



Rigor and Relevance Redux

Director's Biennial Report to Congress

November 2008

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Prepared by Grover J. Whitehurst, Director

U.S. Department of Education

Margaret Spellings

Secretary

Institute of Education Sciences

Grover J. Whitehurst

Director

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Rigor and Relevance Redux

A Little History

In 1971, the President's Commission on School Finance commissioned the RAND Corporation to review research on what was known about what works in education, reasoning that, "The wise expenditure of public funds for education ... must be based on a knowledge of which investments produce results, and which do not."¹ RAND concluded that:

The body of educational research now available leaves much to be desired, at least by comparison with the level of understanding that has been achieved in numerous other fields.

Research has found nothing that consistently and unambiguously makes a difference in student outcomes.²

In other words, 40 years ago there was no evidence that anything worked in education. It was not until the late 1950s when the National Science Foundation (NSF) and the Office of Education within the then Department of Health, Education, and Welfare (HEW) began to fund education research,³ so perhaps the dearth of evidence when RAND did its report in the early 1970s should not have been surprising.

As a response, in part, to the work of the President's Commission on School Finance, Congress created the National Institute of Education (NIE) in 1972

in HEW to provide a credible federal research effort in education. NIE was moved to the Office of Educational Research and Improvement (OERI) within the U.S. Department of Education (ED) when that department came into being in 1980. A 1985 reorganization of OERI abolished NIE.

Federal investments in education research, while always miniscule compared to investments in research in fields such as health care and agriculture, grew substantially with the founding of NIE, and had amounted to more than \$2.6 billion through NIE and OERI by the close of the 20th century.⁴ One would imagine that the creation of a federal education research agency and the increased levels of federal investment would have improved the status and yield of education research by the end of the century. However, 1999 saw the issuance of a report on education research by the National Academies of Science that came to essentially the same conclusions as the RAND report of 27 years earlier:

One striking fact is that the complex world of education—unlike defense, health care, or industrial production—does not rest on a strong research base. In no other field are personal experience and ideology so frequently relied on to make policy choices, and in no other field is the research base so inadequate and little used.⁵

¹ Progress Report of the President's Commission on School Finance. (1971). (ERIC ED058643).

² Averch, H.A., Carroll, S.J., Donaldson, T.S., Kiesling, H.J., and Pincus, J.A. (1972). *How Effective Is Schooling? A Critical Review and Synthesis of Research Findings*. The RAND Corporation. Retrieved from <http://www.RAND.org/pubs/reports/2006/R956.pdf>.

³ Ibid.

⁴ Vinovskis, M.A. (2001). *Revitalizing Federal Education Research and Development*. Ann Arbor, MI: University of Michigan Press.

⁵ National Research Council. (1999). *Improving Student Learning: A Strategic Plan for Education Research and Its Utilization*. Washington, DC: National Academies Press.

Why was there so little to show for more than 40 years of federal involvement in education research? One possibility is that NIE and OERI were organizationally weak or funded the wrong types of research, or both. In a recent paper on the structure and function of federal education research,⁶ political scientist Andrew Rudalevige cites James March's description of NIE as an organization that, "came to be indecisive, incompetent, and disorganized."⁷ Rudalevige adds the statement of an assistant secretary for OERI, Diane Ravitch, that her, "agency itself bears a measure of blame for the low status accorded federal educational research."⁸ He caps his point with a quote from Gerald Sroufe, director of government relations at the American Educational Research Association, that toward the end of its life congressional observers were describing OERI in "language ... [that] cannot be printed in a family-oriented academic journal."⁹

Congress acted on its growing frustration with federal management of education research by passing the Education Sciences Reform Act of 2002 (ESRA), which abolished OERI and replaced it with the Institute of Education Sciences (IES). IES was given a greater degree of independence from ED's political leadership than had been afforded to OERI and was shorn of the many nonresearch functions that had accreted in OERI over the years. Further, it was given a clear statutory mission to conduct, support, disseminate, and promote the use of scientifically valid research.

ESRA provides for that mission to be managed by a director who is to serve for a 6-year term. Under ESRA, the director of IES is appointed by the President and confirmed by the Senate, but the

statute extended to the President the authority to appoint the serving assistant secretary for OERI as the first director of IES without confirmation by the Senate. I was the serving assistant secretary for OERI when ESRA was signed into law on November 5, 2002 and was appointed by the President as director of IES on November 22, 2002.

ESRA requires the director to transmit a biennial report to the President, the Secretary, and Congress that includes

- A description of the activities carried out by and through the national education centers during the prior fiscal years;
- A summary of each grant, contract, and cooperative agreement in excess of \$100,000 funded through the national education centers during the prior fiscal years, including, at a minimum, the amount, duration, recipient, purpose of the award, and the relationship, if any, to the priorities and mission of IES;
- A description of how the activities of the national education centers are consistent with the principles of scientifically valid research and the priorities and mission of IES; and
- Such additional comments, recommendations, and materials as the director considers appropriate.

I will be completing my 6-year term shortly after this, my third and final biennial report, is transmitted. In that context, I will place more emphasis on comments and recommendations than I have in previous reports.

⁶ Rudalevige, A. (2008). Structure and Science in Federal Education Research. In F. Hess (Ed.), *When Research Matters: How Scholarship Influences Education Policy* (pp. 17-40). Cambridge, MA: Harvard Education Press.

⁷ March, J.G. (1978). Foreword. In L. Sproull, S. Weiner, and D. Wolf. *Organizing an Anarchy: Belief, Bureaucracy, and Politics in the National Institute of Education*. Chicago: University of Chicago Press.

⁸ Ravitch, D. (1993, April 7). Enhancing the Federal Role in Research in Education. *Chronicle of Higher Education*, p. A48.

⁹ Sroufe, G. (2003). Legislative Reform of Federal Education Research Programs: A Political Annotation of the Education Sciences Reform Act of 2002. *Peabody Journal of Education*, 78(4): 220-229.

External Evaluations and Commentary

Knowledgeable observers of the federal education research enterprise agree that IES is substantially different from and more effective than its predecessors. For example:

The American Educational Research Association has written that—

... there is much to boast about in the accomplishments of IES. Almost all components of its predecessor research agency have been fundamentally altered (e.g., the ERIC Clearinghouse) and new programs have been adopted (e.g., National Center for Special Education Research), or created (e.g., the What Works Clearinghouse).¹⁰

The independent National Board for Education Sciences (NBES), which oversees IES, has found that—

Since the inception of IES, significant progress has been made in transforming education into an evidence-based field through

- a notable increase in the number and percentage of research and evaluation projects using scientifically rigorous designs, especially randomized designs;
- the establishment of a credible scientific peer-review process for research and evaluation that is independent of the program offices; and

- the adoption of concrete performance measures for IES that focus on building the number of research-proven interventions that are of policy and practical importance.¹¹

Congress has recognized the progress at IES by providing budget increases of 78 percent between 2001 and 2008, and by commenting favorably on various IES activities. For example:

The Committee is encouraged by the Institute's continued commitment to increasing the scientific quality of its research projects that translate basic cognitive, developmental and neuroscience research findings into effective classroom practices.¹²

Last but not least, the Office of Management and Budget gave the IES research and dissemination programs its highest and seldom awarded rating of "effective," concluding that—

Since its creation by the Education Sciences Reform Act of 2002, IES has transformed the quality and rigor of education research within the Department of Education and increased the demand for scientifically based evidence of effectiveness in the education field as a whole.¹³

¹⁰ Research Policy Notes. OIA Info Memo. June/July 2007. Washington, DC: American Educational Research Association.

¹¹ U.S. Department of Education, National Board for Education Sciences. (2007). *National Board for Education Sciences 2007 Annual Report*. Washington, DC.

¹² Senate Report 110-107 – Departments of Labor, Health and Human Services, and Education, and Related Agencies Appropriation Bill, 2008.

¹³ Program Assessment, Institute of Education Sciences Research. (2007). Office of Management and Budget. Retrieved from <http://www.whitehouse.gov/omb/expectmore/summary/10009008.2007.html>.

What Are Some Critical Components of the Progress of IES?

ESRA is up for reauthorization and a new director of IES will be nominated by the next administration. Two of the four IES centers are currently led by acting commissioners and a third commissioner is in the last portion of her 6-year term. With so much change in the air, it may be useful to articulate some of the characteristics of IES that I believe have contributed to its effectiveness and should be retained.

Statutory mission to conduct scientifically valid research

ESRA, in keeping with its title and its intent, provided a definition of scientific research that was to guide the work of IES and distinguish it from what had become the dominant forms of education research in the latter half of the 20th century: qualitative research grounded in postmodern philosophy and methodologically weak quantitative research. The historical trend in education research away from the canons of quantitative science has been multiply documented.

One window into this trend is the decline in studies that are designed to measure the effectiveness of education programs and practices. One of my first initiatives after taking office was to commission a survey of education practitioners to determine what they wanted from education research.¹⁴ Their number one priority was research on what works in instructional practices to raise student achievement in reading, math, and science. Whereas questions of what works are paramount to educators, there was declining interest in those questions in the education research community prior to IES.¹⁵

Quantitative research on program effectiveness was replaced, frequently, by activities in the tradition of postpositivism and deconstructivism in the humanities. These approaches are based on philosophical assumptions that question the existence of a physical reality beyond what is socially constructed—e.g., “Another type of scientificity is needed for the social sciences, a postpositivist, interpretive scientificity that takes into account the ability of the object to object to what is told about it.”¹⁶ (Translation: What social scientists conclude about people has to accommodate whether those people will agree.)

