When Research Matters

How Scholarship Influences
Education Policy

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which the scholar qua favored advisor whispers into the ear of elite leaders also is passé; in the age of mass media and the Internet, discourse about research has been democratized.

But it is a volatile time where promising opportunities are twinned with definite dangers. The very aspects of ivory tower research that can be so frustrating to many play double duty as important buffers against ideology and the politicization of the knowledge enterprise: abstract concern for theory, deliberately unhurried pace, fascination with technical aspects of research design, reliance on an internal network of peer review that can be stuffy and conservative, and journals where scholars talk to one another in terms no one else understands. These also play a role in maintaining a distinction between research and advocacy, between pursuit of knowledge and pursuit of advantage, between sounding good and being right; and it is an open question in my mind how far down the path of relevance researchers can travel without something of value being put at stake.

Double Standard? "Scientifically Based Research" and the No Child Left Behind Act

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One of the most frequently reported facts about the No Child Left Behind Act (NCLB) is that the law features the phrase "scientifically based research" over one hundred times. That wording is supposed to provide a high standard by channeling federal dollars to activities with proven effectiveness based on rigorous standards.

Where did the phrase "scientifically based research" come from? What were NCLB's authors trying to achieve with this language? How closely has the actual construction of NCLB and its implementation lived up to this high standard? In other words, does the law itself rest on a foundation of scientifically based research? Or have Congress and the president enacted a higher standard for American schools than they themselves have been willing to uphold? We answer those questions by examining how research appeared to influence the development of NCLB, particularly its "highly qualified teachers" provisions. Our findings leave us cautiously optimistic that given the right conditions, research can help to guide political debate and the content of policy—to a point.

Our argument is based on several sources and methods of analysis. These include quantitative examination of NCLB's content and the hearings from which it grew. We also consider government documents, press coverage of NCLB, and other published secondary accounts. We also conducted personal open-ended telephone interviews (typically lasting less than 30 minutes) and

exchanged email correspondence with a dozen members of the education policy community in Washington, D.C., during 2007. We chose this convenient sample of respondents by selecting people who have helped craft, implement, and oversee NCLB. Those individuals provided insights about how research has informed the law's development and its implementation, as does the personal experience of this chapter's second author, who was a Bush administration official in the U.S. Department of Education from 2001–2005.

INFORMATION AND INCENTIVES IN THE POLICY PROCESS

Considering how political leaders use research to inform education policy addresses a broader question of how information affects the policy process. Cynical observers argue that a politician will not care much about research unless it supports that politician's preferences and ultimate reelection. Given that members of Congress and American presidents typically possess no formal training in how to conduct or identify good empirical work, it also would be surprising if they chose policy based primarily on research. Granted, these officials have staff members who help them comb through the mountains of studies, reports, and articles released each year, but staff members themselves typically find their own workdays crowded with responsibilities and rapidly changing demands. Extinguishing the latest fire rather than reflecting on the latest research findings is usually how they allocate their time.

Limited opportunities for deep study mean that elected officials will rely much on gut instincts, ideology, riveting anecdotes, opinion polls, or the need to repay favors to colleagues—the proverbial logrolling of the legislative process—when formulating their positions. This cynicism is understandable, but it understates the potential of research to inform politicians' choices. Research can influence how policies develop, and its apparent absence from some debates may reflect the difficulties in wielding complicated findings, not mere laziness or politics. Three points elaborate this claim.

First, incentives exist for elected officials and their staff to consider research as they make policy. Even if reelection is a politician's primary objective, others exist, too. Selective use or nonuse of research may support the reelection objective, but goals such as having influence among colleagues and actually making good public policy also animate public officials' behavior. Not all information is of equal quality or merit, but clearly a search for what works means that solid research should have some chance to compete with other information sources. Further, even though most politicians never take their reelection for granted, those from relatively safe seats, including committee chairs, may have more time and motivation to study the latest findings in their preferred policy areas. A recent study of congressional decisionmaking illustrates that the reelection goal can even create political incentives for members to become steeped in research and to "favor the analytical aspects of policies that are of primary concern to organized groups."[1]

Second, elected and career officials allocate many resources to support research designed to inform policy. At the federal level, for example, agencies such as the Government Accountability Office, the Congressional Budget Office, the National Academy of Sciences, the National Institutes of Health, the National Center for Education Statistics, and several others inside and outside government annually spend millions of tax dollars studying salient policy issues. Professional researchers, many holding advanced research degrees from top universities, also populate government agencies.

The mere existence of these institutions and individuals does not guarantee that politicians will heed their advice or that partisanship will never trump objective analysis. As Rep. Michael Castle (R-DE) noted in a congressional hearing in 2000:

> The fact is that there has not been enough value placed on the need for education research as a means to drive good policy. The reasons are simple enough: sometimes good research tells us things we don't want to hear and good research is expensive and time-consuming—attributes which don't always conform to the reality of Washington budgetary priorities and political expediency.[2]

Still, if the information currency of politics consisted only of anecdotes, instincts, and political calculations, it would be hard to imagine government itself maintaining such an extensive research infrastructure. Even Castle's comment does not claim that officials never value research—rather, he says they do not value it enough.

Finally, the limited presence of research in policy debate may not reflect public officials' indifference. The limited cognitive ability of humans to manage information, what decision theorists call "bounded rationality," can also help explain why research does not always influence policymaking.[3] Public officials work in complex information environments that make it impossible for them to study a topic fully before proposing and enacting policy. Complicating matters further is that "research" comes in many forms, including randomized field trials, quasi-experimental designs, and more exploratory case-oriented work. Findings appear in peer-reviewed journals, government documents, think tank reports, and less-polished working papers, all operating with different quality standards.

Even public officials committed to serious study are stuck with the human brain's limited computing power as they confront this information flow. Studies have shown that the mind can stumble when processing tasks in parallel, weighing trade-offs among multidimensional issues, and weeding out irrelevant information from a complicated decision. In short, humans are not well equipped to perform the very tasks that the legislative process demands. These difficulties become compounded when research is not presented in terms that intelligent lay people can understand, a fair criticism that policymakers often express to academics. With many other sources available, public officials and their staffs will likely use cognitive shortcuts and reach for easily digestible information.

Overall, political pressures, issue complexity, and the limited cognitive capacities of humans can prevent dispassionate research from dominating political debate. However, research can and does influence policy content. The question is, when, where, and to what extent? With NCLB's grand ambitions and so many moving parts, it is worth asking: In which contexts and under what conditions has research-based decisionmaking influenced the law? And what has resulted from the law's impulse that federally funded interventions be "scientifically based"? We examine those questions in general terms, and in more detail for the law's highly qualified teacher provisions.

THE NCLB DEMAND FOR "SCIENTIFICALLY BASED RESEARCH"

Headlines following NCLB's passage focused on its high demands on states, school districts, and schools to increase student achievement. Supporting that ambition was, as one story called it, the "mantra-like" requirement that policies to improve education be based on scientifically based research.[4] That created a valuable opportunity, argued Grover J. "Russ" Whitehurst, assistant secretary for educational research and improvement: "There are a number of groups and individuals who have, for years, been interested in grounding education in a culture of evidence. That's always been their message. But there's an opening here."[5] In this section we examine how often and in what contexts the phrase "scientifically based research" appears in NCLB.

Our analysis began by identifying all uses of the word "research" that appear in the act. Overall, the word appears 266 times. Of those references, 50 are part of official titles (e.g., Office of Educational Research) or appear in the outline structure of the law itself (e.g., Subpart 2—Research, Evaluation, and Dissemination). Omitting those 50 cases reduces the total to 216 substantive references to the word "research."

