

PAST AS PROLOGUE

The National Academy of Education at 50

Members Reflect



Education's Double Helix

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The scientific study of education faces challenges that are more acute than those found in most other scientific endeavors. Educational research feeds directly into policymaking and into changes in the way our schools operate, which influences not only the topics considered in research but also at times the research itself. In other fields of research regular linkage to widespread policies is not nearly so common. This linkage in education research puts extra pressure on researchers, but it also confers extra benefits. The National Academy of Education (NAEd) is in my opinion an institution that should not only ensure the highest level of development of the scientific study of education but also oversee the appropriate use of educational research in the policy sphere.

The connection of research and policy appears quite broadly across education, and it is more difficult to find areas of active education research that are removed from this association than fit into it. The ongoing discussions of the common core curriculum, test-based accountability, use of technology in the classroom, charters and school choice, school desegregation, professional development programs, early childhood programs, and teacher preservice training all illustrate the regular interaction of major streams of research with K–12 policy. In addition, while not emphasized here, a similar set of topics ranging from access to debt burdens to for-profit schools fill the higher education space.

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Many of the general themes have been present for a long period of time, but they have changed in character over the past half-century. Past policy discussions were supported more by philosophy, opinion, and assertion than by direct evidence. However, a change occurred, and it picked up momentum. Generally accepted scientific principles became more the norm for education research. Scientific evidence was introduced into the policy mix, and increasingly scientific evidence became demanded in policy discussions.

The example that I am drawn to for illustrating the evolution of the research-policy linkage, perhaps because it has occupied a substantial portion of my own research, is the investigation of teacher effectiveness. The importance of the teacher has certainly always been known, but policies related to teachers have evolved to reflect the growing scientific research on effectiveness.

The ubiquitous single salary schedule that rewards teachers on the basis of experience and graduate education had been the result of searching for objective criteria by which to reward teachers while removing the possibility of inappropriate subjective judgments. This structure of salaries made intuitive sense, because most occupations see improvement in individual productivity with experience and it is difficult to argue against the value of more schooling for teachers because providing useful skills through schooling is precisely the job of teachers.

However, as evidence started to become available, there was a growing recognition that experience and teacher education might not be closely related to the effectiveness of the teacher in the classroom. Specifically, these pay parameters were not closely related to student outcomes.

At the same time another set of studies investigated whether there were different learning gains by students across classrooms. These studies, now commonly labeled value-added studies, uniformly found that the differential achievement gains of students depending on specific teacher assignment were enormous and could have lasting impacts on students.

The underlying research, like most scientific endeavors, has evolved. Researchers from a variety of disciplines have contributed to expanding and to refining the analysis. Indeed the evidence has become more consistent and reliable with new investigations.

It is useful, however, to step back so as to follow the interaction of this research with policy discussions. When these observations about teacher effectiveness are combined, one of the most controversial research conclusions enters into the debates. If teachers are paid according to factors unrelated to classroom achievement, if personnel costs make up the vast majority of overall spending in schools, and if there are large differences in learning across teachers, then spending on schools might not be consis-

tently related to student outcomes. Although the subject of considerable debate, the scientific research generally points to such an inconsistency. Here is where the linkage of research and policy blossoms.

On the overall spending results, it is clear that many researchers have their own views on the appropriate amount of spending for schools and specifically on whether spending should expand, particularly to help disadvantaged students. It takes considerable effort to separate the scientific research from the particular policy preferences of researchers—and unfortunately it does not always happen.

What are the correct policies with respect to teachers that follow from this line of research into teacher effectiveness? Obviously there are deep divisions in people's ideas about the relationship of these research findings with teacher policy. Some of the divisions result simply from personal perspectives or institutional pressures to advocate a continuation of current policies, independent of any scientific evidence. Advocacy positions are plentiful enough that specific examples are unnecessary.

However, the scientific evidence on variations in teacher effectiveness does not yield specific policies. They suggest (to me) that there are large gains to be made from focusing attention on improving the effectiveness of all teachers, and particularly the teachers of disadvantaged students. How to translate this into policy, however, is not obvious. Nor does the scientific research provide clear guidance.

To be sure, I personally have some opinions about the best ways to proceed. These opinions are informed by the scientific evidence, but they also go beyond the existing evidence. As such, it is incumbent on the scientist to make clear where the science ends and where the policy opinions begin.

One common extension to this separation problem needs to be considered explicitly. Scientific studies, particularly in the early phases of research into a specific area, often come up with quite different results. Too commonly, people with an advocacy viewpoint will collect a number of studies that have the results that support their position and then report them as scientific proof of their position. It takes little thought to understand that this approach is not scientific, even if the underlying data points of the advocacy position come from rigorous scientific studies. Simply put, no scientific methodology calls for selecting evidence on the basis of the answers in given studies.

This account of education's double helix—the intertwining of scientific research and educational policy—leads me to suggest a more active future role for the NAEd. The NAEd can and should help to clarify the role of scientific research into education. The future evolution and improvement of education depends importantly on getting the science

right. Here the NAEd, composed of the best scientists in the area, should take the lead and help policymakers and the public understand the separate strands of research and of policy. Even though much of the scientific research has policy implications, there is quite generally a distinction between the science and the policy.