Even those portions of the education research community committed to empiricism all too frequently deployed research designs that could not support causal conclusions while drawing such conclusions with abandon.¹⁷ Examples of weak methods paired with strong conclusions in education research abound, even now. For example, a recent article in a national education magazine reports that, “researchers from the Northwest Regional Educational Laboratory have found that Reading First is having a positive impact.”¹⁸ Noted in passing in the article is the absence in the study of a comparison group of non-Reading First schools. The conclusion of a positive impact is based entirely on test scores rising in Reading First schools.

However, the very definition of an impact evaluation is an attempt to compare the results of an intervention with what the situation would have been if the intervention had not taken place.¹⁹ Impact cannot be determined, alone, by whether scores are going up or down or remain flat in those experiencing a pro-

¹⁴ Huang, G., Reiser, M., Parker, A., Muniec, J., and Salvucci, S. (2003). *Institute of Education Sciences Findings From Interviews With Education Policymakers*. Arlington, VA: Synectics for Management Decisions, Inc. Retrieved from <http://www.ed.gov/rschstat/research/pubs/findingsreport.pdf>.

¹⁵ Hsieh, P., Hsieh, Y.P., Chung, W.H., Acee, T., Thomas, G.D., Kim, H.J., You, J., Levin, J.R., and Robinson, D.H. (2005). Is Educational Intervention Research on the Decline? *Journal of Educational Psychology*, 97: 523-529.

¹⁶ Childers, S.M. (2008). Methodology, Praxis, and Autoethnography: A Review of Getting Lost. *Educational Researcher*, 37: 298-301.

¹⁷ Hsieh, P., Hsieh, Y.P., Chung, W.H., Acee, T., Thomas, G.D., Kim, H.J., You, J., Levin, J.R., and Robinson, D.H. (2005). Is Educational Intervention Research on the Decline? *Journal of Educational Psychology*, 97, 523-529.

¹⁸ Editors. (2008). Does Reading First Deserve a Second Chance? *American Educator*, 34-35.

¹⁹ Impact Evaluation. Wikipedia. Retrieved from http://en.wikipedia.org/wiki/Impact_evaluation.

gram. A comparison condition is needed, and this is well understood within the quantitative social and behavioral sciences other than education.

Consider that scores from students from low-income families who attend remedial summer school programs are lower when they begin school in the fall after summer school than they were in the spring prior to summer school. Based on nothing more than before-and-after data, this would suggest that summer school is harmful. However, groups of equivalent students who are not given the opportunity to attend summer school experience a greater summer learning loss than students in summer school.²⁰ Thus summer school has a positive impact, a conclusion that depends on a comparison group and belies the inference that would be drawn from before-and-after data on summer school students alone.

In the context of declining interest in studies of the effectiveness of education programs, the ascendance of postmodern approaches to education research, and the frequent use of weak methods to support strong causal conclusions, IES took a clear stand that education researchers needed to develop interventions that were effective in raising student achievement and to validate the effectiveness of those interventions using rigorous methods (as defined and accepted within the quantitative social, behavioral, cognitive, and health sciences). Many of the old guard objected to this, which was a predictable response from those whose interests were favored by the status quo. Some now hope for a return to the good old days in which virtually anything passed as credible education research. Those who hold that position have the burden of demonstrating the yield of knowledge of how to improve student achievement from their way of doing things. I will subsequently provide examples of powerful findings that have already emerged from IES funding of methodologically rigorous research.

It will be important to the future of those who need to be served by education research (students,

teachers, the nation) to retain the focus at IES on funding research that meets high standards of scientific rigor within the canons of quantitative science while addressing questions of relevance to practitioners. It is easy to be relevant without being rigorous. It is easy to be rigorous without being relevant. It is hard to be both rigorous and relevant, but that is the path of progress and the path taken by IES.

Statutory independence

ESRA directs the Secretary of Education to delegate to the director of IES, “all functions for carrying out this title.”²¹ ESRA also provides that the director may prepare and publish reports, “without the approval of the Secretary or any other office of ED.” ESRA also provides that the director be appointed for a 6-year term, rather than serving at the pleasure of the President (as was the case for the OERI assistant secretary). These are important statutory provisions because they support the director’s responsibility under ESRA to ensure that IES activities are free of partisan political influence. But this makes IES atypical in terms of administrative arrangements in the executive branch. IES is not an independent agency, such as NSF. But while embedded within ED, IES is expected to operate with far more independence than is typically afforded operating components of a cabinet-level federal department.

There is a good case to be made for these awkward administrative arrangements. The tradeoff for making IES an independent agency would be a reduction in its ability to influence what happens within ED. The Department spends nearly \$60 billion a year to support improvements in education and has substantial influence on education policy and practice, so lessening the possibility of IES affecting the Department is undesirable if one has the goal of transforming education into an evidence-based field. On the other hand, the tradeoff for making IES immediately answerable to the Secretary, just like every other program office within

²⁰ Cooper, H.M., Nye, B., Charlton, K., Lindsay, J., and Greathouse, S. (1996). The Effects of Summer Vacation on Student Achievement Test Scores: A Meta-Analytic and Narrative Review. *Review of Educational Research*, 66: 227-268.

²¹ Education Sciences Reform Act of 2002, P.L. 107-279, Sec. 113 (2002).

the Department, would be to lessen the likelihood that it would be able to carry out its work with integrity while fulfilling its responsibility to serve the Secretary and the President.

It has been very important in dealing with some of the tensions between independence and service for IES to have documented procedures for handling sensitive matters that otherwise would require a series of one-off decisions by the director. That is why, for example, I have implemented procedures for the review and release of reports that take the director out of the loop. The Standards and Review Office within IES, which operates under the IES deputy director for science, approves reports as soon as they have passed muster with external peer reviewers and standards and review action editors. Once reports are approved, they are printed and scheduled for release. The Secretary receives a notice of the scheduled release and is provided a briefing upon request.

The next director of IES will receive an operations manual that covers these and other matters. Some of the details in the manual can be changed by the next director without affecting the independence of IES. Others cannot. I recommend that NBES request that the next director of IES seek approval from the Board before altering documented operational procedures in the areas of grant competitions and peer review, and that operational procedures that are critical to the independence of IES continue to be spelled out in writing and invariably honored.

Congress can help the next director of IES when it reauthorizes ESRA by strengthening some of the language that affects the independence of IES. For example, it can alter the current removal clause in ESRA (20 USC 9583) by requiring that the removal of a director by the President prior to the expiration of a director's term be for cause. It can provide that a director whose term has expired may continue to serve until such time as a replacement is confirmed, thus preventing the director's position from falling vacant for long periods when, as in the present circumstance, the director's term expires near the end of an administration. Both of these modifications

and several other changes in ESRA that could be helpful to IES have been recommended by NBES.²²

Focused priorities

ESRA requires the director to establish priorities for IES, subject to public comment and approval by the IES board. The priorities under which IES is currently operating were developed by me, modified in light of public comment, and approved by the board in September of 2005. They are focused on improving student achievement in the core academic subjects through research on conditions and variables that are under the control of the school system.

There is neither enough money in the IES budget nor sufficient capacity within the education research community to cover everything or even a majority of everything that may be of interest or relevance to education. Topics such as child health, community supports for education, family functioning, poverty, school board politics, and the design of school buildings are without doubt important. But priorities involve choices. Our choices at IES were to focus on those conditions that are proximally related to instruction and learning, and that a teacher, or principal, or superintendent, or education committee in a state legislature can do something about.

Focus will continue to be important. The next director of IES will articulate his or her priorities, as is appropriate and required by law. I do not expect they will be identical to my priorities for a variety of reasons, including the likelihood that a new administration and Congress will have a somewhat different focus than is current. However, it will be important for the health of education research not to shift funding away from topics that are widely acknowledged to be enduring education challenges; for example, reading and mathematics and teacher quality. Likewise, it will be important to sustain funding for research topics around which an infusion of talented researchers is generating significant progress (e.g., cognition and student learning).

²² See <http://ies.ed.gov/director/pdf/ESRAreauth.pdf>.

The field of education does not have a sufficient number of well-trained researchers because, historically, opportunities for research funding were limited, priorities for funding were unpredictable, and the competitive process for grant awards was weak. As a result of an orderly and predictable process for grant making and a large investment by IES in the training of a new generation of education researchers (about which more later), new talent has begun to infuse the field. It would be a mistake to go back to yo-yo priorities that would have the effect of driving away these researchers. Thus, my recommendation to the next director is to appreciate the link between continuity in research funding and the supply of highly qualified education researchers, and the importance of focus rather than trying to do everything.

Strong staffing

Every successful federal research agency is staffed with scientists who are experts in their fields. Without this expertise the agency cannot establish reasonable priorities, formulate funding announcements or statements of work for contracts, work with external scholars, and manage portfolios of demanding projects. I have placed a priority on recruiting well-trained scientists. IES has annual recruiting goals that are challenging, and I have met personally with every potential employee that divisions within IES wish to hire. IES has hired 90 highly qualified researchers and statisticians since 2002, in the context of a total workforce of approximately 190. This has had a transforming effect on the agency. These good people came to work at IES alongside valued employees who were already onboard because they believe the work of the agency is important and they know that the integrity of that work will be protected.

