Issue Brief

Teacher Effectiveness: The National Picture And Pennsylvania Context

Pennsylvania Clearinghouse for Education Research (PACER)

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This PACER Issue Brief – the first in a series – explores research and emerging practice on teacher effectiveness, and answers frequently-asked-questions to inform the work of state policymakers.

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Introduction

Two decades of research have documented what most of us already know: no in-school factor matters more to students' educational experiences and outcomes than the effectiveness of their teacher.[1] As a result, the national airspace is increasingly crowded with proposed reforms and initiatives designed to boost teacher performance, including new evaluation systems and increased accountability. This activity was crystallized by the U.S. Department of Education's 2010 Race to the Top competition, which emphasized the development of evaluation systems that involve measures of student growth.[2]

Methodology and Purpose

PACER's goal is to inform state education policy discussions using rigorous, objective research. The roughly two dozen works cited in this brief include newspaper coverage; government documents (e.g., federal agency guidance); research syntheses from non-partisan sources such as the Consortium for Policy Research in Education and the National Comprehensive Center for Teacher Quality; original research by Research for Action (RFA) scholars; and rigorous, peer-reviewed works from some of the nation's most respected education researchers. Where we cite an organization that has a clear policy agenda—for example, The New Teacher Project or the National Council on Teacher Quality—we do so because the publication in question has had a significant impact on the policy landscape.

It is important to note that to arrive at a measure of teachers' effectiveness, researchers must, of course, identify a benchmark or standard. Given the central role of accountability in K-12 public education and the need for common, objective measures on which to base comparisons, research has focused overwhelmingly on achievement results from state assessments. While student achievement is the central goal of schools, there are important aspects of academic achievement that cannot easily be tested and key characteristics of good teaching (e.g., supporting colleagues, engaging with parents, mentoring students to ensure regular attendance and progress toward graduation) may not show up in standardized test results.[3]

What follows is a summary of research and emerging practices in other states and districts designed to provide state lawmakers, legislative staff, State Board of Education members, Department of Education officials, and other key stakeholders information they need to ensure the effectiveness of their reform efforts.

The Pennsylvania Context

Teacher evaluation will be a key focus of the fall legislation session. Currently in Pennsylvania, teacher evaluation rating forms are based on Charlotte Danielson's professional framework, which assesses Planning and Preparation, Classroom Environment, Professional Responsibilities, and Instruction. A 2011 survey by the Pennsylvania Department of Education found that over 99% of all teachers and administrators received a satisfactory rating during the 2009-10 school year.[4]

Pennsylvania is already grappling with the challenges that accompany teacher evaluation redesign in a number of ways:

- Pittsburgh Public Schools—one of four districts nationally awarded grants by the Bill and Melinda Gates Foundation to design comprehensive reform plans—is working with the local union, the Pittsburgh Federation of Teachers, to revamp its evaluation policies and expand professional opportunities for highly-effective teachers.

- Three school districts statewide, along with an Intermediate Unit, are currently engaged in a Gates Foundation-funded pilot that is working to inform development of statewide reforms, including evaluation tools.

- The Pennsylvania Department of Education will expand this pilot to reach 20% of Local Education Agencies (LEAs) during the 2011-12 school year, before going to scale in all districts in 2012-13.[5]

- Senate Bill 1087, sponsored by State Senator Jeffrey Piccola, Chair of the Senate Education Committee, was passed by the Senate Education Committee on June 14, 2011. The legislation states that "for a teacher evaluation and rating system to be thorough and effective, it is essential that the system include student performance as an element in measuring teacher quality."

Teacher Evaluation: Questions and Answers

Q/A How do school districts currently evaluate teachers?

