

Good T L. Teacher effectiveness in the elementary school.

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The purpose of this paper was to present tenable conclusions from recent process-product studies attempting to relate classroom process to student achievement. This paper explores substantive findings and methodology used in extant studies and concludes that certain forms of teaching (a direct instructional model) appear to be consistently related to student achievement performance (as assessed by standardized achievement tests). [The *Social Sciences Citation Index*® (SSCI)® indicates that this paper has been cited in over 60 publications, making it one of the most-cited papers published in this journal.]

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As a graduate student at Indiana University, I became convinced that if classrooms were to be improved, it was necessary to describe classroom interaction accurately and comprehensively. I had noted that educators and other social scientists often offered relatively simplistic descriptions of schooling and oversimplified prescriptions for reforming public schools without taking the time to conduct observational studies of teaching.

My dissertation research involved observing in schools in order to examine whether or not teachers treated students differently on the basis of their perceptions of students' ability. My initial interest in this question was stimulated by the publication of *Pygmalion in the Classroom*.¹ Subsequently, I conducted several field studies with Jere Brophy (and later with Carolyn Everton and other colleagues) at the Research and Development Center for Teacher Education at the University of Texas at Austin. We found that some teachers hold differential expectations for students and that these expectations influence the ways in which teachers and students interact.^{2,3}

Stimulated by the expectation work and by the early work on teacher effectiveness by Brophy and

his colleagues, I became convinced that variations among teachers had important effects on students' learning. Shortly after I moved to the University of Missouri, Doug Grouws and I initiated a series of research projects that tested the hypothesis that teachers affect students' mathematics learning. We found that it was possible to relate certain types of instructional behavior to student achievement. I should note that when we initiated this research, the prevailing scientific view was that variations in teacher behavior did not have major influences on student learning.

In subsequent work, we identified a number of patterns of behavior that accurately discriminated among teachers who were relatively high and relatively low in their ability to influence students' mathematics achievement. Ultimately, we conducted field experiments to determine whether or not teachers could be taught the behaviors that were associated with higher pupil achievement and whether such training improved the mathematics achievement of students. We found that although teachers who implemented the model got good results, the training could be related to positive effects on student achievement.⁴⁻⁷

The review article that is the focus of this *Citation Classic* stresses that data collected from a series of naturalistic and experimental studies provide prima facie evidence that individual teachers make important differences in the amount of content students learn.

I think that the article is frequently cited because of its documentation that variation in classroom teaching is associated with certain types of student learning. The paper was published at a time when doubts about the efficacy of public schooling were especially pervasive. The paper is probably also cited often because of its reasonable balance in presenting the evidence. That is, I stress that teachers make a difference, not that researchers have discovered how teachers should teach. In retrospect, I believe that I overemphasized the application value of "what is known about effective teaching" rather than information about differential outcomes, the context of teaching, and so on. Considering the problematic relationship between research and practice, I expected a number of critical responses to the review; however, advocates of reform generally cite the study as "proof" that "we know how to teach," and readers critical of simplistic reform efforts found the qualifications in the paper sufficient to cite the review as "proof" that extensive accountability plans were premature and self-defeating.

1. Rosenthal R & Jacobson L. *Pygmalion in the classroom: teacher expectation and pupils' intellectual development*. New York: Holt, Rinehart and Winston, 1968. 240 p. [See also: Rosenthal R. *Citation Classic. Current Contents/Social & Behavioral Sciences* 12(7):12, 18 February 1980.]
2. Brophy J E & Good T L. *Teacher-student relationships: causes and consequences*. New York: Holt, Rinehart and Winston, 1974. 400 p. [See also: Brophy J. *Citation Classic. Current Contents/Social & Behavioral Sciences* 16(20):16, 14 May 1984.]
3. Cooper H & Good T. *Pygmalion grows up: studies in the expectation communication process*. New York: Longman, 1982. 173 p.
4. Ebmeier H & Good T L. Effects of instructing teachers about good teaching on the mathematics achievement of 4th grade students. *Amer. Educ. Rev.* 16:1-16, 1979. (Cited 15 times.)
5. Good T L & Grouws D A. The Missouri mathematics effectiveness project: an experimental study in fourth-grade classrooms. *J. Educ. Psychol.* 71:355-62, 1979. (Cited 50 times.)
6. Good T L, Grouws D A & Ebmeier H. *Active mathematics teaching*. New York: Longman, 1983. 246 p.
7. Brophy J & Good T. Teacher effects. (Wittrock M, ed.) *Third handbook of research on teaching*. Chicago: Macmillan. In press.