The federal education research enterprise can be no better than the staff managing it. One of the most immediate barometers of the health of IES in the future, as it has been in the past, will be its success in hiring and retaining highly qualified staff. For technical and scientific positions, these should be

individuals who would be competitive for academic positions at research universities. For reasons of independence, real and perceived, schedule Cs (i.e., political appointees) should not be placed in IES. The excepted service authority under ESRA, which allows the director to appoint technical or scientific employees outside the civil service for terms of up to 6 years, has been invaluable in recruiting scientists and should be continued in a reauthorization of ESRA.

Standards and review

The IES organizational structure provides for a deputy director for science, who, among other responsibilities, oversees a Standards and Review Office. That office is responsible for two primary activities: the peer review of IES reports and the peer review of grant applications. The Standards and Review Office developed, implemented, and refined the peer review procedures beginning shortly after the enactment of ESRA. These procedures have been documented and approved by NBES.²³ The peer review functions served by the Standards and Review Office are critical to the integrity of IES reports and to the growth and health of IES grant making.

In the case of IES reports, the Standards and Review Office carries out its work independent of the office that is responsible for generating the report and uses distinguished external peer reviewers to assure that reports meet current standards in the field. In addition, the Standards and Review Office has developed standards for the content of IES reports that assure that they are as free as possible of language and forms of data reporting that reflect the biases or perspectives of the authors of the reports. IES aims for and routinely achieves reports that are based on the strongest and most appropriate analytic methods, that are completely neutral in reporting with respect to valuing one outcome over another, and that do not advance speculations about findings.

Hewing so closely to methods and results in IES reports makes them rather dry reading, but that characteristic is essential to having others be able to

²³ See http://ies.ed.gov/director/sro/peer_review/index.asp. Retrieved September 30, 2008.

digest and interpret those reports without concern that the findings have been shaped by the personal, political, or ideological positions of individuals at IES or its contractors. IES would not long be able to continue to issue reports that include findings that are unpopular with strong advocacy groups if it mixed data with interpretations that go beyond the evidence given. And it would not continue to generate such reports without a Standards and Review Office that articulates and maintains the standards for that effort while functioning at arms length from the components of IES that produce the reports.

The second key function of the Standards and Review Office is to conduct independent peer review of applications for grant funding. IES has established standing review panels of distinguished scientists from university and industry settings. More than 200 people serve in this role annually. They review proposals based on a standard protocol, guided by the criteria that are articulated in announcements for grant competitions. Grants are funded based on their rank as determined by panel scores. One clear sign of the success of the IES peer review system and the connected funding announcements that guide grant applications is the continued yearly growth in grant applications (see figure 1). Good researchers do not spend their valuable time writing grant applications for competitions unless they feel there is a review system in place that will lead to the

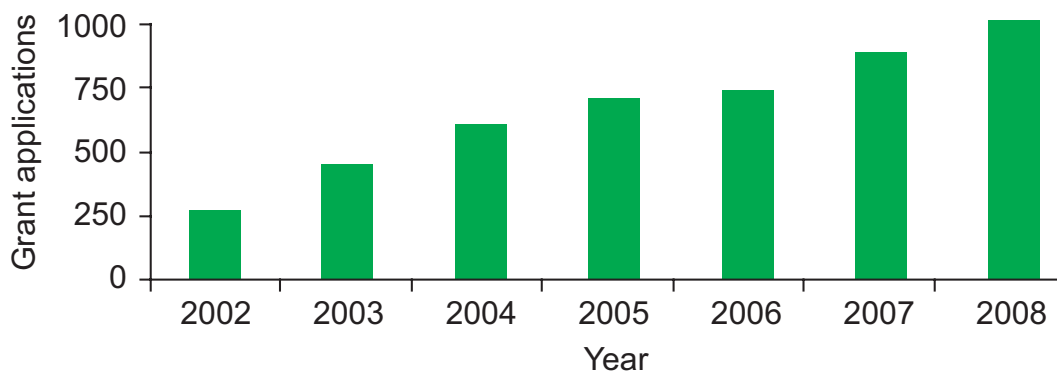
strongest applications being funded. The continued growth in applications indicates that the field has that faith in IES grant competitions.

The peer review processes at IES are at the core of the quality and integrity of the work of IES. Those processes, and the Standards and Review Office that oversees them, need to be supported and protected by the next director.

Performance management

The work of IES has been actively managed. We have established long-term goals, developed annual measures of activities that contribute to achieving those goals, developed other annual measures in areas in which greater efficiency is needed, and held IES staff accountable for performance. For example, the timeliness of statistical reports is extremely important to their relevance. In the early days of IES, far too many reports from the National Center for Education Statistics (NCES) were released years after the end of the data collections on which the reports were based. We established a long-term goal that no more than 12 months should elapse between the end of data collection and initial data release, set an annual improvement target of 2 months in the latency between data collection and data release, created a number of tools to track progress, and reengineered a number of processes to address bottlenecks identified by those tools. This year we

Figure 1. Number of grant applications per year, 2002-2008



SOURCE: IES Standards and Review Office.

will achieve the 12-month goal for data releases by NCES, a reduction from more than 18 months 4 years ago.

There are many similar examples across the divisions of IES of active management leading to substantial increases in performance. Our management success has been recognized in the Department's annual organizational assessment process by the award of an outstanding rating in 2007 and another in 2008.

IES was one of only two of the Department's 22 operating components to receive an outstanding in 2007, and received the highest score in the Department in 2008.

It will be important for the next administration to nominate a director who has managerial as well as scientific skills. The next director should understand that unless the IES trains run on time, the agency will not be able to succeed strategically.



Some IES Investments That Should Be Continued

Predoctoral training programs

When RAND found in 1972 that, “The body of educational research now available leaves much to be desired” and the National Academies in 1999 concluded that, “in no other field is the research base so inadequate,” they were indicting the capacity of the field to produce high-quality research. Capacity is multidimensional, but includes human capital at its core. IES has received more high-quality, fundable grants in each year of its existence than it received in the previous year, but still must reject a far greater proportion of applications on the basis of critical flaws than is the case at the National Institutes of Health or the National Science Foundation.

In order to increase capacity in the field, IES has invested in predoctoral training programs in the education sciences at leading research universities to increase the supply of scientists and researchers in education who are prepared to conduct rigorous education research. The first predoctoral training programs were funded in fiscal year (FY) 2004. Currently, there are 13 predoctoral training programs. Since their inception, the predoctoral research training programs have shown tremendous growth in enrollment, beginning with 36 fellows in 2004 and totaling 233 participants by 2007–08. The average Graduate Records Examination (GRE) scores among the 233 participating students are Verbal 626 and Quantitative 704. For comparison purposes, the mean GRE scores for doctoral students in the top 25 schools of education in 2007 were Verbal 563 and Quantitative 642. These predoctoral fellows have been extremely productive, with a total of 662 conference presentations and 126 publications (published or in press) between June 1, 2006, and March 1, 2008. Of those fellows who have finished their predoctoral programs to date, 92.3 percent are employed in positions that involve research, and 19 percent have already submitted grant applications to IES. Satisfaction with the

training programs is very high, with a mean rating across fellows of 4.57 on a 5-point scale for quality of overall training.

The program is a success because it is challenging, and moves the boundaries for training of education researchers outside schools of education and beyond the typical content of doctoral training in education. It will become ineffective if it devolves into a mechanism for funding schools of education to do what most are currently doing in the training of researchers, which is woeful.²⁴ The IES predoctoral training programs in the education sciences are an unqualified success, and should continue to be supported. Funding additional training sites should be contingent on those sites meeting the high standards for faculty quality, curriculum, and interdisciplinarity that are characteristic of the current training sites.

Funding for researchers to conduct efficacy and scale-up trials

For questions about the effectiveness of particular policies and practices (i.e., what works), randomized field trials provide the most reliable answers. The methodological superiority of randomized trials for drawing causal claims in areas in which outcomes are affected by many variables and in which effects vary across individuals and settings is very widely acknowledged across all of the sciences, including education. In education, the National Academies of Science report, *Scientific Research in Education*, concludes that, “nonrandomized studies are weaker in their ability to establish causation than randomized field trials, in large part because the role of other factors in influencing the outcome of interest is more difficult to gauge in nonrandomized studies.”²⁵ A follow-up report from a second National Academies committee concurs that the randomized trial is the best design for making causal

²⁴ Levine, A. (2007). *Educating Researchers*. The Education Schools Project. Retrieved from http://www.edschools.org/EducatingResearchers/educating_researchers.pdf

²⁵ National Research Council. (2002). *Scientific Research in Education*. Washington, DC: National Academy Press.

inferences about the effectiveness of educational programs and practices.²⁶ Similarly, a report by the American Educational Research Association concludes that, “The statistical solution to the fundamental problem of causality relies on the assumption of independence between pretreatment characteristics and treatment group assignment. This independence is difficult to achieve in nonrandomized studies.... This is why randomized field trials are often considered the ‘gold standard’ for making causal inferences.”²⁷

As noted previously, questions of what works are paramount for education practitioners and policymakers. Hence, research investments by IES are designed to achieve the principal goal of developing or identifying a substantial number of programs, practices, policies, and approaches that enhance academic achievement and that can be widely deployed. In its research competitions, IES gives a competitive preference to randomized trials for research in the final stage of this goal, which involves a demonstration of effectiveness in practice. And in its evaluations of federally supported education programs, IES deploys randomized designs whenever possible.