Among those 216 references, in 54.6 percent of cases the modifier "scientifically based" appears. In other words, NCLB does not always consistently emphasize the "scientifically based" standard when it discusses or requires programs to be based on research. For example, in Title II of NCLB, which supports teacher and principal training and provides recruiting grants for states, the law requires that states provide:

A description of how the activities to be carried out by the State educational agency under this subpart will be based on a review of *scientifically based research* and an explanation of why the activities are expected to improve student academic achievement.[6]

In contrast, later in Title II, local grants for applying instructional technology could support:

Adapting or expanding existing and new applications of technology to enable teachers to increase student academic achievement, including technology literacy through the use of teaching practices that are based on a review of *relevant research* and are designed to prepare students to meet challenging State academic content and student academic achievement standards.[7]

This is just one example of how the "scientifically based" standard appears inconsistently in NCLB. Why these two passages should vary begs additional explanation.

Explicit ties to the "scientifically based" standard vary across NCLB titles, as Table 3.1 shows. Title I, which focuses on education of disadvantaged students and is the law's primary component, has the most overall references to research. The vast majority of those 84 references, 81.0 percent, are references to scientifically based research. A similarly large percentage, 71.4, appears for Title IV, 21st Century Schools (which funds afterschool programs), but the number of references in that title is much smaller. Other titles have fewer references to scientifically based research, including Title III on limited English proficient and immigrant students (46.7 percent of references to research are modified by the phrase "scientifically based"), Title II on high quality teachers and principals (35.7 percent), and Title V, which includes a grab-bag of individual programs (24.3 percent). Among titles with at least some reference to research, Title VII, Indian, Native Hawaiian, and Alaskan Native Education refers to research 17 times, but only 2 times (11.8 percent) does the reference include the "scientifically based" modifier.

Table 3.1 illustrates interesting variation, but it hides variability present within each title. For example, while 81.0 percent of Title I references to

research are modified by the phrase "scientifically based," the percentage is even higher in Title I, Part B, which is dominated by the Reading First and Early Reading First programs.[8] That part contains 55 references to research and 50 of them (90.9 percent) link to the "scientifically based" standard.[9] In Title II, the Teacher and Principal Training and Recruiting Fund (Part A) and the Mathematics and Science Partnerships (Part B) combined have 13 references to research and 69.2 percent of those mention "scientifically based." In contrast, Title II, Part C, Innovation for Teacher Quality, and Part D, Enhancing Education Through Technology, contain 15 references to research and only 6.7 percent are paired with "scientifically based."

Title V, which promotes parental choice and several other small grant programs is also instructive. That title contains 37 references to research, but only 24.3 percent rise to the "scientifically based" standard. Within that title, Part B on Public Charter Schools—which supports charter school programs, credit for school facility acquisition, and other voluntary public school choice programs—contains no references to scientifically based research. Further, Title V, Part D, the generic Fund for the Improvement of Education, lists nearly two dozen specific programs, many of which are not tied explicitly to the "scientifically based" standard either, even though a blanket statement at the end of section 5411 (before the description of the specific programs) instructs the Secretary of Education to ensure the effectiveness of all programs based on "rigorous, scientifically based research and evaluations." Even that wording is curious because it states that program evaluations, not necessarily the evidence required to fund particular program activities in the first place, should be scientifically based. More generally, many programs in Title V, Part D, are less directly and less frequently admonished to uphold the "scientifically based" standard, unlike earlier sections of NCLB.

Comments from our interview respondents help clarify NCLB's inconsistent emphasis on scientifically based research. According to Republican and Democratic congressional staff members who helped develop the law, a push to ground NCLB programs in scientifically based research emerged from similar debates that transpired during the 1990s over federal reading policy. Work from the National Reading Panel, which Congress created in 1997, built momentum for grounding future federal education policy in what scientific research showed was effective.[10] Those debates produced the Reading Excellence Act of 1998, which itself includes 29 references to scientifically based reading research. These events from the 1990s suggest a desire to promote programs based on evidence, rather than only reading the polls or seeking partisan advantage. One Democratic staff member told us that as NCLB

TABLE 3.1   Where the Phrase "Scientifically Based Research" Appears in NCLB

	Number of references to "research"	Percent of "research" modified by "scientifically based"*
Title I. Improving Academic Achievement of the Disadvantaged	84	81.0
Title II. Preparing, Training, and Recruiting High Quality Teachers and Principals	28	35.7
Title III. Language Instruction for Limited English Proficient and Immigrant Students	30	46.7
Title IV. 21st Century Schools	14	71.4
Title V. Promoting Informed Parental Choice and Innovative Programs	37	24.3
Title VI. Flexibility and Accountability	2	50.0
Title VII. Indian, Native Hawaiian, and Alaskan Native Education	17	11.8
Title VIII. Impact Aid	0	—
Title IX. General provisions	4	100.0
TOTAL	216	54.6

Source: Based on authors' coding of NCLB.

* For example, of the 84 substantive references to the word "research" in Title I of NCLB, 81.0 percent use the phrase "scientifically based" to modify the word "research."

was taking shape during 2001, "it was already widely understood" that the law would incorporate the "scientifically based" standard.

Still, political considerations help explain why NCLB inconsistently applies this standard. Another Democratic staff member described a common back-and-forth dynamic that illuminates how negotiations unfolded:

- Democrats would push to include a new (or existing) program in the law.
- Republicans would counter by arguing that the scientifically based research language should be attached to ensure that federal funds support programs that work.
- Democrats would explain that scientifically based research did not necessarily exist in that particular area.

- Republicans would question why, then, federal funds should support the program at all.
- Democrats would accept the scientifically based research standard.

Hence, including the language throughout the law was, as another Democratic staff member said, an unavoidable "political reality."

Overall, a Republican staff member admitted it was "kind of silly" how many times the "scientifically based" language appeared in the law. But the emphasis was important, he said, because NCLB was "aspirational in so many ways," and therefore he and other Republicans "weren't worried about minimizing the concept. This was bleeding edge, meant to move the field forward." Similarly, the Democratic staff member who recounted the back-and-forth dynamic noted earlier conceded that "the intent was noble." The overall goal, after all, was not only to support practices based on scientific research, but to prompt additional scientific research in rarely studied areas. What is clear, though, according to this Democratic staff member, is that the law's inconsistent use of the scientifically based research language has watered down the practical meaning of the phrase. Without a strong scientific base in many education programs and practices that NCLB supports, both educators and regulators face no choice but to selectively ignore the provision.

The aspirational goals of policymakers did succeed in one respect. As measured by press coverage and shown in Table 3.2, an increase in popular attention to the links between research and education policy was almost immediate upon NCLB's passage. These topics received essentially no explicit attention from 1995–2001—the lifespan of NCLB's predecessor law, the Improving America's Schools Act (P.L. 103-382). The leading education news publication, *Education Week*, dramatically increased its coverage beginning in 2002, and published an average of almost 16 stories, op-eds, or letters per year that discussed the phrase "scientifically based research." Major newspapers broke their silence on the topic in 2001, albeit without producing a huge outpouring of stories. The relationship between scientifically based research and reading instruction is the dominant theme in these news stories and appears in nearly one-third of the *Education Week* articles. This connection also explains the surge during 2006 among the major U.S. newspapers.[11]

Additional stories illustrate the substantive reach of the "scientifically based" standard. Beyond reading, articles explored topics such as teacher training and recruitment; mathematics education; debates over teaching evolution versus intelligent design; anti-drug education; students with particular needs, such as bilingual or disabled learners; and the use of technology in the classroom. Local officials sometimes adopted this language, thus increas-

TABLE 3.2 Number of Articles Discussing "Scientifically Based Research" and Education, 1995–2006

