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Should Value-Added Modeling Be Used to Identify Highly Effective Teachers?

Counterpoint

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In the past two decades, the importance of the teacher's contribution to student learning has been widely acknowledged. Some researchers have argued that the teacher is the most important factor in explaining differences in student achievement. In previous decades much of the educational research literature explored differences in student achievement based largely on student characteristics such as educational attainment of the parents, socio-economic status, race, and gender. It is only recently that teachers have been placed at the center of research and accountability related to student learning. To put it simply, it is widely said that "teachers matter," and recent directions in educational accountability have placed student achievement at the forefront of defining teacher effectiveness. One of the emerging measures of defining teacher effectiveness has been the metric of value-added based on student performance on standardized tests.

In this counterpoint essay, the first section addresses some issues of concern about value-added as an indicator of teacher quality. The second section offers a reframing of the question from indicators of *teacher* quality to indicators of *teaching* quality, and posits questions that can provide a more robust approach to examining *teaching* quality. The final sections include thoughts on how high-quality teaching can be identified and supported.

Overview of Value-Added as an Indicator of Teacher Effectiveness

Accountability for student achievement is now embedded in the fabric of our educational system, include monitoring of student achievement on a test or a collection of tests in multiple ways. These include, among others, reporting the percentage of students meeting a criterion level (National Assessment of Educational Progress) and comparing average change in performance of a group of students from one year to the next (Adequate Yearly Progress). In the 1990s, the educational research and policy communities began to show increasing interest in a methodology that statistically calculated the attributed contribution of teachers, buildings, and schools to student gains in achievement, taking into account variables such as prior achievement and other characteristics. This analysis is known as value-added methodology. The shortcomings of value-added scores as a measure of teaching effectiveness, and a possible alternative approach to measuring teaching effectiveness, is the focus of this essay.

A recent wave of federal and state policies related to education, several reform initiatives, and current research have incorporated value-added measures. For example, The United States Department of Education's Race to the Top funding priorities encouraged states to include teacher level value-added scores. In another example, some states (e.g. Ohio) include a school level value-added indicator among other indicators of performance in annual reporting. Finally, some states and local school districts include value-added metrics in their teacher performance evaluation and compensation policies.

Members of the educational research and policy communities, including the National Research Council and National Academy of Education, have raised serious concerns that high-stakes decisions are being made based on value-added measures, despite the fundamental concerns about the methodology that have not been fully addressed, let alone resolved. These concerns include, among others, lack of evidence supporting reliability and validity of estimates;

a reliance on tests that do not fully represent desired educational goals; and the implications of causal inferences linking attribution of teacher, school, and district effects to student achievement in violation of principles of random selection and assignment of students to teachers and schools.

Other concerns highlight the existence of numerous value-added models, and that each model is based on different assumptions aligned with different purposes. It is not clear that those who are using value-added metrics have aligned methods and purpose. For example, some models involve multivariate statistical methods that take into account socio-economic status, prior testing results, and student factors such as race, gender, native language, and mobility. Some models include the effect of previous teachers as well. To further confuse consumers and other stakeholders, it is not customary for those using the models to specify the model being used in computing value-added scores. A value-added score for a teacher can have a very different meaning for teachers from different states since states use different methods to determine scores.

In addition, realities in schools and states call into serious question the quality of the data linking students and teacher, thus eroding confidence in resulting estimates. These concerns include the questionable technical quality of existing state data systems; the high mobility of students in certain areas, particularly urban; and the fact that students often have more than one teacher in a year to whom effects could be attributed.

Value-added measures at this point in time are not sufficiently developed to support the high-stakes decisions for which they are currently being used. So, to return to the question framing this counterpoint: Should value-added methodology be used to identify highly effective teachers? It depends.