However, effective programs and practices do not spring forth fully formed in education any more than effective pharmaceuticals arise spontaneously in medicine. For that reason, a substantial portion of IES funding goes to upstream work in which researchers are developing new programs or identifying promising practices, using methods appropriate for those investigations.

Some hold the view that IES has taken a narrow, technical view of “gold standard” research so as to limit funding to studies that employ randomized experiments or that otherwise conform to narrow methodological criteria. While it is conceivable that IES has done this, the evidence is strongly to the contrary.

IES has established five research goals for its research programs. Exploration—explore malleable factors associated with education outcomes and examine factors and conditions that may mediate or moderate the relations between malleable factors and education outcomes; Development—develop programs, practices, and policies that are theoretically and empirically based; Efficacy—evaluate the efficacy of fully developed programs, practices, and policies; Scale-up—evaluate the impact of programs, practices, and policies implemented at scale; and Measurement—develop and/or validate data and measurement systems and tools.

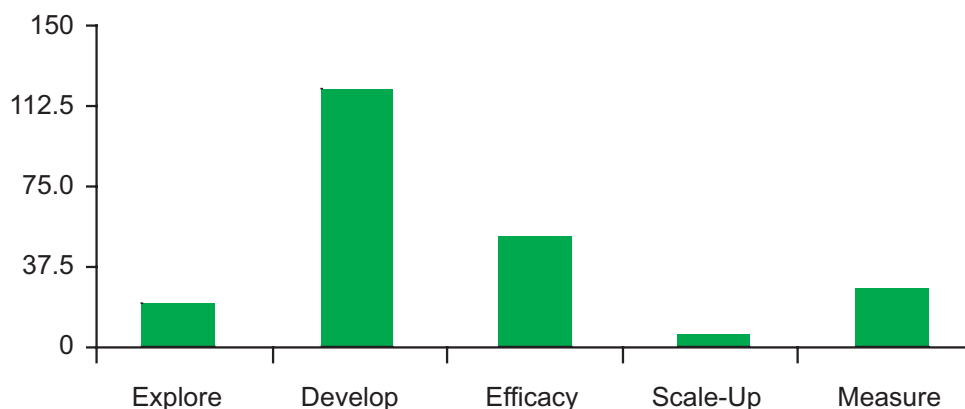
IES funding announcements indicate a preference for randomized trials only for applications under the efficacy and scale-up goals, where the intent is to draw causal inferences regarding program impact. The language in the funding announcements for the other goals very clearly indicates that other methodological approaches are desired. The exploration goal prioritizes the statistical modeling of observation data. The development goal prioritizes the collection of empirical data that will provide feedback for refining prototypes of the intervention that are being developed. IES does not support applications under the development goal that involve testing the efficacy of interventions in a significant number of classrooms or schools using randomized experiments. The measurement goal is about assessments, and the appropriate methods are psychometric, involving demonstrations of validity and reliability.

Figure 2 displays the number of grants made by the IES National Center for Education Research (NCER) by research goal since the implementation of the goal structure in FY 2004. Only 26 percent of awarded grants have been under the goals of efficacy and scale-up that prioritize randomized trials. Even under those two goals alternative research designs are acceptable if they adequately minimize selection bias or allow it to be statistically modeled, and grants

²⁶ National Research Council. (2004). *Advancing Research in Education*. Washington, DC: National Academy Press.

²⁷ Schneider, B., Carnoy, M., Kilpatrick, J., Schmidt, W.H., and Shavelson, R.J. (2007). *Estimating Causal Effects Using Experimental and Observational Designs*. Washington, DC: American Educational Research Association.

Figure 2. Number of grants made by NCER by research goal, 2004-2008



SOURCE: IES National Center for Education Research.

involving such non-experimental designs have been funded under efficacy and scale-up. Thus there is simply no evidence to support the view that IES has limited funding to studies that employ randomized experiments.

What about the broader assertion that IES denies funding to grant applications that have broad scientific merit based on narrow methodological criteria? It is important to note that decisions on the scientific merit of proposals for funding at IES are made by panels of distinguished scientists, not by IES. During 2008, 212 peer reviewers from universities and research institutions across the United States served on these panels, under peer review procedures that have been approved by the independent NBES and described by the Board in a report to Congress as, “of the highest merit and ... comparable to those of the National Science Foundation and the National Institutes of Health.” Still, is it possible IES has seeded these panels with hard-nosed methodologists who by inclination and training focus on narrow methodological criteria rather than broad scientific merit?

One way to address this possibility is by comparing the scoring of grant applications by the panelists whose role is to address the research methods of applications versus the panelists whose primary expertise is related to the substance and subject matter content of applications. For FY 2006

through 2008, 35 reviewers served on panels as methodologists and statisticians. Of these, 29 always scored consistent with or more positively than the panel on which they served, whereas only 6 ever scored more negatively than the panel. Five of those 6 scored more negatively than the panel only once, and scored consistent with or more positively than the panel at least once. There is simply no evidence that IES is nit-picking meritorious grant applications based on narrow methodological grounds.

Educators want to know what works. Randomized trials and other rigorous comparison group designs provide the best evidence on what works. Studies that address questions of efficacy and scale-up (what works) sit at the apex of a triangle of studies supported by IES, with the broad base of the triangle consisting of studies in which designs other than randomized trials are the most appropriate and rigorous.

It will be important for IES to continue to fund a variety of study designs with the goal of identifying and developing interventions and assessments that can contribute to enhanced student achievement. The late stage goal of those investments should continue to be programs that work at scale as demonstrated through rigorous comparison group designs. IES should not be deflected from this reasonable strategy by false assertions that it only funds and cares about randomized trials.

The What Works Clearinghouse

Education practitioners and policymakers want to know what works. Research that can demonstrate what works was in decline prior to IES. At the same time, causal claims of program effectiveness were on the rise, based on weak methods that could not support such claims²⁸ put forward by education researchers who didn't know better, or marketing departments of program vendors, or those who advocate for their belief systems by spinning numbers. The fundamental strategic goal of IES has been to increase the supply of rigorous research and give it a privileged position when decisions are made about the adoption of education programs and policies.

How is strong research to trump weak research in a marketplace that is unsophisticated with regard to research quality?²⁹ There has to be an entity that vets research on program effectiveness for practitioners and policymakers using rigorous scientific standards. And it has to become the preeminent source for such information, effectively muting the cacophony of conflicting claims and assertions that arise from those who advocate with numbers or draw conclusions based on methods that cannot support causal conclusions. The Food and Drug Administration (FDA) serves this function in the marketplace for therapeutic pharmaceuticals and has had a transforming effect on health outcomes in the United States and the world by elevating science over quackery, opinion, and professional best (and often wrong) guess.³⁰

Enter the What Works Clearinghouse (WWC), which has been in operation within IES for 6 years with the goal of being the central and trusted source of scientific evidence for what works in education. At this point in time, the WWC has³¹

- reviewed and reported the evidence on 492 separate branded education interventions and programs across 7 topic areas (beginning reading, elementary school math, character education, English language learners, middle school math, early childhood education, and dropout prevention);
- identified 80 of those 492 interventions as having positive or potentially positive evidence of effectiveness;
- published 7 practice guides on topics such as dropout prevention and English language learners;
- published 11 quick reviews of the research evidence from recently released research papers and reports whose public release is reported in a major national news source; and
- established methodological standards and procedures for handling a number of vexing problems in education research such as published studies that are methodologically sound but report statistical significance based on an incorrect analysis.

The products of the WWC are made available through the WWC website. Thus data on usage is a principal measure of the impact of the Clearinghouse. For FY 2008, there were 531,162 separate visits³² to the WWC website, an increase of 10 percent from FY 2007. This makes the WWC one of IES's and the Department's most popular sites.

The WWC has generated a lot of heat. A recent widely distributed communication from a developer of one of the products that was reviewed by the WWC and found to have no evidence supporting its effectiveness called on the scientific community to, "rain down condemnation on WWC." The House appropriations committee proposed a

²⁸ Hsieh, P., Hsieh, Y.P., Chung, W.H., Acee, T., Thomas, G.D., Kim, H.J., You, J., Levin, J.R., and Robinson, D.H. (2005). Is Educational Intervention Research on the Decline? *Journal of Educational Psychology*, 97: 523-529.

²⁹ I once made a presentation at a gathering of 50 or more deans of schools of education during which I asked for a show of hands from deans whose undergraduate teacher training programs required students to take a course in statistics and research methods. Two hands went up.

³⁰ Marks, H.M. (2000). *The Progress of Experiment: Science and Therapeutic Reform in the United States, 1900-1990*. Cambridge University Press.

³¹ Numbers and descriptions taken from the WWC website. Retrieved October 15, 2008, from <http://whatworks.ed.gov>.

³² A visit is an access of the website by a distinct computer as determined by its IP address. A single visit would typically involve that user accessing multiple pages and downloading several documents.

reduction in funding for the WWC for 2008, stating that it believed that the WWC efforts, “have been too costly, uncoordinated, and ineffective.”³³ The same House committee generated a report on appropriations for IES for 2009 that called on the Government Accountability Office to investigate the WWC to determine how it, “can make its reviews more scientifically valid, fair, timely, and meaningful to educators and researchers, and at a lower cost,” a question that presumes the WWC is not scientifically valid, fair, etc. There is every reason to believe that the House appropriations committee was responding to lobbying by one or more developers who are unhappy with the WWC.

