gershenson, 2016; Jackson, 2016; Jennings & DiPrete, 2010; Kraft & Grace, 2016).

**Purpose.** We fill these gaps by studying whether conscientiousness is an important aspect of teacher quality and also examining whether variation in teacher conscientiousness explains variation in student test scores as well as social and emotional skills. We also utilize newly-validated behavioral measures of conscientiousness based upon the amount of effort that respondents exert to complete surveys. These survey-effort measures of conscientiousness represent a promising avenue to advance the field not only of teacher quality in particular but also of social and emotional learning in general (Hitt et al., 2016; Cheng et al., 2016; Hitt, 2015; Zamarro et al., 2016).

**Data.** Data for this study come from the MET Project. During the 2009-10 and 2010-11 school years, six, large urban school districts in the United States participated in this project. The districts involved are New York City Department of Education, Charlotte-Mecklenburg Schools, Denver Public Schools, Memphis City Schools, Dallas Independent School District, and Hillsborough County Public Schools. Researchers collected multiple measures of teacher quality and a variety of student outcomes. More specifically, test scores were collected to calculate teacher value-added scores, and teachers were also rated based upon several formal classroom observation protocols as well as student surveys. Student achievement measures were collected along with measures of grit, effort, happiness, and other social and emotional skills. Districts also provided administrative data containing teacher and student demographic and other background information. This data allows researchers to explore links between measures of teacher characteristics and student outcomes.

**Intervention and Research Design.** In the second year of the MET Project, over 1,500 math and English teachers from nearly 300 schools were randomly assigned within schools and grades to classrooms of students ranging from fourth to ninth grade. We leverage the random assignment of teachers to student to estimate causal impacts of teachers on students. In particular, we use all available indicators of teacher quality, including our measures of teacher’s conscientiousness, as measured in the first year of the MET Project, prior to randomization, to predict outcomes for students who were randomly assigned to these teachers in the second year of the project.
Findings. In general, we find that teacher conscientiousness is an important dimension of teacher quality. Students assigned to more conscientious teachers experience gains in their own conscientiousness. Effect sizes range from 0.05 to 0.18 standard deviations. However, there is no analogous effect for students assigned to teachers with higher value-added scores. While measures of teacher quality based upon formal classroom observation scores do little to explain student outcomes, students assigned to teachers who were rated more highly by other students experience gains in conscientiousness but not test scores. Effect sizes range from 0.06 to 0.15 standard deviations. Furthermore, our data indicate principal subjective ratings, student ratings, and scores on formal classroom observation protocols are correlated with teacher conscientiousness.

Conclusions. These findings carry implications for subsequent research and practice. First, our results comport with the limited research on teacher social and emotional skills as an important dimension of teacher quality (Rockoff et al., 2011; Duckworth et al., 2009). Moreover, teachers who are effective at improving student test scores are not necessarily the teachers who are effective at improving student social and emotional skills—a pattern that is only recently emerging in educational research (Gershenson, 2016; Jackson, 2012; Jennings & Diprete, 2010; Kraft & Grace, 2016). Given these results, it will be worthwhile to explore whether other teacher social and emotional skills are linked with teacher effectiveness. Likewise, identifying the kinds of teachers that improve student social and emotional skills will be valuable for better understanding how to effectively foster student social and emotional skills. For example, are these teachers adept at transmitting skills that they themselves possess, or are they more adept at fostering particular types of classroom climates?

Second, our results potentially provide guidance for teacher training and personnel management. If teacher conscientiousness plays an important role in fostering student social and emotional skills, then teacher training programs may need to consider how to foster these skills among their teacher candidates or develop ways to recruit candidates who possess higher levels of these skills. Similarly, principals wishing to improve conscientiousness may need to consider how to identify, recruit, and hire conscientious teachers. That said, there is much room to refine and improve such measures of teacher quality, particularly so that they can help both researchers and practitioners identify effective teachers.

References