Across Pennsylvania and nationwide, the most widely-used teacher evaluation system is classroom observation by an administrator or peer reviewer, though the quality, use, and application of observation protocols differ across states, districts, and even within schools.[6] While the number of observations per school year varies based on a host of factors, including prior evaluations, teacher experience, local staffing issues, and the local collective bargaining agreement, evaluation results are generally quite uniform. The New Teacher Project's 2009 report, *The Widget Effect*, reveals that similar to Pennsylvania, the vast majority of educators (99% or more) receive satisfactory teacher evaluations.[7]

Q/A Are classroom observations a strong measure of teacher quality?

They may be, under specific circumstances. Drawing on approximately 120 teacher evaluation studies, the nonpartisan National Comprehensive Center for Teacher Quality found that "some highly researched protocols have been found to link to student achievement, though associations are sometimes modest. Research and validity findings are highly dependent on the instrument used, sampling procedures, and training of raters."[8] Put another way, effective observation hinges on a reviewer who knows good teaching when he or she sees it, rigorous training in the use of appropriate evaluation tools, and ongoing professional development to ensure successful implementation and consistent use of evaluative practices.

When effective observation is employed, important correlations may emerge. Heneman and colleagues (2006) examined the use of evaluation systems modeled on or modified from the Charlotte Danielson framework in three districts nationwide—Cincinnati, Ohio;[9] Coventry, Rhode Island; and Washoe County, Nevada (Reno)—plus a Los Angeles area charter school; together, these districts employed more than 6,300 teachers and educated approximately 107,000 students. Over three years, researchers documented "positive relationships between teacher evaluation scores and student achievement" at all four sites. These results suggest that regular, rigorous observation-based evaluation accompanied by focused professional development can have "a substantial positive relationship with student achievement and that the instructional practices measured by these systems contribute to student learning."[10]

Q What do years of teaching experience and graduate degrees tell us about teacher effectiveness as measured by test scores?

A The research on the relationship between student achievement and two common yardsticks for evaluation and compensation—years of teaching **experience** and **graduate degrees**—is mixed.

Experience

Rigorous research over the past decade has consistently provided evidence that novice teachers are less effective than their more seasoned counterparts, and that the pace of improvement is most rapid early on; key findings demonstrate a leveling off in teacher effectiveness after the first few years.[11] Two more recent studies, drawing on established statewide longitudinal data systems in North Carolina[12] and Florida, suggest that teachers in certain grades continue to show slight improvement even "beyond the first few years"[13]—a finding consistent with initial analysis by RFA staff using data from Pennsylvania's student-level data system.

Graduate Degrees

Findings on the effects of teacher credentials on student achievement do not generally provide compelling support for investments in degree attainment. A synthesis of rigorous research on this question by the Center for Educator Compensation Reform noted that "the preponderance of evidence suggests that teachers who have completed graduate degrees are not significantly more effective at increasing student learning than those with no more than a bachelor's degree."[14] Clotfelter, Ladd, and Vigdor (2007) go further, reporting "small or negative effects of having a graduate degree" on student achievement in the elementary grades.[15] However, they also note that master's-level training appears to be beneficial to secondary teachers.[16]

A clear take-away from the research is the need to distinguish between postgraduate training in general and advanced training in a teacher's content area. It would be useful to enhance the research base on the impacts of specific programs and their outcomes for students.

"Fewer than 1% of teachers in Pennsylvania and nationally are rated unsatisfactory."

Q / Beyond classroom observations, teacher experience, and credentials, what other options of measuring teacher effectiveness are being explored/implemented in states and districts?

A Since the beginning of the standards-based reform movement in the 1990s, policymakers have looked to assessment systems to measure the level of student learning in schools and districts, and to inform accountability systems. However, annual state assessment data only gives us a snapshot of student performance, and provides limited information on the impact of a school or an individual teacher on student learning. To help quantify school and teacher effects on student learning, Dr. William Sanders developed **value-added modeling** (VAM). Simply put, when used to evaluate teachers, VAM leverages a student's previous assessment scores to predict their performance on future assessments; the difference between the predicted and actual scores determines the academic growth of the student. A teacher's impact on student learning is determined by looking at the average growth score of the teacher's students, and then comparing it to other teachers in the district or to a pre-determined standard. It is important to underscore that VAM is not a system or battery of student assessments; rather, VAM is the *analysis* of student achievement data from existing assessment systems to derive measures of growth and the influence of schools and teachers on that growth.[17]

Pennsylvania's value-added assessment system—PVAAS—leverages data from the state assessment (the PSSA) to provide both analysis of academic growth of groups (cohorts) of students over time, and looks ahead to provide predictive information of future student growth.[18] To date, PVAAS has been used to provide teachers with feedback on instruction, but is not a component of evaluation or pay.