Complaints about the WWC and attempts to alter it or shut it down are to be expected if it is achieving success in changing the marketplace for education products. That doesn’t mean that all criticisms are either unjustified or self-serving. A project as complex as the WWC admits of many possible designs and involves dozens of decisions that could have been made differently while still serving the goal of creating a trusted and scientifically valid source for evidence on what works in education. Some experts will prefer that different choices have been made for certain design elements, and will have good reasons for their preferences.

As an example of an issue on which experts can differ, the WWC has chosen to review interventions that are designed to have an impact on relatively immediate outcomes (e.g., a student’s ability to hear the individual sounds in spoken words), as well as interventions that are designed to achieve long-term changes in outcomes (e.g., high school graduation). Some critics of the WWC prefer that it only review the latter type of research, which follows students over significant periods of time. The WWC decided that educators who are interested in interventions that are intended to affect phonemic awareness over a period of weeks have as much call on WWC resources as educators who are interested in dropout

prevention programs that would have measurable effects over years. This could have been decided the other way, but it wasn’t.

As another example, the WWC has chosen to identify effective programs using an approach that is similar to what the FDA deploys for pharmaceuticals in that both the WWC and the FDA examine consistency of findings across what is typically a small number of trials. A new drug can be approved by the FDA based on consistent findings from as few as three Phase 2 studies, which typically involve a few dozen to about 300 people.³⁴ Similarly, the WWC will identify an education intervention as having positive evidence of effectiveness based on two or more studies showing statistically significant positive effects and no studies showing negative effects.³⁵ Some critics of the WWC would prefer that it rate interventions based on meta-analysis, a statistical technique that averages findings across all available studies to produce an estimate of the effect of an intervention. In the meta-analytic approach, there would be a criterion level of the averaged effect size across all reviewed studies based on size or statistical significance that would generate a rating of positive for an intervention.

The functional difference between the two approaches is that the WWC could rate an intervention as positive based on two studies with positive findings and one study with effects too small to be statistically significant (which would be ignored in the WWC rating scheme) whereas the meta-analytic approach would average in the effects from the small study with indeterminate findings, which might well produce an averaged effect that would not reach the threshold of a positive rating. The WWC choice was based on the goal of identifying evidence of effectiveness in research literature that is plagued with studies that have sample sizes that are too small, measures of outcomes that are unreliable, problems with the fidelity of implementation, and more. All of

³³ House of Representatives Report 110-231 from the House Reports Online via GPO Access. Retrieved from <http://wais.access.gpo.gov>.

³⁴ The FDA’s Drug Review Process: Ensuring Drugs Are Safe and Effective. Retrieved from http://www.fda.gov/fdac/features/2002/402_drug.html.

³⁵ What Works Clearinghouse Intervention Rating Scheme. Retrieved October 8, 2008, from http://ies.ed.gov/ncee/wwc/pdf/rating_scheme.pdf.

these problems conspire against finding large and statistically significant effects. In this context, identifying interventions as positive based on two or more studies with positive effects and no studies with negative effects seemed preferable to letting the findings from indeterminate studies drown out the positive signal. This could have been decided the other way, but it wasn't.

As the WWC continues to evolve, along with the education research on which it feeds, changes can and should be made to improve the WWC. It is not perfect. But it is the linchpin for the entire enterprise of evidence-based decisions in education. Without it or something very much like it, all the rigorous and relevant research in the world will not readily or reliably affect practice or policy. It is vital to continue the support and development of the WWC.

Statewide Longitudinal Data Systems

Under the Educational Technical Assistance Act of 2002, IES has received substantial appropriations from Congress to implement a grant program in which states compete for funds to design, develop, and implement statewide longitudinal data systems to allow data from individual students to be linked over time. These systems allow for more efficient and accurate reporting of education outcomes under state and federal accountability systems, are essential for the computation of certain critical outcomes such as graduation rates, and would be a necessary component of a shift away from current status models of accountability toward accountability based on student gains, so called value-added. Twenty-seven states have received data system grants to date from IES, with another round of awards to additional states pending.

One expressed purpose of these grants is, “to facilitate research to improve student academic achievement and close achievement gaps” (20 USC 9607). To date, IES grantees have had more success in building systems that address reporting for accountability than in using those systems to advance research. That is a tremendous loss to the nation because these longitudinal data systems could be playing the role in education research that health records play in epidemiology. That is, they

could be the engines for discovering relationships between policies and practices on the one hand and student outcomes on the other that would drive the development and refinement of testable hypotheses about what works.

One barrier to more research using statewide longitudinal data systems is the Federal Education Records Privacy Act (FERPA). FERPA has the laudable goal of protecting student education records but does not provide exceptions for independent researchers that would allow their access to data held at the statewide level, even under conditions that would still protect individual student data from being revealed to the general public. For example, were it permitted by law, researchers could access data only at secure data centers under IES oversight that would assure that published reports of data did not divulge individual data. ED has made some progress in addressing the needs of researchers in new regulations on FERPA, but it will require congressional action on FERPA to ensure that researchers can have ready access to student records while protecting student privacy.

Another barrier to more research using statewide longitudinal data is the lack of motivation by some states to provide access to their data for research. Some states clearly recognize the relevance to them of research using the state's own data and expend their own resources to encourage such use. Others do not. Congress might consider requiring states as a condition of receipt of federal funding for data systems to participate in regional data centers in which the state's longitudinal data would be archived and made available for research and analysis.

Appropriations

The budget of IES grew 78 percent between 2001 and 2008. But virtually all of this increase was for programs other than research. The largest increase by far was for the National Assessment of Educational Progress, to allow it to move from a schedule of one voluntary assessment every 4 years in mathematics and reading to a biennial schedule of mandatory state assessments at grades 4 and 8. This change was to support the monitoring of progress under the No Child Left Behind Act (NCLB). The

second largest increase was to support statewide longitudinal data systems. This too is a program with the primary motive of improving monitoring and reporting of progress under NCLB. The research and dissemination budget of IES received a healthy 19 percent increase in 2004 from \$139 million to \$166 million, but received no further increases through 2008 (and actually experienced a reduction of \$6 million over these years because of across-the-board budget rescissions, leaving a net increase of 15 percent since 2003). However, the inflation rate over this period was about 15 percent, which means that by 2008, we were back where we were in 2003 in constant dollars.

Coming at this another way, if we combine the two line items in the IES budget that fund research, the research and dissemination line and the special education research line, the total dollar amount available for research and dissemination in 2008 was \$231 million. ED's discretionary budget for 2008 was \$59.2 billion. Thus the proportion of the Department's total budget that was invested in research was less than half of 1 percent. In contrast, 42 percent of the discretionary budget of the U.S.

Department of Health and Human Services is invested in research.

Education research that tackles practical problems at scale is not cheap. The Broad Foundation recently gave \$44 million for a single research laboratory at Harvard University that will focus on education innovation and execute and evaluate one or two innovations annually in each of three urban school districts.³⁶ If IES were to make an investment of this magnitude in a single research center it would cripple its ability to support the field of education research as a whole. But it is only research at the scale and expense of the Broad investment that will move education research from various hothouse experiments that characterize the best of the field today into applications that can be widely deployed to improve student achievement. The nation should not have to depend on private philanthropy to fund this critical work. It is time for Congress to commit the funds to education research that it has committed to building the knowledge base in other critical components of the economy such as health care and the physical sciences. Education research used to be broken and broke. Now it is just broke. Significant investments will pay significant dividends.

³⁶ Spector, M. (2008, September 25). Broad Foundation and Harvard Launch New Education Research Center. *The Wall Street Journal*. Retrieved from <http://online.wsj.com/article/SB122237756206976343.html>.

What Have We Learned?

RAND concluded in 1972 that research had found nothing that consistently and unambiguously makes a difference in student outcomes. The National Academies concluded in 1999 that in no other field is the research base so inadequate and little used. Where are we now?

The WWC identified to date 80 separate interventions that make a difference in student outcomes, as previously noted. For example, based on three randomized controlled trials including more than 800 students in school districts in Georgia, Michigan, and New Jersey, the WWC found that Accelerated Middle Schools, self-contained academic programs designed to help middle school students who are behind grade level catch up with their age peers, had substantial effects on progressing in school.³⁷

NCER within IES has funded research on reading, writing, mathematics, science, and teacher quality that has to date generated 15 interventions that are effective at improving student outcomes under the standards of the WWC. For example, the Preschool Curriculum Evaluation Project identified one preschool curriculum, DLM Early Childhood Express supplemented with Open Court Reading, that had substantial effects on reading, phonological awareness, and language as measured at the end of the preK year, and those effects persisted through the end of kindergarten.³⁸

In addition, NCER has funded epidemiological research on the factors affecting student outcomes

that demonstrates the powerful association between teacher quality and student test scores. For example, a study of the qualifications of teachers in the New York City public schools found that the infusion of more qualified teachers into poorer schools in recent years was associated with a 25 percent reduction in the achievement gap in mathematics between students in the poorest and most affluent schools.³⁹

The National Center for Education Evaluation and Regional Assistance (NCEE) has identified several programs that are funded through the U.S. Department of Education that affect student outcomes. For example, a rigorous evaluation of two supplemental literacy programs that aim to improve the reading comprehension skills and school performance of struggling ninth-grade readers found statistically significant effects on reading comprehension across the 34 participating high schools.⁴⁰

In addition to identifying programs that work to raise student achievement, IES has identified a large number of programs that don't work as expected or intended. For example, an IES evaluation of the effectiveness of educational technology examined the impact of 16 widely used software programs using a large sample of classrooms and schools from 33 districts across the nation. In each of the four groups of products—reading in first grade and in fourth grade, mathematics in sixth grade, and high school algebra—the evaluation found no significant differences in student achievement between the classrooms that used the technology products and classrooms that did not.⁴¹

³⁷ Accelerated Middle Schools Intervention Report. Retrieved from <http://ies.ed.gov/ncee/wwc/reports/dropout/ams/>.