The question itself falls short of the more fundamental, but complex, questions that ultimately make a difference for all students in classrooms. It is clear that students in classrooms of effective teachers have higher quality learning experiences than students who are in classrooms of less effective teachers. The more important question is “How do we reach the goal of having high-quality learning experiences for all students?” The goal cannot be reached by simply identifying effective teachers through value-added methodology. Identifying teacher quality through measures of student achievement such as value-added is a circular argument in which teacher quality and student achievement are equated through one concept: value-added. In other words, teacher effectiveness is defined by the outcome, and that outcome is the same as the measure of quality. The instructional practices, teacher characteristics, and school contexts that contribute to student learning are forgotten in this definition of teacher quality. The question of teacher quality would be better addressed through a more complex picture of the characteristics and contexts of effective teachers and teaching. The next section reframes the question, and shifts the focus from high-quality *teacher* to high-quality *teaching*.

Reframing the Question

Teachers matter, and variables associated with *teacher* quality include, but are not limited to, teacher characteristics such as verbal ability and content knowledge; teacher experiences such as quality and type of preparation, credentials, and years of experience; and attributes such as dispositions toward students, sense of efficacy and persistence, and an interest in continuing professional development. Much has been written about how teacher characteristics relate to student achievement. But, most agree these characteristics present a partial picture, at best, of teacher quality.

An alternative approach is to identify characteristics of high-quality *teaching* as well as characteristics associated with high-quality *teachers*. Teacher characteristics are important, but are removed from the direct connection with students and student learning. By identifying the characteristics of high-quality *teaching*, the questions shift to where the learning occurs, in the classroom. Previous research on teaching has associated specific, discrete teaching behaviors, or acts, and the conditions in which students were being taught (processes) to student outcomes (products). More recent literature on teacher quality and preparation incorporated a more holistic view of instruction based on cognitive perspective of teaching and learning. Efforts to characterize effective teaching have yielded several tools designed to assess the quality of teaching based on observation of classroom performance or on artifacts of practice such as instructional logs.

Therefore, the following questions offer a more robust approach to support high-quality learning environments for every student:

What characteristics are associated with, or identify, high-quality *teaching*?

What conditions best support effective, or high-quality, *teaching*?

How can the information about high-quality *teaching* maximize learning for all students?

High-quality teaching includes understanding both the characteristics of the teacher and what the teacher does. When the questions are addressed together to create a constellation of variables focused on practice and the context in which practice occurs, it is possible to construct a richer understanding of what contributes to high-quality learning experiences for all students.

The following examples of this approach are drawn from research on novice teachers in the State of Ohio. The Novice Teacher Study was a longitudinal, statewide research project that examined the characteristics, instructional practices, and school contexts associated with novice

teachers. Data for this research included observation of teaching using the Classroom Assessment Scoring System (CLASS), an instrument developed by Robert Pianta and his colleagues at the University of Virginia designed to assess teacher-student interaction in classrooms. Data also included interviews following the observation of teaching and surveys completed by the novice teachers that included multiple scales pertaining to preparation, efficacy, and school context. Case studies of higher-performing and lower-performing teachers were constructed based on CLASS scores, and from those case studies descriptions of the characteristics associated with high-quality teaching and the conditions that support high-quality teaching were developed.

Characteristics Associated with High-Quality Teaching

In this section, characteristics associated with high-quality teaching are described. It is important to note here that the framework for analysis in the Novice Teacher Study research did include characteristics of teachers, but the foundation for the case studies was based on observation of teaching using the CLASS observation protocol. Observations of teaching, and more precisely student-teaching interactions, using the CLASS observation protocol yielded a score from 1 – 7 in four domains, Emotional Support, Instructional Support, and Classroom Organization, and Student Engagement. The current version of CLASS has dropped Student Engagement Domain. Higher-performing teachers were identified as those whose mean scores were in the 6 – 7 range, and the lower-performing teachers were those whose mean scores were in the 1 – 2 range. Teachers in the 3 – 6 range were considered in the mid-range. Interview, survey, and school context data were analyzed to construct case studies that contrasted higher-performing from lower-performing teachers.

Higher performing teachers were able to articulate instructional goals representing what they intended for their students to accomplish. The goals were indicative of rich content knowledge, and were connected to the state academic content standards. Students had a clear understanding of the learning goal, and instruction aligned with those goals. During the course of instruction, the higher-performing teachers adjusted instruction based on whether or not students were meeting the instructional goal, and teachers incorporated specific, systematic assessment strategies designed to indicate who needed additional instructional support. Adjusting instruction required teachers have an understanding of where students were experiencing challenges, in addition to be able to call upon the content knowledge and pedagogy to address the challenges. Teachers who displayed a rich content knowledge wove that knowledge into their teaching. This is a clear example of how characteristics of *teachers* related to characteristics of *teaching*, and it is difficult to separate teacher characteristics and teaching.