A value-added measure is a "collection of complex statistical techniques that use multiple years of students' test score data to estimate the effects of individual schools or teachers."[19]

(McCaffrey, Lockwood, Koretz & Hamilton, 2003)

Q / How do value-added measures compare with classroom observations?

A Value-added measures are comparable to classroom observations by school administrators in indentifying the strongest and weakest teachers in a school, though VAM generally does a better job at predicting future student achievement than principal ratings.[20] Investigation by Harris and Sass found that analyzing multiple years of student test scores are more predictive of future teacher performance than classroom observations, though the reverse is true when data is limited to a single school year, as may be the case with a novice teacher. The authors note that classroom observations are likely to draw on a "broader set of characteristics" than the ability to raise achievement scores (e.g., interpersonal skills, relationships with parents and colleagues, rapport with students) and that this additional information can "substantially increase predictive power"—a strong argument for using multiple measures in evaluation decisions. [21]

Table 1: Value-Added Measures: Limitations and Strengths

STRENGTHS
Value-Added Measures

- Provide a more objective option than other teacher effectiveness measures
- Identify evidence about which teacher characteristics impact student learning
- Cost less in the long term as compared to classroom observations and portfolios
- Focus on student learning instead of teacher practice
- Create opportunities to identify and learn from the most highly successful teachers

LIMITATIONS
Value-Added Measures

- Cannot be applied to teachers in non-tested grades and subjects
- May be skewed by incomplete student data or small sample size
- Do not isolate individual teacher contributions from multiple other factors
- Involve complex methodological issues that can compromise teacher scores
- Rigor varies depending upon the appropriateness of teacher comparison groups and the quality of value-added method used

Table 1 Source: Goe, L. (May 2008). *Key Issue: Using Value-Added Models to Identify and Support Highly Effective Teachers.* Washington, D.C.: National Comprehensive Center for Teacher Quality.

Q What practical and technical issues should policymakers examine when considering the use of value-added measures in teacher evaluation?

A There are both practical and technical concerns that may arise with the implementation of value-added measures. Some are rather obvious and already topics of study in Harrisburg and statewide—such as how to treat the majority of teachers in untested subjects and grades (referred to in a recent report by the Center for Educator Compensation Reform as *The Other 69%*) when value-added measures are limited to mathematics and language arts in certain tested grades. Other concerns are more subtle, such as the possibility that value-added measures could misattribute teacher contributions. For example, the work of a social studies educator who emphasizes document analysis and open-ended writing may show up in value-added measures for an English instructor. Similarly, an analysis of widely used value-added models found that factors other than instruction, such as student classroom placement or external events, may be partially responsible for driving student learning growth.[22]

Technical issues also merit consideration, including concerns about the precision of such measures. For example, a political poll is never a perfect measure of how two (or three) candidates are faring in a race; the measures are therefore accompanied by a margin of error (e.g., + or – 4%), with larger error bands for smaller samples. As the focus shifts from a large group of students at the school level toward the classroom level, there will be a need for larger margins of error in value-added scores.

Q Which teacher evaluation measures are most appropriate for which purposes?