³⁸ Preschool Curriculum Evaluation Research Consortium. (2008). *Effects of Preschool Curriculum Programs on School Readiness* (NCER 2008-2009). National Center for Education Research, Institute of Education Sciences, U.S. Department of Education. Washington, DC.

³⁹ Boyd, D., Lankford, H., Loeb, S., Rockoff, J., and Wyckoff, J. (2007). *The Narrowing Gap in New York City Teacher Qualifications and Its Implications for Student Achievement in High-Poverty Schools*. Washington, DC: National Center for the Analysis of Longitudinal Data in Education Research. Retrieved from http://www.caldercenter.org/PDF/1001103_Narrowing_Gap.pdf.

⁴⁰ Kemple, J., Corrin, W., Nelson, E., Salinger, T., Herrmann, S., and Drummond, K. (2008). *The Enhanced Reading Opportunities Study: Early Impact and Implementation Findings* (NCEE 2008-4015). National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education. Washington, DC.

⁴¹ Dynarski, M., Roberto, A., Heaviside, S., Novak, T., Carey, N., Campuzano, L., Means, B., Murphy, R., Penuel, W., Javitz, H., Emery, D., and Sussex, W. (2007). *Effectiveness of Reading and Mathematics Software Products: Findings From the First Student Cohort* (NCEE 2007-005). National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education. Washington, DC.

Although rigorous evaluations that do not find effects are often viewed as failures, they should not be. It is the program being evaluated that failed, not the evaluation that disclosed that fact. An important part of any research agenda is identifying when we are diverting valuable resources and student time to

well-intentioned but ineffective programs. It is in the nature of education programs no less than it is in the nature of pharmaceuticals that far more will not pan out than will prove to be successful. Learning what doesn't work is as important as learning what does.



Conclusion

Very little knowledge on what works was available prior to the investment by IES in the research grants, evaluation contracts, and vetting mechanisms to develop and identify effective programs and practices. The recent explosion of knowledge from education research is inextricably tied to the simultaneous focus by IES on rigor and relevance. We have been committed to answering questions educators and policymakers care about with methods that provide answers on which they can depend. This is a different way of doing things in education research, and it has worked.

Explosive growth is relative to its base. We know much more than we did 10 years ago, and incalculably more than we knew 40 years ago, but our level of ignorance dwarfs our understanding by orders of magnitude. It has been so in the early years of other fields' transformation from consensus-based to evidence-based practice. Moving education to a point at which our research base is sufficient to assure a good education for every student is the work of a generation, not of a few years. We've started and we're moving in the right direction. Let's continue the journey with all due speed.

Appendixes

Grant and Contract Awards

IES carries out its programs through grants and contracts. The appendixes to this report include all awards made since the last biennial report to Congress. The awards are grouped by the center within IES that made the award.

Two of the four centers, the National Center for Education Research (NCER) and the National Center for Special Education Research, carry out their responsibilities primarily through grants. IES has established a number of long-term programs of research that are aligned with its priorities.⁴² These programs of research are indicated in the appendixes by the principal headings under the two research centers (e.g., Cognition and Student Learning under NCER). All grants are awarded through competitions that begin with a Request for Applications or RFA. The RFA includes background information about the topic that justifies its relevance to the priorities and mission of IES. The Standards and Review Office manages the scientific peer review of all grant applications, as described previously in this report. Those peer review processes and the associated requirements for applications as described in the RFAs ensure that funded grants are consistent with the principles of scientifically valid research and the priorities and mission of IES.

The other two centers of IES, the National Center for Education Statistics (NCES) and the National

Center for Education Evaluation and Regional Assistance (NCEE), carry out their responsibilities primarily through contracts. The sections of the appendix devoted to these two centers are organized by the administrative division of the center and include a listing of each contract and its purpose.

In the case of statistics, these contracts support the statutory mission of NCES “to collect, report, analyze, and disseminate statistical data related to education in the United States and in other nations....” NCES supports a wide range of activities, carrying out a program of more than 22 survey systems; maintaining highly visited websites; and assisting states and postsecondary institutions in building a solid infrastructure for accurate and timely statistics through cooperative systems.

For NCEE, these contracts support its statutory mission to conduct evaluations of federal education programs administered by the Secretary, to support synthesis and wide dissemination of results of evaluation and research, to provide technical assistance, and to encourage the use of scientifically valid education research and evaluation throughout the United States. These responsibilities are carried out through large-scale evaluation studies, the What Works Clearinghouse, ERIC (Education Resources Information Center), and the Regional Educational Laboratory Program.

⁴² See <http://ies.ed.gov/director/board/priorities.asp>.

Appendix A

National Center for Education Research (NCER)

NCER carries out education research activities primarily through grants.

Cognition and Student Learning

University of Illinois at Urbana-Champaign

Principal Investigator: Richard Anderson

Amount: \$2,984,069

Period of Performance: 8/16/08–8/15/12

Mindful Instruction of Nonmainstream Children

The goal of this project is to examine the efficacy of instructional practices that may give a large boost to the conceptual understanding, thinking skills, language, and motivation of “nonmainstream” children. Intellectually stimulating, personally engaging, conceptually rich instruction targeting African-American and Latina/o children, the two largest groups of nonmainstream children in the United States, will be evaluated. Children from fifth-grade classrooms with large enrollments of nonmainstream children will work in small collaborative groups and engage in open, free-flowing, peer-managed discussions that call for critical and reflective thinking. The centerpiece of the intervention is a unit of instruction that entails issues in environmental science and public policy and integrates language arts, science, and social science.

Kent State University

Principal Investigator: Katherine Rawson

Amount: \$1,266,796

Period of Performance: 9/1/08–8/31/11

Developing the Retrieval-Monitoring-Feedback Method for Improving the Durability and Efficiency of Student Learning

This project builds on prior IES-funded research to support students’ long-term and efficient learning of key course concepts through the development of the Retrieval-Monitoring-Feedback (RMF) method. Previous findings suggest that combining retrieval practice with feedback and accurate

monitoring fosters durable and efficient learning across many domains and grade levels. The RMF intervention builds on those principles by focusing on learning key term definitions, an integral part of mastery in many of the content domains in formal education. In brief, the RMF method includes initial study of key term definitions, practice retrieving the definitions, feedback about retrieval output, and student monitoring of output quality. Student monitoring is then used to schedule further practice until definitions are learned to criterion.

Teachers College, Columbia University

Principal Investigator: Deanna Kuhn

Amount: \$504,034

Period of Performance: 9/15/08–9/14/11

Extension of an Argument Curriculum to an Academically Disadvantaged Middle School Population

Higher order cognitive skills such as argument have been largely neglected in the current climate of promoting basic literacy and numeracy for all children. Yet the ability to use reasoned argument is widely assumed as an outcome of K-16 education. Available assessments indicate that such expectations are not being met. An argument curriculum for middle schoolers, based on dialogic argument as a path to developing individual skills in construction and evaluation of arguments, has met with preliminary success in a heterogeneous middle school classroom. The purpose of this project is to assess the utility of this curriculum in developing argument skills among academically disadvantaged middle school students, as well as to further identify which components of the curriculum are critical to its effectiveness.

Michigan State University

Principal Investigator: Kelly Mix

Amount: \$1,319,945

Period of Performance: 8/16/08–8/15/11

Making Sense of Concrete Models for Mathematics

The goal of this project is to develop and document the feasibility of an intervention based on the use of concrete models to teach mathematics. Specifically, the research team is investigating the conditions

under which concrete models support learning based on the cognitive mechanisms they might engage. By manipulating factors such as direct contact, length of exposure, teacher-directed structure, exposure to written algorithms, numbers of models, and models that elicit different actions, the project seeks to determine not only whether manipulatives work but under what conditions they do and why, at a process level. The project focuses on the acquisition of place value concepts in the early elementary grades because this is a well-known challenge for young learners and one that interferes with the subsequent acquisition of more complex algorithms and concepts.

Vanderbilt University

Principal Investigator: Laura Novick

Amount: \$665,247

Period of Performance: 7/1/08–6/30/11

A Cognitive Approach to Implementing Tree Thinking in High School and College Biology Curricula

In biology, a type of hierarchical diagram called a cladogram is used to depict evolutionary histories among species or groups of species. These diagrams are the most important tool that contemporary scientists use to reason about evolutionary relationships. Such understanding has been termed “tree thinking.” Recently, a number of researchers have argued that this approach must be incorporated into the evolution curriculum if any progress toward meaningful science literacy in this domain is to be made. This project has three primary goals. The first goal is to identify and understand the cognitive and perceptual factors that influence high school and college students’ ability to understand and reason from cladograms. This information is critical for developing effective curricula for teaching tree thinking, and assessments that will allow students to demonstrate their competence in this domain (therefore, their understanding of macroevolution). The second goal is to create novel curricula, where none currently exist, to teach tree thinking at the undergraduate and high school levels. The final goal is to provide an initial implementation and assessment of the curricula in biology classes.