Year	Articles in Education Week	Articles in major U.S. newspapers
1995	0	0
1996	0	0
1997	2	0
1998	0	0
1999	0	0
2000	1	0
2001	2	2
2002	16	6
2003	14	3
2004	16	2
2005	18	2
2006	15	9

Source: Based on authors' search of *Education Week* and Lexis-Nexis databases from January 1995 to December 2006. The full search algorithm is available from the authors.

ing its public profile. As an associate superintendent from Buffalo, New York, explained, fending off criticisms of a district plan for reading instruction, "We move on data. We're moving on scientifically based research. We're not going to rely on creativity to support these children. We're not looking for [teachers] to do their own thing."[12]

RESEARCHERS AND THE LEGISLATIVE PROCESS

Congressional hearings are one venue where researchers can speak truth to power.[13] Members of Congress use hearings for many purposes, including gathering information and building a record that informs policy debate. Hearings also enable members to have direct and extended access to researchers and their studies. Even though question and answer exchanges for any one witness and member can be relatively short, in preparing for hearings, staff members often review much published material, including empirical

research. The congressional committee system and assistance from committee staff can attenuate the problems of information overflow and bounded rationality that we discussed earlier. Even if hearings themselves generally may be lackluster affairs, preparing for them gives committee staff and the members they serve opportunities to become informed on complicated topics.

In this part of our analysis, we considered all 155 hearings in what the Congressional Information Service (CIS) defines as NCLB's legislative history.[14] Those hearings occurred during 1995–2001 and featured 1,169 witness appearances (the same witness could appear multiple times), which we categorized by the primary witness affiliation in the CIS hearing abstract. The results from the coding are shown in Table 3.3.

The first three rows of Table 3.3 provide summary statistics on witnesses we categorized as members of the research profession. That group comprised 17.4 percent of all witnesses, which made these individuals more likely to appear than federal and state officials (12.4 and 11.8 percent, respectively), but less likely to appear than witnesses representing localities or groups and individuals (29.8 and 26.2 percent).

Two specific types of witnesses populate the research profession category. First are witnesses with university or college affiliations who work as professors, full-time academic researchers, or individuals running programs housed on a university or college campus. That group represented 9.1 percent of all witnesses. The second type, which comprised 8.3 percent, are those who work outside an academic environment at research-oriented think tanks (e.g., Heritage Foundation, 21st Century Schools Project) or at professional research firms (e.g., Mathematica, SRI International, RAND) and individuals who are applied program developers, whose work embraces several activities that include internal research on program design that is frequently broadcast to a wider audience (e.g., KIPP Foundation, Children's Scholarship Fund, Teach For America, Charles Stewart Mott Foundation).[15]

Even though witnesses from the research profession category represent less than one-fifth of all witnesses, the last column in Table 4.3 shows that when they testify, they typically appear in smaller hearings, as measured by the median number of witnesses per hearing. Members of the research profession, with a median hearing size value of 7, fare rather well when compared to other witness categories. Their median value means that half of all hearings featuring this witness category had 7 or fewer witnesses.

What are the characteristics of witnesses in the research profession category? Table 3.4 offers an initial answer by examining all witnesses who testified in more than one hearing. One obvious finding is that few witnesses received multiple invitations to testify. Given that fact, it is worth noting

TABLE 3.3   Affiliations of Witnesses from Hearings in NCLB's Legislative History, 1995–2001

Witness category and type	Percent by category	Percent by type	Median number of witnesses appearing
Research profession	17.4		7
University or college		9.1	9
Nonuniversity research or program development		8.3	6
Federal level	12.4		6
Federal agency		6.8	5
Federal House or Senate member		5.7	9
State level	11.8		9
State agency		7.2	8
Governor		1.4	7
State board of education		0.8	9
State legislator		0.8	12
Other state		1.7	14
Local level	29.8		9
School or district (but not types noted below)		8.2	10
Superintendent		7.2	8
Teacher		4.9	10
Principal		4.8	10.5
School board member		1.5	11.5
Other local		3.2	9
Groups and individuals	26.2		9
Association or advocacy group		13.9	7
Student		4.8	12
Parent		4.0	10
Business		3.5	6
Other affiliations or not ascertained	2.5	2.5	16

Note: N = 1,169. The unit of analysis is a witness appearance, which means that witnesses testifying more than once appeared in the dataset multiple times (see Table 3.4, for example). Results are based on the authors' coding. Coding rules are available from the authors.

that some of the most frequently appearing witnesses (Vinovskis, Finn, Hanushek, and Ravitch) have experience working in the federal government either in the executive or legislative branches. That familiarity with Washington, D.C., their relationships with members of Congress and staff, and an ability to communicate effectively with policymakers all might explain why they appear so often.

It is also notable from Table 3.4 that Ravitch is the only person affiliated with an education school, and only Feistritzer and Haycock have advanced degrees from such institutions. Others received their training and work in fields such as history, political science, economics, English, and sociology. Referring back to the full dataset, our witnesses in the university or college type came from several academic disciplines; those from education schools do appear, but they do not dominate the field.

Susan Fuhrman, Dean of the Graduate School of Education at the University of Pennsylvania, who testified in a House hearing in 2001, offered one reason why education school faculty appear less frequently than one might expect. In commenting on her profession, she said,

> [W]e have a premium in newness in education and, in education research, on fads, which are certainly closely related to one another. Part of that has to do with the incentive structure within the universities because tenure, promotion decisions and even dissertations are all prized for their unique contribution to the field, not for replicating existing studies.[16]

In contrast, policymakers might prefer discussing results from replications of the same study or program design across different sites to better understand how a program performs under varying conditions. That sort of replication often does not produce rewards within the academic community.[17]

Finally, Table 3.4 indicates that think tank researchers (Finn, Feistritzer, and Haycock) are popular hearing participants. In an interview, one Democratic staff member told us that people on Capitol Hill "don't connect" very well with academics, and instead they rely on policy think tanks to synthesize and translate important findings into lay terms. Given the complicated decisionmaking environment and competing incentives that we described in our opening section, it makes sense that popular witnesses would be able to identify general trends in the literature and communicate them in jargon-free language. Because many academics work in narrow niches and speak in limited scholarly circles, the synthesis and translation role that think tanks perform can ease the cognitive challenges that policymakers confront.

The hearings dataset further confirms this more general preference for synthesizers or hands-on researchers over academics. Table 3.3 shows that

TABLE 3.4   Most Frequently Appearing Witnesses from the Research Profession Category

Name	Affiliation	Hearing appearances	
		No.	Years
Maris A. Vinovskis	Professor of History and Public Policy, University of Michigan	5	1997, 1999 (three times), 2000
Chester E. Finn, Jr.	President, Thomas B. Fordham Foundation	4	1997, 1999, 2000, 2001
C. Emily Feistritzer	President and Founder, National Center for Education Information	3	1998, 1999 (two times)
Eric A. Hanushek	Senior Fellow, Stanford University Hoover Institution, and former Professor of Economics, University of Rochester	3	1997, 1998, 1999
Diane S. Ravitch	Professor of Education, New York University, and Senior Fellow, Brookings Institution and the Stanford University Hoover Institution	3	1995, 1999 (two times)
Kati Haycock	Director, Education Trust	2	1998, 1999
E.D. Hirsch, Jr.	Professor of English, University of Virginia, and Founder, Core Knowledge Foundation	2	1998 (two times)
Lawrence W. Sherman	Professor of Criminology, University of Pennsylvania, and previously University of Maryland	2	1997, 1999

Note: See Table 3.3 for more information on the research profession category. Coding rules are available from the authors.

there are slightly more witnesses in the university or college type (9.1 percent) than the synthesizers in the non-university research or program development type (8.3 percent), but the latter tend to appear in smaller hearings (median hearing size of 9 versus 6 witnesses, respectively). Further, research or program development individuals were also more likely to testify in Washington, D.C., rather than in field hearings occurring away from the nation's capital. Within the university or college type, 58.5 percent of witnesses testified on Capitol Hill, while 71.9 percent of the non-university research or program development type witnesses did.[18] Those Washington appearances are important because they give witnesses greater access to congressional staff members who will be more readily available in Washington. That visibility also creates networking opportunities with government officials and oth-

ers in the national policy community, including the press corps, who may attend those hearings.