A Teachers, like students, should not be evaluated by a single measure. There is strong consensus among researchers that student performance data can only act as a portion of evaluation systems, and recent policy changes in states across the country are responsive in consistently requiring multiple measures of teacher effectiveness. Little, et al. (2009) argue that "a well-conceived [evaluation] system should combine approaches [of teacher evaluation] to gain the most complete understanding of teaching."[23]

Evaluation methods should also be aligned with the purpose of the evaluation. As the National Comprehensive Center for Teacher Quality points out, purposes could include not only high-stakes decision-making such as tenure, promotion, and hiring/firing, but also sharing feedback directly with teachers, providing continuing support, identifying potential teacher leaders, and determining professional development needs. Table 2, below, provides an overview of evaluation methods and how they may best be used.

Table 2: Teacher Evaluation Methods by Purpose

EVALUATION METHODS by PURPOSE

Purpose of Evaluation	Value-Added	Classroom Observation	Artifacts Analysis	Portfolio	Self Report	Student Survey
Determine whether teachers' students are meeting growth expectations	●		●			
Provide new teachers with guidance		●	●	●		
Evaluate teachers in non-tested grades and/or subjects		●	●	●		●
Determine professional development needs	●	●			●	
Contract renewal and tenure decisions	●	●				
Compensation and incentive reward decisions	●	●				

Source: Little, O., Goe, L., and Bell, C. (2009). *A practical guide to evaluating teacher effectiveness.* Chicago: National Comprehensive Center for Teacher Quality. Summary adapted with permission of the author.

Q How can states ensure that teacher evaluation strategies are both fair and effective?

A While teacher evaluation—like student evaluation—involves significant methodological challenges and thorny policy questions, there's good guidance to show the way forward. Two key principles for developing fair, usable assessment systems are **validity** and **reliability**.

Table 3: Key Tenets of Effective Evaluation Systems

KEY TENETS of EFFECTIVE EVALUATION SYSTEMS

PROPRIETY		APPLICATION
"Standards are intended to ensure that a personnel evaluation will be conducted legally, ethically, and with due regard for the welfare of the evaluatee and those involved in the evaluation."	→	Is the evaluation administered in accord with state law and district policy?

UTILITY		APPLICATION
"Standards are intended to guide evaluations so that they will be informative, timely, and influential."	→	Are evaluation results shared with the teacher, and is he/she given an opportunity to understand the ratings and the evidence undergirding them?

FEASIBILITY		APPLICATION
"Standards are intended to guide personnel evaluation systems so that they are as easy to implement as possible, efficient in their use of time and resources, adequately funded, and viable from a political standpoint."	→	Does the building principal have enough time to evaluate teachers? Are the costs of the evaluation affordable? Do stakeholders understand the evaluation system?

ACCURACY		APPLICATION
"Standards determine whether an evaluation has produced sound information. Personnel evaluations must be technically adequate and as complete as possible to allow sound judgments and decisions to be made. The evaluation methodology should be appropriate for the purpose of the evaluation and the evaluatees being evaluated and the context in which they work."	→	Is the evaluation system rigorous and authentic? Does it produce clear, defensible, and accurate measures of performance?

Source: Joint Committee Standards for Educational Evaluation (1988). Retrieved from http://www.jcsee.org

Validity refers to the extent to which a measurement is truly representative of what it claims to gauge; in other words, teachers should clearly understand the criteria on which they're being judged, and there should be alignment between those standards and the evaluation.

Reliability speaks to the fact that consistency in ratings—over time and across raters—is a precondition for any fair evaluation.

The Joint Committee on Standards for Educational Evaluation's Personnel Evaluation Standards outlines additional key tenets for structuring reliable, rigorous measures.[24] The four standards are summarized in Table 3, along with examples of practical applications for each.

Q How are states and districts responding to calls to include student performance in teacher assessments?

A As states and districts redesign teacher evaluation systems, teacher ratings are increasingly being aligned with decisions over tenure, dismissal, and teacher pay. Reporting by *Education Week* found that nationwide, during the most recent legislative sessions, "eight states…linked evaluations to student achievement, with most eventually requiring that 50 percent of an evaluation score be based on student data."[25] Table 4, which provides detail on several states—including four of Pennsylvania's neighbors: Delaware, Maryland, New York, and Ohio—illustrates this trend. While New Jersey has not enacted legislation, at least 10 districts in the state will be piloting a new teacher evaluation model, Excellent Educators for New Jersey (EE4NJ), during the 2011-12 school year based on the recommendations of the state educator effectiveness task force released in March 2011.