University of Wisconsin-Madison

Principal Investigator: Sadhana Puntambekar

Amount: \$1,453,848

Period of Performance: 9/1/08–8/31/11

Scaffolding Students’ Use of Multiple Representations for Science Learning

The central premise of this project is that a careful integration of multiple representations within an instructional unit, and the design of scaffolding that enables translation between representations, will lead to a deeper conceptual understanding of science concepts. The main objective therefore is to develop and evaluate a novel approach to science instruction that engages multiple representations—text, hands-on experimentation, and interactive computer simulations—which incorporates scaffolding both by the teacher and the computer, in order to immerse middle school students in these practices of science. Specific goals of the research are to promote deeper conceptual learning by integrating multiple representations and activities that engage students in scientific practices; investigate how scaffolding built into instructional materials and the design of representations will lead to deeper science understanding and representational competence; and explore how teacher facilitation can help students connect and translate between representations.

Northwestern University

Principal Investigator: Lance Rips

Amount: \$599,291

Period of Performance: 7/1/08–6/30/11

The Organization of Mathematical Knowledge

Students’ ability to understand a domain of mathematics depends on complex cognitive skills, including memory for the domain’s contents, comprehension, reasoning, and problem solving. This project investigates two possible ways of organizing a domain that may have effects on students’ memory, understanding, and problem solving: taxonomic relations among objects (e.g., prime numbers are a subcategory of natural numbers); and the deductive relations that produce results from initial definitions and that may cross-cut taxonomic groupings (e.g., the unique factorization theorem). Successful students must eventually learn about both the objects and the deductive relations to master a mathematical domain, but structuring

the information in one or the other of these ways by object-based or by deductive structure may boost students' ability to recall important facts, solve problems, and explain the domain to others. This project compares these two forms of organization, using techniques from cognitive psychology. These studies should have direct implications for educational practice in mathematics by indicating how different ways of organizing mathematical content in a textbook, syllabus, or lecture can change students' understanding.

University of Texas Health Science Center at Houston

Principal Investigator: Jason Anthony

Amount: \$2,659,751

Period of Performance: 6/1/08–5/31/12

Efficacy of Earobics Step 1 in English Language Learners and Low SES Minority Children

Research demonstrates that high-quality classroom instruction and supplemental interventions can help close the achievement gaps between typically developing children and those at risk for reading failure because of low levels of initial literacy, socioeconomic disadvantage, and/or learning English as a second language. Significantly, the best predictors of children's responses to classroom instruction and compensatory intervention tend to be the extent of their literacy and preliteracy skills before instruction begins. These effects of early literacy skills on later reading achievement highlight the need for early intervention. Earobics Step 1 is a widely used computer-based instructional literacy tutor that teaches phonological awareness, sound discrimination, and letter-sound correspondence to children aged 4 to 7 years. The purpose of this project is to test the efficacy of standard implementation of Earobics Step 1 in separate samples of low SES minority children and low SES English language learners, and to compare the efficacy of standard implementation of this program to theoretically motivated variations in the program's phonological awareness instructional sequencing.

Boston College

Principal Investigator: Michael Russell

Amount: \$1,727,059

Period of Performance: 6/1/08–5/31/12

The Diagnostic Geometry Assessment Project

Student assessment is a central component of the instructional process. Learning is affected by students' current knowledge and is facilitated when new knowledge and skills are consistent with and build upon current knowledge. The purpose of this project is to develop and validate a diagnostic formative assessment of geometric conceptions in the middle grades, and to develop instructional resources to assist teachers in addressing flawed or underdeveloped conceptions identified by the assessment. Unlike current achievement and diagnostic tests which provide information about a students' ability within a given domain, the Diagnostic Geometry Assessment will diagnose the reason(s) why students struggle with a given geometric concept, and will provide teachers with instructional strategies and resources designed to address the targeted conceptions.

Carnegie Mellon University

Principal Investigator: Robert Siegler

Amount: \$1,184,676

Period of Performance: 6/1/08–5/31/11

Improving Children's Numerical Understanding

The ability to estimate numerical magnitude is important, not only because of its role in mathematical thinking but also because it is a part of daily life. Estimation is also related to other aspects of mathematical ability, including arithmetic skill, conceptual understanding of computational procedures, and math achievement test scores. Preliminary evidence suggests that increasing young children's use of appropriate representations of numerical magnitudes can improve their estimation and, by extension, their math achievement. The research team has previously developed interventions for preschool and elementary school children to support the acquisition of linear representations of numerical magnitudes. The goals of the current project are to test whether: (1) these interventions increase the ability to learn arithmetic; (2) these interventions can be effectively executed by Head Start personnel working with small groups of

children; (3) lengthening the intervention increases learning; and (4) the intervention can be extended to what may be a manifestation of the same underlying problem—middle school students’ poor understanding of rational numbers (e.g., fractions, decimals, percentages).

Fordham University

Principal Investigator: William Whitten

Amount: \$889,937

Period of Performance: 6/1/08–5/31/11

Guided Cognition for Unsupervised Learning of Mathematics

Classroom interactions among students and teachers include many activities intended to help students clarify, organize, and remember material. In contrast to classroom learning, individual learning as represented by paper-based homework, for example, may be impoverished. Such learning is generally unsupervised, self-paced, and self-monitored. These characteristics may be disadvantages if the learning activities fail to evoke the effective cognitive events that are common in supervised learning environments. In this project, the research team examines whether it is possible to enrich the learning value of mathematics homework by selectively incorporating cognitive events that occur frequently in supervised group learning. The project’s goal is to determine which of these events facilitate unsupervised individual learning, and which do not, so that ineffective study activities can be replaced with homework activities that result in significantly better comprehension and long-term retention.

Carnegie Mellon University

Principal Investigator: David Mostow

Amount: \$1,999,543

Period of Performance: 7/1/07–6/30/11

Explicit Comprehension Instruction in an Automated Reading Tutor That Listens

Many students struggle to understand what they read even after they have achieved proficiency in basic reading skills (e.g., decoding, word recognition). Explicit instruction in reading comprehension, especially in the early grades, has been widely neglected in classroom practice, with relatively little research conducted that develops and evaluates instructional approaches for teaching

reading comprehension in the primary grades. The purpose of this project is to develop and evaluate an automated tutorial intervention to help children in the first through third grades learn and use reading comprehension strategies that help improve their comprehension of both narrative and informational text. Although the researchers intend the intervention to be used with typically developing readers, they are designing it to be appropriate for readers with disabilities, and expect the automated tutor to have the greatest value for students with reading difficulties.

University of Oregon

Principal Investigator: Helen Neville

Amount: \$1,800,305

Period of Performance: 7/1/07–6/30/11

Training Attention in Preschool: Effects on Neurocognitive Functions and School Performance

This project, based on research regarding what affects young children’s ability to maintain attention despite distractions, aims to develop and assess methods to improve attentional focus in preschoolers who are at high risk for school failure. Initial studies suggest that such interventions may be able to improve young children’s performance on a wide range of skills, such as language development, preliteracy, attention, memory, and early numeracy. The purpose of this project is to further develop, test, analyze, and document the effects of attention training interventions for improving young children’s cognitive and school performance.

University of California, San Diego

Principal Investigator: Harold Pashler

Amount: \$1,565,989

Period of Performance: 7/1/07–6/30/11

Harnessing Retrieval Practice to Enhance Learning in Diverse Domains

Both students and instructors tend to think of testing only as a method of evaluating students’ performance. However, a growing body of research demonstrates that the process of actively recalling information (e.g., by answering fill-in-the-blank questions on a test) can facilitate learning more effectively than other kinds of review. Moreover, several recent studies have shown that strategic use of testing can help students remember information

longer. In this project, the research team is applying the principle of active recall of information to the design of software systems that guide students' study of written and visual information. The team will experimentally test the potential effect of these software systems on student learning of social studies and geography in classroom settings.

George Mason University

Principal Investigator: Robert Pasnak

Amount: \$684,666

Period of Performance: 7/1/07–6/30/09

An Economical Improvement in Literacy and Numeracy

To address the challenge of improving learning outcomes for young children, in a previously funded IES project the researchers developed a cognitive intervention for children who had difficulty mastering knowledge and skills appropriate for kindergarten. This cognitive intervention consists of small-group activities to help children learn two basic abstract thinking concepts: the oddity principle and insertion-into-series. The oddity principle requires children to recognize similarities and differences, to sort into categories, and to categorize objects hierarchically into basic, subordinate, and superordinate classes. Unidimensional seriation occurs when children are able to arrange objects in order by size or some other ordinal dimension. In their FY 2003 IES project, the researchers demonstrated that the intervention produced significant advances in numeracy and knowledge of letters and letter sounds when implemented with kindergarten children. In the current project, the research team will evaluate whether the intervention has the same effects when implemented in Head Start classrooms with a multi-ethnic population of 3- and 4-year-olds.