The critical role of the synthesizer think tanks becomes even more apparent when we look in depth at the NCLB mandate that all teachers be "highly qualified." In the rest of our chapter we present a case study of that issue.

"HIGHLY QUALIFIED TEACHERS": A CASE STUDY

One of our key questions is, how did research influence the development and implementation of NCLB itself? The previous two sections looked broadly at this question. While it is difficult to offer a full response for the entire law (we could write a whole book about the topic), it is manageable to investigate one particular provision. In this section we present a case study to examine the act's mandate that all teachers be highly qualified. Through interviews with the key congressional staffers and Department of Education officials responsible for this policy area, as well as documentary evidence such as transcripts from related congressional hearings, we can piece together a picture of how research on teacher quality influenced this important part of the law. Readers might consider this case study a companion to this volume's chapter 6, by Richard Ingersoll, on how research has influenced the broader teacher quality debate.

Before examining that picture, it is worth considering what the "highly qualified teacher" mandate requires. Simply stated, NCLB demanded that states and districts adopt plans to ensure that all of their teachers were "highly qualified" by the end of the 2005–06 school year. The "highly qualified" definition has three parts. First, teachers must have at least a bachelor's degree. Second, they must have full state certification or licensure, which can include certification gained through alternate routes. (Charter school teachers need not be certified if their state charter laws do not require it.) Finally, all teachers must demonstrate their "subject-matter competency." For new elementary teachers, that means passing a broad-based test. For new middle or high school teachers, it means passing a test or having an academic major or advanced certification in their subject area. Veteran teachers can meet the requirement by passing tests, having relevant majors, or through a portfolio process called HOUSSE, which stands for High Objective Uniform State Standard of Evaluation. In most states, this allows veteran teachers to earn the "highly qualified" designation based on years of successful teaching experience, service on curriculum committees, professional development credits, and so forth.

So how did the "highly qualified teacher" provision come to be? Our interviews with former congressional staff members highlighted the influence of three "synthesizers"—organizations that had packaged their own take on the teacher quality research into appealing, accessible, actionable, and ideologically persuasive documents with recommendations that policymakers could understand, embrace, and then enact. These organizations—The National Commission on Teaching and America's Future (NCTAF), The Education Trust, and the Thomas B. Fordham Foundation—played a key gatekeeper role; the research studies they highlighted became extremely influential, in part because the groups' missions appealed to important policymakers in Congress and the Bush administration.

A former aide to Sen. Edward Kennedy (D-MA, and the ranking Democrat on the Health, Education, Labor, and Pensions Committee who became chair when Republicans lost the Senate in June 2001) identified NCTAF as critical to the teacher quality discussions. This staffer explained, "This one was big for Kennedy. They didn't just provide the research, they also had ideas about what you should do." Meanwhile, a former aide to Rep. George Miller (D-CA, and the ranking Democrat on the House Education and the Workforce Committee), credited Education Trust. "What drove the highly qualified teachers conversation was all of the subject-matter stuff—the data coming out showing that teachers of disadvantaged kids didn't know their subjects as well... the Ed Trust report was the big push." Indeed, a recent study by *Education Week* found that the teacher quality publications by these two organizations were among the ten most influential studies in all of education policy over the past decade or so.[19]

Meanwhile, for Republicans, work by Fordham played an important role. One former House GOP staff member remembers frequent conversations with Fordham's president about the teacher quality issue. As we explore below, researchers highlighted by Fordham reports appeared at congressional hearings and were cited in prominent administration documents. Thus, the story of the "highly qualified teacher" mandate, and the role that research played in its development and implementation, begins with the work of these three organizations in the mid- to late-1990s.

The Key Synthesizers

National Commission on Teaching and America's Future

In 1996, NCTAF published *What Matters Most: Teaching for America's Future*.[20] The commission was chaired by North Carolina's Democratic governor Jim Hunt, and led by executive director Linda Darling-Hammond, who at the time was a professor at Columbia University's Teachers College. The commission included two dozen respected educators, business executives, and

civil rights leaders. It set a goal that by the year 2006, "we will provide every student in America with what should be his or her educational birthright: access to competent, caring, qualified teaching in schools organized for success."[21] This ambitious vision foreshadowed NCLB's call for all teachers to be "highly qualified" by the end of the 2005–06 school year. The commission made twenty recommendations; these included requiring accreditation for all schools of education; licensing teachers based on demonstrated performance, including tests of subject-matter knowledge, teaching knowledge, and teaching skill; and insisting that districts hire only qualified teachers.

In a section titled Fatal Distractions, the commission also criticized other perspectives. Most notably, it attacked alternate routes to the teaching profession (such as Teach For America) for "offering a few weeks of summer training before new hires are thrown into the classroom."[22] It defended the importance of formal teacher preparation, writing that "literally hundreds of studies confirm that the best teachers know their subjects deeply, understand how people learn, and have mastered a range of teaching methods."[23] And it rebutted critics of teachers unions, arguing that "teacher groups have often been at the forefront of the movement to improve schools and enact greater quality assurances in teaching."[24] It is understandable, then, that Senator Kennedy—with his close ties to the National Education Association (NEA) and himself an education leader in the Senate—could comfortably embrace this report.

So which research did NCTAF highlight? First and foremost, the commission report emphasized the work of Darling-Hammond herself; approximately 25 percent of the citations referenced pieces she authored, co-authored, or edited. Other research studies featured prominently included those by Ingersoll (who used the federal Schools and Staffing Survey to examine teacher qualifications); Ronald Ferguson (who examined the benefits of investing in higher-quality teachers); and Emily Feistritzer (who collected data on the teacher labor market).

Education Trust

Education Trust is a liberal research and advocacy organization whose president, Kati Haycock, spent her formative years in the affirmative action movement in California and came to believe in the urgent need to close America's achievement gaps in education.[25] With funding from several prominent national foundations, her organization conducts and publishes original research, provides assistance to educators, and meets with policymakers to discuss education reform.

In the summer of 1998, Haycock penned "Good Teaching Matters: How Well-Qualified Teachers Can Close the Gap."[26] This breezy 14-page policy brief presents several well-designed charts and graphs that emphasize four compelling overall points: (1) Teachers have a big impact on student achievement. (2) Teacher effectiveness is most clearly linked to strong verbal and math skills and deep content knowledge. (3) Findings are inconclusive on the importance of teaching skill, as developed by traditional teacher preparation programs. (4) Effective teachers are inequitably distributed. The report recommended making teacher licensure exams tougher; holding colleges and universities accountable for the quality of teachers they produce; improving professional development; ensuring that poor and minority students get teachers at least as qualified as their peers get; informing parents about the qualifications of their children's teachers; providing financial incentives for candidates to teach in high need schools; and widening the pathway to rigorous alternate route programs like Teach for America.

So which research did Education Trust highlight? Perhaps most importantly, this policy brief introduced Tennessee's William Sanders to the Washington policy world. Sanders had completed research using the Volunteer State's "value added" data system, which he developed, to show the enormous cumulative difference having three effective teachers in a row could make for low-performing students. A brilliantly designed chart depicting these findings is displayed prominently at the front of the Education Trust brief.