Novice teachers who performed higher on CLASS talked about how their instruction could make a difference for students, and provided specific examples of how they accomplished that. These teachers also reported a high sense of efficacy on related survey items. This characteristic serves as another example of how the variables associated with high-quality teaching interrelate as a constellation of variables related to both the attributes of effective *teachers* and characteristics of high-quality *teaching*.

We found that novice teachers representing high-quality teaching used materials that were intentionally chosen to meet specific instructional goals. These resources were often provided by colleagues or found on the internet, but the teachers had a specific purpose in mind. Technology was often mentioned, but in many cases unavailable, and teachers were often left to improvise and adapt based on limited resources.

We found a common thread across all of the descriptions that novice teachers provided in the post-observation interviews. The teachers who demonstrated higher quality teaching were able to provide a clearly articulated rationale for choices they made, both in planning instruction and in adjusting based on student need. Intentionality was clear throughout the interviews, and when choices did not result in the optimum outcomes for student learning, the teachers had a plan for what they would do next.

Conditions that Support High-Quality Teaching

Teachers matter, but so do the contexts in which they are teaching. It is not to say that challenging contexts excuse poor teaching, but it was clear from the Novice Teacher Study research that teaching occurs in context, and to ignore that context ignores the complexity of teaching. The novice teachers taught in districts that spanned the demographic and academic achievement categories; however, access to resources and indications of integrated use of resources varied across contexts. For the most part, teachers who demonstrated higher quality teaching either had access to needed resources or adapted instruction accordingly.

The other contextual factor that supported high-quality teaching was the opportunity to continue to develop as a teacher, and many of the teachers talked about the support they received from other teachers in the building during their first year. Opportunities for professional development focused on specific instructional practices (e.g., integration of technology and summer workshops related to mathematics instruction) were also noted by some of the teachers in our research. The current research on effective teaching underscores the importance of ongoing professional development, particularly when it is closely connected to specific content and instructional practice.

Using Information about High-Quality Teaching to Support Student Learning

Should value-added modeling be used to identify highly effective teachers? It depends.

Value-added metrics alone should not be used to identify highly effective teachers, particularly for compensation and accountability purposes. Identifying high quality teachers through student test scores defines the quality by the outcome, not by the identifiable characteristics and attributes. Furthermore, the research base on use of value-added metrics is still emerging and, in many aspects, conflicting, and does not support high-stakes purposes such as teacher evaluation and compensation. However, should value-added modeling be used in conjunction with other measures of teaching quality, such as direct observation of teaching performance? The answer to that question is a qualified “yes.”

Value-added metrics can play an important role in our developing understanding of what contributes to student learning. It is one piece of information that can be incorporated into a constellation of variables that provide a robust picture of high performing teachers and high-quality teaching. Current research, funded by both public and private sources, is exploring teacher quality by relating outcome measures of effectiveness such as value-added and performance metrics.

Information about characteristics of teachers and teaching can serve multiple purposes. These include improving teacher and administrator preparation programs, supporting novice teachers in their first years of teaching, and teacher evaluation and development throughout a teacher’s career. The current climate has emphasized the use of measures of teacher and teaching quality in evaluation, compensation, and school and district accountability. It would be naïve to discount these uses, but it would also do a disservice to students, parents, and communities if we ignored the opportunity to improve teachers and the programs that prepare them.

A singular emphasis on *teachers* or on *teaching* cannot begin to account for how teachers make a difference in student learning. It is only through an exploration of a constellation of variables, including what teachers know and do and the context of where they are teaching, that policy makers, school districts, teacher educators, and other stakeholders, can reasonably account for variation in student learning. Once we more fully understand what accounts for the variation in student learning, then we can begin to make those changes in the educational system that will maximize the learning opportunities for all students, regardless of the schooling contexts they find themselves experiencing.

Further Readings and Resources

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