Q Is there any research evidence regarding how much student achievement should factor into teacher effectiveness measures?

A No. To date, there has been no research that examines the pros and cons of the relative weight of student achievement in evaluations of teacher effectiveness. As can be seen in Table 4, most states weight student achievement at or around 50%, though the precise composition of this 50% varies across states. This weight can be traced to the Race to the Top competition and earlier policy goals advanced by the National Council on Teacher Quality that student learning should be the "preponderant criterion" in evaluation decisions.[26] Rigorous research on this question is vital as more states explore performance measures in evaluation and assign weights.

Table 4: Survey of State Actions

RECENT POLICY CHANGES TO INCLUDE STUDENT PERFORMANCE IN GENERAL EDUCATION TEACHER EVALUATION SYSTEMS

State	What % of evaluation is tied to student performance?	Is evaluation required annually?	What teacher decisions does the new evaluation system impact?			What legislation, regulation or program is the basis for this policy?	When is the evaluation system to be fully implemented?
COLORADO	50%	Yes	(T)	(R)	(C)	S.B. 191 (2010)	2013-2014
DELAWARE	Not Specified[27]	No[28]	(T)	(R)	(C)	Delaware Performance Appraisal System (DPAS II)	2012-2013
DISTRICT OF COLUMBIA	50%	Yes	(T)	(R)	(C)	IMPACT (2009)	Introduced in 2009-2010
FLORIDA[29]	50%	Yes	(T)	(R)	(C)	S.B. 736 (2011) "Student Success Act"	2014-2015
MARYLAND	50% (30% on state assessment & 20% on locally determined measure)	Yes	(T)			Education Reform Act (2010)	2013-2014
NEW YORK	40% (20% on state assessments & 20% on locally determined measures)	Yes	(T)	(R)	(C)	S3012-C of Education Law (2010)	2012-2013
OHIO	50%	Yes	(T)	(R)	(C)	S.B. 5 & H.B. 153 (2011)	2013-2014
TENNESSEE	50% (35% on state student growth score & 15% on other student achievement)	Yes	(T)	(R)	(C)	S.B. 7005A (2010) H.B 7010A (2010)	2011-2012
RHODE ISLAND	51% 40% in 2011-12, 45% in 2012-13 51% in 2013-14	Yes	(T)	(R)		Educator Evaluation System Standards (2009)	2013-2014

[27] While a percentage for student achievement is not specified, a teacher cannot be evaluated as effective unless s/he has received a Satisfactory Component Rating in at least three (3) appraisal components including the Student Improvement Component, which includes student growth data.

[28] Experienced teachers who earn a rating of "highly effective" on their most recent summative evaluation must receive a summative evaluation at least once every two years. However, the "student improvement" component must be evaluated every year.

(T) Tenure (R) Retention (C) Compensation

[29] Regarding tenure, as of July 1, 2011, new teachers will work under annual contracts, instead of receiving tenure.

Conclusion

Ultimately, any evaluation system involves important tradeoffs between rigor and utility, design and cost, and precision and subjectivity. But given the emerging consensus that effective evaluation is not a "satisfactory, unsatisfactory" proposition, there is clear room for improvement—both in state policy and in local practice. Because of Pennsylvania's unique traits—e.g., deep experience with both value-added measures and Danielson's Framework for Teaching, a strong labor history coupled with reform-minded union leadership in communities such as Pittsburgh—these efforts are likely to have relevance far beyond our state's borders. By designing reforms that build on the research base; emphasize multiple, rigorous measures; and promote regular, meaningful feedback on instruction, Pennsylvania's education policymakers can help ensure that reforms to teacher evaluation systems is work worth emulating.

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