Perhaps due in part to promotion by the Education Trust, Sanders's work has been found to be among the most influential education studies of the past ten years.[27] Sanders's most frequently cited paper appearing in Google Scholar, a piece he co-authored with June Rivers on the effects of teachers on student achievement, was cited an average of 7 times per year from 1997–2001. That average increased to 35 cites per year from 2002–06.[28] *Good Teaching Matters* may have also provided Sanders with added popular exposure, at least in the short run. A search of major newspapers in Lexis-Nexis for "William Sanders" and "school" produced only 8 articles total for the 1995–98 period, but 11 articles in 1999 and 25 in 2000, before the totals decline back to single digits for the ensuing years.

The Education Trust paper highlighted other researchers, too. Eric Hanushek is quoted as saying "The difference between a good and a bad teacher can be a full level of achievement in a single school year."[29] Also highlighted were Ferguson's findings about the importance of teachers' verbal abilities in raising student achievement; work by Dan Goldhaber and Dominic Brewer looking at the relationship between teachers' subject-matter

degrees and student performance; and separate studies by Richard Ingersoll, John Kain, and Ferguson showing that minority children are much more likely to have out-of-field instructors.

Thomas B. Fordham Foundation

The Fordham Foundation is a private foundation that supports research, publications, and action projects in elementary and secondary education reform at the national level and in the Dayton, Ohio, area. Its president, Chester E. Finn, Jr., was assistant U.S. secretary of education in the Reagan administration; as a result, Fordham is typically viewed as a conservative voice on education policy.

In April 1999, Fordham published a 16-page manifesto, "The Teachers We Need and How to Get More of Them," ghost-written by Finn and his research director, Marci Kanstoroom.[30] More than fifty policymakers, educators, and reform advocates signed on immediately, including Pennsylvania secretary of education Gene Hickok, who would later become responsible for the implementation of NCLB as deputy U.S. secretary of education (and who wrote the preface to a 1999 Fordham book, *Better Teachers, Better Schools*, which also reprinted the Fordham manifesto).[31]

"The Teachers We Need" directly attacked some of NCTAF's major recommendations. It characterized that group's approach as "more of the same... tightening the regulatory vise, making it harder to enter teaching by piling on new requirement for certification."[32] Instead, the Fordham report advocated pluralism: "In a deregulated environment, good teacher education programs will thrive and prosper....Principals should be able to decide for themselves whether to hire teachers who have been trained in certain pedagogical methods and theories."[33] The report further recommended holding schools (and their leaders) accountable for results while granting principals greater authority to hire the best person for the job, requiring teachers to either possess a major in their field or pass a rigorous subject-matter test, and opening the door to the profession to talented individuals regardless of their training or background.

And what research did Fordham highlight? Some familiar names return: Sanders, Hanushek, and Ferguson all receive top billing, again for demonstrating the link between effective teachers and improved student achievement. Feistritzer appears, though this time for her data on alternative certification. But there are some new names, too. Labor economists Michael Podgursky and Dale Ballou are cited for their studies about the (negative) impact of teacher certification; and Robert Strauss's examination of Pennsylvania's teacher quality reforms also receives prominent attention.

Explaining the Behavior of the Synthesizers

For all three synthesizers, it appears that organizational mission drove decisions about which research to highlight. Take NCTAF's optimistic assessment of the evidence base for teacher certification, for example, which paralleled Darling-Hammond's views as an education school professor that these teacher preparation programs were essential to improving teacher quality. This also aligned with NCTAF's mission, as stated in *What Matters Most*, which includes "connecting the quest for higher student achievement with the need for teachers who are knowledgeable, skillful, and committed to meeting the needs of all students" and "helping develop policies and practices aimed at ensuring powerful teaching and learning in all communities."[34]

Or consider Education Trust's use of the Sanders studies. While Kati Haycock had expressed public concerns about some of Sanders' views (he was skeptical about schools' ability to close the achievement gap),[35] she simultaneously promoted his work demonstrating a vast unevenness in the distribution of quality teachers. This, after all, squared with Education Trust's focus on inequity as the primary problem facing American schooling. Its mission, as printed in *Good Teachers Matter*, is to "promote high academic achievement for all students at all levels—kindergarten through college," with a focus "on the schools and colleges most often left behind in efforts to improve education: those institutions serving Latino, African American, Native American and low-income students."[36]

Or look at the Fordham Foundation's use of studies by Podgursky and Ballou that raised concerns about the impact of rigid certification rules. The obvious conclusion—free principals' hands to hire the best person for the job—fit perfectly with Fordham's preference for deregulated solutions. It also fit with Fordham's mission, which is to support "the educational needs of children, not the interests of institutions or adults."[37]

The link between the synthesizers' perspectives and the research they highlighted is not surprising, or even pernicious. Education researchers themselves, inside the academy or outside it, also frequently disagree about appropriate policy solutions to educational problems. In effect, the synthesizers' different perspectives help to expose members of Congress and the executive branch to these wider debates in the research community. We see that as a good thing.

Finally, what sets these three synthesizers apart from the alphabet soup of Washington, D.C.-based associations and advocacy groups (who testified in large numbers before Congress, as shown in Table 3.3) is that their positions are formed by organizational missions rather than self-interest. That is a key reason that policymakers consider their advice credible; plus, it appears

that many politicians (who are partisans by definition, after all) enjoy a dose of ideology with their research. Perhaps the growing polarization of the U.S. Congress[38] also serves to drive congressional representatives and their staffs toward organizations with clear ideological positions that are in sync with the Republican or Democratic base, rather than broad-based, consensus-oriented membership organizations such as the Education Commission of the States (ECS), National Governors Association, or the Council of Chief State School Officers. Recent political history could thus help explain the rise of mission-oriented organizations such as NCTAF, Education Trust, and Fordham, whose ideas now compete with and in some cases assert more influence than work from these other groups.

Legislation and Implementation

Into the Mixing Bowl

This quick review of these three policy statements on teacher quality shows that, the many differences aside, areas of agreement did exist. First and foremost, the synthesizers all argued that teacher quality mattered—and mattered a lot. This prompted calls to do something on the issue. Consensus also existed on the importance of teachers' subject-matter knowledge, indicated either by a subject-specific major or passage of a subject-matter exam. There was also concern about poor and minority students having an unfair share of ineffective, unqualified teachers. And while strong disagreements persisted over specific programs such as Teach For America, all three groups at least nominally supported "rigorous" alternate routes to certification.

This lowest common denominator agreement set the stage for what would become NCLB's highly qualified teacher provision. In fact, by October 1999, the House of Representatives had passed H.R. 2 (The Student Results Act), which included a provision mandating that each state submit a plan for ensuring that all its teachers be "fully qualified" by December 31, 2003.[39] Interviews with congressional staff members indicate that Education Trust, working closely with ranking Democrat George Miller, was primarily responsible for creating this requirement and ensuring its inclusion in the bill. One former staffer described a "real push" from Education Trust, putting pressure on Miller, who offered enthusiastic support.

But the fingerprints of all three "synthesizers" are apparent. Consider a House hearing held in February 1998. The focus was on teacher preparation (Congress was still working on finishing the Higher Education Act reauthorization) but it helped frame the subsequent larger teacher quality

debates. The witness list included several familiar names: several people from Table 3.4 (Feistritzer, Hanushek, Hirsch, and Haycock), Ballou, Hickock, and Ingersoll, as well as Barnett Berry, associate director of NCTAF, and Paul Steidler, director of the Alexis de Toqueville Institution. Recall that Hanushek, Ingersoll, Feistritzer, and Ballou were featured prominently in at least one of the three synthesizer reports. Through Haycock and Berry, Education Trust and NCTAF had direct representation. And three of the witnesses—Hickok, Hirsch, and Hanushek—were original signers of the soon-to-be-published Fordham manifesto.

Not surprisingly, then, ideas from the key synthesizer groups helped shape the "fully qualified" definition in the House bill. The requirement for subject-matter knowledge was front and center; all three promoted the evidence for its importance. Haycock's testimony from the February 1998 hearing noted that many teachers "have only a very, very thin grasp of the subject matter they are teaching and get almost no support to deepen that knowledge after they get into the classroom."[40] The requirement that teachers be "fully certified" implied a victory for NCTAF. Berry's testimony argued that "teacher ed matters for both teacher performance and student learning...the best teacher ed programs in this country have certain characteristics. First and foremost, they require a minimum of 40 weeks of extensive clinical experience."[41] And allowing alternative certification affirmed Fordham's viewpoint. Hickok stated in his testimony that "it is very important...that it is possible for people to enter the teaching profession who do not go through the traditional teacher preparation programs. We propose alternative certification to attract the best and the brightest from other areas and other fields to become teachers because we think they have something to offer."[42]

Politics Take Over

The House of Representatives passed the Student Results Act in late 1999, but, running out of time before the 2000 presidential campaign, the bill died in the Senate. All Elementary and Secondary Education Act reauthorization efforts ground to a halt. But when they resumed in 2001, after President George W. Bush offered his 25-page proposal, "No Child Left Behind" (which, notably, did not say anything about requiring "fully qualified teachers"), Congress rekindled its teacher quality debates. According to several congressional aides, John Boehner (R-OH), then chairman of the House Education and the Workforce Committee, gave Miller authority to flesh out NCLB's teacher quality provisions. Miller more or less maintained the language from 1999 in the version of NCLB that the House passed in the summer of 2001,

though now the goal was for all teachers to be "highly qualified" by the end of the 2005–06 school year. All teachers, both rookies and veterans, would need to attain full certification and demonstrate their subject-matter knowledge through a major or a test in their field.

Understandably, the specter of veteran teachers needing to pass a subject-matter test (and the possibility that thousands could fail) roiled the teachers unions, especially the NEA. So, according to several congressional aides, NEA put heavy pressure on Senator Kennedy to offer an alternative: the HOUSSE provision. (As explained above, this loophole allowed experienced teachers to show their knowledge through a portfolio system; it soon came to be ridiculed for its lack of rigor.) It was tucked into the Senate version of NCLB, and, after many negotiations with Miller, also included in the final version.

Simply for political reasons, then, the law's subject-matter requirements were effectively neutered, at least for veteran teachers. In the end, interest-group politics proved more influential than education research—even in this one area, the importance of teachers' subject-matter knowledge, where broad consensus existed from left to right.

Implementation Time

No Child Left Behind's highly qualified teacher mandate put the Bush administration in an awkward position. The president had not proposed this provision, nor did senior Department of Education officials favor it. We have already seen that Hickok was skeptical about traditional teacher certification requirements. So, too, was Susan Sclafani, who also played a key role in NCLB implementation as counselor to Secretary of Education Rod Paige during the first several years of President Bush's first term. Her views on teacher quality emerged from her own personal experience working in the Houston Independent Public Schools, and specifically from leading the district's "urban systemic initiative" grant from the National Science Foundation. As she said in an interview,

> I saw how our alternative certification candidates did in terms of their scores on required exams, and they were much better prepared than new people coming through traditional routes…At the same time, I looked at what the research was showing on math—that teachers who had majored in math had students with much higher levels of performance.

These formative experiences taught her that alternate route teachers could be quite effective—and that subject knowledge mattered most. Yet the actual provision required full certification for all teachers, and a watered-down mandate on subject-matter knowledge.

Perhaps not surprisingly, then, the Bush administration focused its early efforts on protecting alternative certification by using the bully pulpit, most notably in the June 2002 publication *Meeting the Highly Qualified Teachers Challenge: The Secretary's Annual Report on Teacher Quality*.[43] The Higher Education Act required the Secretary to report annually on the nation's education schools and their candidates' success rates on teacher certification exams. The administration used the report as a clarion call for states to open their schoolhouse doors to qualified teaching candidates from non-traditional backgrounds.

In Secretary Paige's voice, the report argued:

> at the same time that states should be seeking teaching candidates with solid content knowledge and high verbal ability, our system of teacher certification is thwarting the aspirations of our most talented individuals—while at the same time maintaining low academic standards and failing to prepare teachers for the reality of the classroom. There must be a better way.[44]

It continued by asserting, "a model for tomorrow would be based on the best alternate route programs of today."[45]

This line of thinking was straight from the Fordham Foundation playbook. That is not a coincidence—a former Fordham staffer (and the second author of this chapter) led the development and ghost-writing of the report. As with the original Fordham manifesto, it prominently featured research by Goldhaber and Brewer (on the importance of teachers' subject-matter knowledge), Feistritzer (on the growth of alternative certification programs), and Podgursky and Ballou. It also cited much of Fordham's work, as well as Education Trust's. And it incorporated new voices and research: Kate Walsh's review of the literature on teacher certification; Frederick M. Hess's manifesto, *Tear Down This Wall*; and a new study of Teach For America's impact on student achievement in Houston by Margaret Raymond and Stephen Fletcher.[46]

These arguments—and the research backing them—informed countless speeches of Secretary Paige and other senior officials during NCLB's early implementation. In those remarks, they argued for states to raise their subject-matter standards for teachers while lowering all other barriers to certification. Though the law allowed states to follow this path, it did not require it. Eventually, evidence emerged that many states were using the HOUSSE provisions to water down their already-meager subject-matter standards, while maintaining their rigid certification requirements. It was a quagmire, and the administration soon abandoned the battle, unable to undo the damage the law itself had wrought.

CONCLUSIONS AND RECOMMENDATIONS

Our analysis of how research influenced NCLB's development and the implementation of its highly qualified teacher provisions leads us to several observations, including some recommendations for producers and consumers of education research.

Contrary to the cynics' views that political gamesmanship always drives the behavior of public officials, it appears that research can add substantive value to policymaking. Our evidence showed that researchers and their ideas did influence the legislative debates that helped develop NCLB. Plus, Republicans and Democrats in Congress did intend to move educational practice in a more research-based direction through their use of NCLB's scientifically based research provisions. And further, specific findings from researchers across several social science fields did appear to animate discussions about the law's teacher quality provisions.

Still, and perhaps not surprisingly, members of Congress and their staff used research selectively. They tended to gravitate toward findings that supported their own ideological views, behavior that the synthesizer groups facilitated and mediated. Regarding the highly qualified teacher provision, NCTAF, Education Trust, and the Fordham Foundation promoted research studies that backed their preferred narratives. Thus, these synthesizers were less philosopher kings than kingmakers. They used research to drive their agendas, rather than allowing research alone to drive policy. And when the synthesizers found consensus—such as around the import of teachers' subject-matter knowledge—they helped foster bipartisan action.

It is not hard to understand what motivates these and other synthesizer groups. Not tethered by the views of a membership, inspired largely by their own mission and creed, dependent on financial support from foundations with generally identifiable ideological perspectives, they are incentivized to pursue their own deeply held convictions about what makes for good education policy. Research becomes just another arrow in their quiver. It is futile to call on them to become more research-based and less mission-based because their missions give them purpose and credibility in the first place. And one must not forget that these groups, which are typically strapped for staff and other resources (at least compared to congressional committees or government agencies), must also confront the cognitive challenges of mastering large bodies of literature. Their organizational missions help to clarify and simplify that complicated landscape by providing guidance about which studies to consider and how to evaluate their quality.

So if the synthesizers are unlikely to change their behavior, what about other producers and the consumers of research? Among the producers, academic researchers who want to influence the policymaking process have a choice, it seems to us. One option is to bring their research findings to the attention of one or more of the synthesizer groups—the ones whose missions line up nicely with the policy conclusions of their studies. A second option is to circumvent the synthesizers entirely by making their research accessible directly to policymakers. They could execute both of these options relatively easily by converting their academic publications (e.g., journal articles and university press books) into more accessible and shorter op-eds or user-friendly policy briefs. Academics with more flexibility, especially those who have made tenure, might invest more time conversing or visiting with staff in Washington, D.C., or their state capitals. To make these activities more workable at scale, researchers might band together to develop their own synthesizer groups—ones that develop user-friendly products but without the ideological edge, as some research centers on university campuses already do. Of course, without such an edge, their work might be less appealing to policymakers. Academic researchers who build these connections may pay a cost in the short term (e.g., they burn time that they could be using to publish in peer-reviewed journals), but they may benefit eventually if these links produce funding opportunities, via foundation or government grants, for example, that will earn them credit on the academic tenure track. And as we see from the William Sanders example, greater exposure in Washington does seem correlated with greater attention in academia and in the popular press.

And what about the ultimate consumers of policy research, the policymakers? How might they better use research in their deliberations? First and foremost, they should be aware of the perspectives that synthesizer groups—and academic researchers, for that matter—bring to their work. Of course, they likely share these same perspectives, which is why they rely on these groups. Second, they might make the extra effort to identify researchers that the synthesizers have not highlighted. Some of the best at this in the policy world are staff members on Capitol Hill who work for congressional committees. Creating incentives for these seasoned staff members to continue their public service, rather than leaving the government or jumping to new issue areas on different committees, would be one way to help expose elected officials to crucial perspectives. That's not to say that politicians will necessarily change their views (you can lead a horse to water . . .), but having talented staff on both sides of the aisle working in these policy trenches would certainly improve the chances for research to make a difference.

Finally, perhaps the easiest way for elected officials to promote even-handedness without acting against their own personal interests would be for them to always ask researchers to come clean about the limits of their scholar-

ship. After all, social science fields that study human behavior often contain much legitimate disagreement about what policy levers society might pull to improve results. Within any study—even those meeting the highest design standards and that pass peer-review—researchers make judgment calls that some other credible researcher would see as flawed. Thus, any time public officials claim to be hearing a researcher describe "the truth" in congressional testimony, some other committee member should ask the witness a simple follow-up question: What are the best arguments that other researchers would offer against your conclusions? Academic researchers, especially, will be familiar with that question because they hear variants of it all the time in interviews on the job market, at academic conferences, and in written exchanges with article reviewers.

In the end, though, it is probably a mistake to assume that any of these actors—researchers, synthesizers, or policymakers—will change their behavior in fundamental ways. They are simply responding to the incentives that will help them advance their careers, ideas, and preferred solutions. The best researchers, especially those on academic tenure tracks, produce studies that their peers find compelling contributions to knowledge, often of a theoretical but not necessarily practical nature. (Researchers outside academia at professional firms such as Mathematica, and others, are certainly exceptions to that rule.) Synthesizers develop and use research to promote their organizational missions. Policymakers frequently use research to bolster their preexisting points of view. And when No Child Left Behind is reauthorized, we can expect many of the same dynamics to unfold once again. It's not pretty, and it's certainly not "scientifically based policymaking," but its democracy.

Research and the Reading Wars

James S. Kim

Controversy over the role of phonics in reading instruction has persisted for over 100 years, making the reading wars seem like an inevitable fact of American history. In the mid-nineteenth century, Horace Mann, the secretary of the Massachusetts Board of Education, railed against the teaching of the alphabetic code—the idea that letters represented sounds—as an impediment to reading for meaning. Mann excoriated the letters of the alphabet as "bloodless, ghostly apparitions," and argued that children should first learn to read whole words.[1] The 1886 publication of James Cattell's pioneering eye movement study showed that adults perceived words more rapidly than letters, providing an ostensibly scientific basis for Mann's assertions.[2] In the twentieth century, state education officials like Mann have continued to voice strong opinions about reading policy and practice, aiding the rapid implementation of whole language–inspired curriculum frameworks and texts during the late 1980s. And scientists like Cattell have shed light on the processes underlying skillful reading, contributing to a growing scientific consensus that culminated in the 2000 National Reading Panel report.[3]

This chapter traces the history of the reading wars in both the political arena and the scientific community. The narrative is organized into three sections. The first offers the history of reading research in the 1950s, when the "conventional wisdom" in reading was established by acclaimed leaders in the field like William Gray, who encouraged teachers to instruct children how to read whole words while avoiding isolated phonics drills. In the 1960s and 1970s, Jeanne Chall's research on first-grade reading instruction

45. Ronald L. Meeks, Project Officer, *Federal R&D Funding by Budget Function: Fiscal Years 2004–06* (Arlington, VA: National Science Foundation, Division of Science Resource Statistics, 2006), 1.

46. National Science Foundation, "Federal Funds for Research and Development: Fiscal Years 2003–2005. Detailed Statistics Tables," http://www.nsf.gov/statistics/nsf06313/tables.htm#group15 (accessed July 18, 2007).

47. Department of Education, Institute of Education Sciences, "Biennial Report: Grants, Cooperative Agreements, and Contracts over $100,000 Receiving Funding FY2002 through FY2004," March 2005, https://www.ies.ed.gov/doc/biennialrpt05.doc (accessed July 25, 2007).

48. Bryan C. Hassel and Amy Way, "Choosing to Fund Choice," in *With the Best of Intentions,* ed. Frederick M. Hess (Cambridge, MA: Harvard Education Press, 2005), 177–98.; and Ray Bacchetti and Thomas Ehrlich, "Foundations and Education: Introduction," in *Reconnecting Education and Foundations,* ed. Ray Baccheti and Thomas Ehrlich (New York: John Wiley & Sons, 2007), 3–20.

49. Original calculations based on data download from the Foundation Center website, http://fconline.fdncenter.org/.

50. Nancy Hoffman and Robert Schwartz, "Foundations and School Reform: Bridging the Cultural Divide," in *Reconnecting Education & Foundations,* ed. Ray Baccheti and Thomas Ehrlich (San Francisco, CA: Jossey-Bass, 2007), 107–38.

51. On localism generally, see Katherine McDermott, *Controlling Public Education: Localism versus Equity* (Lawrence KS: University Press of Kansas, 1999); on the myth of the end of localism in supplemental education services, see Jeffrey R. Henig, "The Political Economy of Supplemental Educational Services," in *No Remedy Left Behind:Lessons from a Half Decade of NCLB,* ed. Frederick M. Hess and Chester E. Finn, Jr. (Washington, DC: AEI Press, 2007), 66–94; and on suburban localism and resistance to vouchers, see Chad d'Entremont and Luis A. Huerta, "Irreconcilable Differences? Education Vouchers and the Suburban Response," *Education Policy* 21, no. 1 (2007): 40–72.

52. Paul Manna, *School's In: Federalism and the National Education Agenda* (Washington, DC: Georgetown University Press, 2006); and Patrick McGuinn, *No Child Left Behind and the Transformation of Federal Education Policy 1965–2005* (Lawrence, KS: University Press of Kansas, 2006).

53. Jeffrey R. Henig and Clarence N. Stone, "The Distractions of Dogma and the Potential for a New Politics of Progressive Pragmatism: Rethinking School Reform," *American Journal of Education,* forthcoming. See also Douglas S. Reed, *On Equal Terms: The Constitutional Politics of Educational Opportunity* (Princeton, NJ: Princeton University Press, 2003), who makes a similar argument about why school finance battles are easier to resolve politically than those over racial integration.

54. Paul Manna, *School's In.*

55. William L. Sanders and Sandra P. Horn, "Research Findings from the Tennessee Value Added Assessment System (TVAAS) Database: Implications for Educational Evaluation and Research," *Journal of Personnel Evaluation in Education* 12, no. 3 (1998).

56. Julian Betts, Paul Hill, and Patrick McEwan, "Key Issues in Studying Charter Schools and Achievement: A Review and Suggestions for National Guidelines," white paper, National Charter Schools Research Project, 2006. http://www.ncsrp.org/cs/csr/view/csr_pubs/5 (accessed October 18, 2007).

57. Sarah A. Binder, *Stalemate: Causes and Consequences of Legislative Gridlock* (Washington, DC: Brookings Institution Press, 2003); Jacob S. Hacker and Paul Pierson, *Off Center: The*

Republican Revolution & the Erosion of American Democracy (New Haven, CT: Yale University Press, 2005); Lawrence R. Jacobs and Robert Y. Shapiro, *Politicians Don't Slander: Political Manipulation and the Loss of Democratic Responsiveness* (Chicago: University of Chicago, 2000); and Carl Kaestle, "Federal Education Policy and the Changing Polity for Education, 1955–2005," in *To Educate a Nation: Federal and National Strategies of School Reform,* ed. Carl F. Kaestle and Alyssa E. Lodewick (Lawrence, KS: University Press of Kansas, 2007), vii–x.

58. Elizabeth DeBray-Pelot, "Dismantling Education's 'Iron Triangle': Institutional Relationships in the Formation of Federal Education Policy between 1998 and 2001," in Kaestle and Lodewick, *To Educate a Nation,* 64–89.

CHAPTER 3

Double Standard? "Scientfically Based Research" and The No Child Left Behind Act

Paul Manna and Michael J. Petrilli

1. Kevin M. Esterling, "Buying Expertise: Campaign Contributions and Attention to Policy Analysis in Congressional Committees," *American Political Science Review* 101, no. 1 (2007): 106. On the goal-oriented behavior of members of Congress, for example, see R. Douglas Arnold, *The Logic of Congressional Action* (New Haven, CT: Yale University Press, 1990); Richard F. Fenno, Jr., *Congressmen in Committees* (Boston: Little, Brown, 1973); Richard F. Fenno, Jr., *Home Style: House Members in Their Districts* (Boston: Little, Brown, 1978); and David R. Mayhew, *Congress: The Electoral Connection* (New Haven, CT: Yale University Press, 1974). A more pessimistic view about the use of research to inform policy is Walter Williams, *Honest Numbers and Democracy: Social Policy Analysis in the White House, Congress, and the Federal Agencies* (Washington, DC: Georgetown University Press, 1998).

2. House Subcommittee on Early Childhood, Youth and Families of the Committee on Education and the Workforce, *Options for the Future of the Office of Educational Research and Improvement,* 106th Cong., 2nd sess. (May 4, 2000). Available online at http://commdocs.house.gov/committees/edu/hedcew6-107.000/hedcew6-107.htm (accessed October 26, 2007).

3. Bryan D. Jones, *Politics and the Architecture of Choice: Bounded Rationality and Governance* (Chicago: University of Chicago Press, 2001); Bryan D. Jones and Frank R. Baumgartner, *The Politics of Attention: How Government Prioritizes Problems* (Chicago: University of Chicago Press, 2005); and Giandomenico Majone, *Evidence, Argument, and Persuasion in the Policy Process* (New Haven, CT: Yale University Press, 1989).

4. Lynn Olson and Debra Viadero, "Law Mandates Scientific Base for Research," *Education Week,* January 30, 2002, 1. NCLB's formal definition of scientifically based research appears in § 9101(37) of the law.

5. Olson and Viadero, "Law Mandates." 1.

6. *No Child Left Behind Act of 2001,* Public Law 107-110, 107th Cong., 1st sess. (January 8, 2001), Title II, Part A, Subpart 1, § 2112. Emphasis added. Hereafter referred to as NCLB.

7. NCLB, Title II, Part D, Subpart 1, § 2416. Emphasis added.

8. Title I, Part B contains these programs: Reading First, Early Reading First, the William F. Goodling Even Start Family Literacy Programs, and an additional subpart focusing on literacy and school libraries.

9. Many of these references are to "scientifically based reading research," which NCLB defines in § 1208(6): "The term 'scientifically based reading research' means research that—(A) applies rigorous, systematic, and objective procedures to obtain valid knowledge relevant to reading development, reading instruction, and reading difficulties; and (B) includes research that—(i) employs systematic, empirical methods that draw on observation or experiment; (ii) involves rigorous data analyses that are adequate to test the stated hypotheses and justify the general conclusions drawn; (iii) relies on measurements or observational methods that provide valid data across evaluators and observers and across multiple measurements and observations; and (iv) has been accepted by a peer-reviewed journal or approved by a panel of independent experts through a comparably rigorous, objective, and scientific review."

10. Information on the National Reading Panel is available at its homepage, http://www.nationalreadingpanel.org/ (accessed February 28, 2007).

11. During that year, the inspector general of the U.S. Department of Education (and some independent journalists and researchers) made allegations of favoritism and mismanagement in the billion-dollar Reading First program. Coverage appears in Michael Grunwald, "Billions for Inside Game on Reading," *Washington Post*, October 1, 2006; Jennifer Smith Richards, "Report Rips Federal Reading Initiative," *Columbus (Ohio) Dispatch*, October 4, 2006; and Diana Jean Schemo, "U.S. Audit Faults Grants for Reading in New York," *New York Times*, November 7, 2006.

12. Peter Simon, "New Reading Plan Faulted," *Buffalo News*, November 27, 2006, B1.

13. Frank R. Baumgartner and Bryan D. Jones, *Agendas and Instability in American Politics* (Chicago: University of Chicago Press, 1993); and Walter J. Oleszek, *Congressional Procedures and the Policy Process*, 4th ed. (Washington, DC: CQ Press, 1996).

14. We obtained NCLB's legislative history from the Congressional Information Service Index, via the Lexis-Nexis Congressional Universe library. A copy of this history is available from the authors.

15. Some witnesses in the research and program development type are affiliated with groups that also do advocacy. We omitted them from the association or advocacy group type because individuals in that type came from groups whose primary reason for being there appeared to be group representation or lobbying.

16. House Subcommittee on Education Reform of the Committee on Education and the Workforce, *From Research to Practice: Improving America's Schools in the 21st Century*, 107th Cong., 1st sess. (July 17, 2001), 30.

17. Additional sources commenting on the quality of education school research that parallel and extend Fuhrman's point are Geraldine J. Clifford and James W. Guthrie, *Ed School: A Brief for Professional Education* (Chicago: University of Chicago Press, 1988); and Arthur Levine, *Educating Researchers*, (Washington, DC: The Education Schools Project, 2006).

18. A difference of proportions test confirms that the difference between these two values is real in statistical terms. The p value associated with a test of the difference is 0.047, which means there is less than a 5 percent chance that we would observe the difference we observed if there actually were no real difference between the two numbers.

19. Christopher B. Swanson and Janelle Barlage, *Influence: A Study of the Factors Shaping Education Policy* (Bethesda, MD: Editorial Projects in Education, Research Center, October 2006).

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CHAPTER 4
Research and the Reading Wars

James S. Kim

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