Carnegie Mellon University

Principal Investigator: Philip Pavlik

Amount: \$1,120,955

Period of Performance: 7/1/07–6/30/11

Bridging the Bridge to Algebra: Measuring and Optimizing the Influence of Prerequisite Skills on a Prealgebra Curriculum

The purpose of this project is to develop an automated tutorial intervention to improve learning in a prealgebra curriculum. In particular, the goal

of this intervention is to help children learn new complex math skills by attending to prerequisite math skills. In many theories of learning, complex skills are posited to be learned more easily or more deeply when students are already fluent or skillful in the component skills at the time of learning. This research team will develop and test an intelligent computer tutor intended to help students learn prealgebra skills key to success in algebra. The tutor will be designed to tailor practice specifically to each student's individual skill set.

Boulder Language Technologies

Principal Investigator: Wayne Ward

Amount: \$3,114,275

Period of Performance: 7/1/07–6/30/11

Improving Science Learning Through Tutorial Dialogs

In the 2002 National Assessment of Educational Progress (NAEP), only 2 percent of U.S. students attained advanced levels of science achievement by grade 12. A significant factor contributing to this poor performance is students' limited ability to understand and learn from science text. In this study, the researchers are using a dialog interaction system, Questioning the Author, to help students learn and integrate new scientific concepts with what they already know in order to deepen and expand the knowledge that was presented in class. The researchers are also evaluating the use of a virtual tutor that acts like a human tutor in conducting the dialogs.

University of Notre Dame

Principal Investigator: Nicole McNeil

Amount: \$761,425

Period of Performance: 7/1/07–6/30/11

Arithmetic Practice That Promotes Conceptual Understanding and Computational Fluency

Algebra is widely regarded as a "gatekeeper" to future educational and employment opportunities. Unfortunately, there are growing concerns about children's poor performance and inadequate understandings of fundamental concepts in algebra, such as mathematical equivalence. In response to these concerns, many mathematics educators have called for algebra to be treated as a K-12 strand. They argue that teachers should focus on fundamental algebraic concepts, even at the elementary school level. However, some

educators worry that such an emphasis on concepts forces teachers and students to neglect repeated practice with “basic” skills and computations. The purpose of this project is to develop and evaluate an approach to arithmetic practice that promotes both computational fluency and conceptual understanding.

Northern Illinois University

Principal Investigator: Keith Millis

Amount: \$1,986,743

Period of Performance: 9/1/07–8/31/11

Acquiring Research Investigative and Evaluative Skills for Scientific Inquiry

The researchers are developing and testing an interactive intelligent tutor called Acquiring Research Investigative and Evaluative Skills (ARIES) that teaches scientific inquiry skills to university students. ARIES teaches these skills by having the user hold conversations with two animated pedagogical agents as he or she solves a number of engaging problems in the social and physical sciences. The project is designed to enable the research team to identify the features of the intelligent tutor system that are important for improving student learning. Although initial studies will be conducted with college students, the researchers intend for the final version of ARIES to be a flexible, low-cost solution for learning scientific inquiry in high school chemistry, biology or life science, and psychology courses.

University of Illinois at Urbana-Champaign

Principal Investigator: Brian Ross

Amount: \$1,203,164

Period of Performance: 7/1/07–6/30/10

Conceptual Analysis and Student Learning in Physics

Cognitive psychologists have discovered that experts and novices in a field understand content and approach problem solving in that field in different ways. For example, expert physicists and physics students view the organizational structure of physics content in very different ways. To physicists, the beauty of physics lies in its hierarchical nature—a few general principles that can be applied to solve problems across a variety of contexts. Students, however, generally focus on learning equations that apply to specific types of problems, rather than on learning the underlying concepts from which the

equations are derived. This research team argues that most beginning physics instruction targets learning how to solve problems and limits students’ conceptual understanding, retention, and ability to advance to more complex materials. The purpose of this project is to develop and test an easy-to-implement intervention for physics instruction that helps students perform conceptual analyses and prepares them for future learning in the domain. The objective is to gain a better understanding of how physics instruction influences conceptual understanding and problem solving, and to find a means of improving conceptual analysis in the physics classroom.

Ohio State University

Principal Investigator: Vladimir Sloutsky

Amount: \$1,760,669

Period of Performance: 10/7/07–9/30/11

The Role of External Representations in Learning and Transfer of Mathematical Knowledge

Abstract mathematical and scientific concepts pose challenges for the young learner. One way of addressing this challenge has been to introduce abstract concepts through concrete instantiations. For example, manipulatives have been used in classrooms to aid the learning of arithmetic. The purpose of this project is to examine how concreteness may affect learning and transfer of the learned knowledge to new situations. This type of research has the potential to promote mathematics learning, and may also have important implications for the teaching of mathematics. Based on theoretical considerations and previous findings, the researchers predict that greater concreteness will hinder transfer compared to more abstract, generic instantiations. The researchers will also examine why concrete learning aids hinder transfer and how these negative effects can be alleviated.

Boise State University

Principal Investigator: Keith Thiede

Amount: \$1,837,208

Period of Performance: 8/15/07–08/14/11

Improving Metacomprehension and Self-Regulated Learning From Scientific Texts

A great deal of student learning occurs in self-regulated activities such as reading or studying

outside of a structured classroom context. For these activities, accurate metacognitive (self) monitoring is critical to effective study. If a student does not accurately differentiate well-learned material from less-learned material, he or she could waste time studying material that is already well learned, or worse, fail to restudy material that has not yet been adequately learned. However, students are not adept at judging their own levels of comprehension. In their work, the researchers have tried to understand the factors that lead to poor metacomprehension (judging one's own understanding) accuracy. The goal of better metacomprehension accuracy is ultimately to support better self-regulated study behaviors, which in turn should result in better learning outcomes. The purpose of this project is to explore and test methods of improving reading comprehension, and the ability to learn effectively from text, by improving the effectiveness of self-regulated learning.

Early Childhood Programs and Policies

Ohio State University

Principal Investigator: Laura Justice

Amount: \$3,073,485

Period of Performance: 7/15/08–7/14/12

Efficacy of Read It Again! In Rural Preschool Settings

The purpose of this project is to test the efficacy of a fully developed language and literacy curricular supplement for preschoolers participating in need-based programs in rural communities. The research team will examine the efficacy of Read It Again!, a 30-week, 60-lesson program that targets a systematic and explicit progression of high-priority skills in four language/literacy domains (narrative ability, vocabulary knowledge, phonological awareness, and print knowledge). Read It Again! was conceived for low-cost, at-scale use by preschool educators working in rural settings. It was designed for reliability, whereby preschool educators can implement it with high fidelity regardless of background knowledge, prior educational training, and program configuration. It was also designed for accessibility, whereby preschool educators can fully access the program at no cost and will need few additional materials or professional development supports for its implementation.

Florida State University

Principal Investigator: Beth Phillips

Amount: \$1,387,041

Period of Performance: 7/1/08–6/30/11

Using Educational Television to Enhance Young Children's Language and Vocabulary Skills

The purpose of this project is to develop an intervention designed to enhance and accelerate the vocabulary and language acquisition of preschool children from backgrounds of poverty and risk for school difficulties. The product from the research will be a fully developed, 16-week modular intervention including all teacher and child materials, edited video content, and integrated activity lesson plans focused on explicit and interactive instruction of target vocabulary and language content. The ultimate goal is to have a fully designed curricular and professional development package ready for testing in a randomized controlled trial at the conclusion of the project period.

Florida State University

Principal Investigator: Cynthia Puranik

Amount: \$1,133,667

Period of Performance: 7/1/08–6/30/12

Test of Emergent Writing Skills

Writing is a challenging activity for most school-age children as noted from children's performance on national assessments. The purpose of this project is to devise, develop, and validate an assessment instrument designed to examine emergent writing in preschool children, with the ultimate goal of producing an assessment protocol that can be used by classroom teachers and educators working with young children to identify those at risk for later writing difficulties.

University at Buffalo, State University of New York

Principal Investigator: Douglas Clements

Amount: \$4,541,974

Period of Performance: 6/1/08–5/31/12

Increasing the Efficacy of an Early Mathematics Curriculum With Scaffolding Designed to Promote Self-Regulation

Preschoolers who live in poverty typically show lower math achievement and often have greater problems with emotional self-regulation than their

middle-class peers. The purpose of this project is to examine the efficacy among low-income children of an intervention that combines mathematics learning and emotional self-regulation skills. The research team is synthesizing two interventions—Building Blocks, a research-based mathematics curriculum evaluated by the What Works Clearinghouse as having positive effects; and the Scaffolding Self-Regulation component of Tools of the Mind, which utilizes specific strategies that previous research has shown to be successful in improving young children’s self-regulation competencies and academic achievement. The researchers will examine the efficacy of this intervention for improving math achievement scores and emotional self-regulation skills among low-income children.

University of California, Berkeley

Principal Investigator: Prentice Starkey

Amount: \$3,000,482

Period of Performance: 7/1/08–6/30/12

Closing the SES Related Gap in Young Children’s Mathematical Knowledge

Recent intervention research has found that early mathematics enrichment can significantly enhance low-income children’s mathematical knowledge. However, providing a math intervention for 4-year-olds alone does not close the socioeconomic gap in early mathematical knowledge. In this project, the research team is evaluating the efficacy of a 2-year preschool math intervention that begins when children are 3 years old and continues for 2 years. In particular, the research team is comparing the effects of 1 versus 2 years of preschool math intervention.

Education Leadership

University of Michigan

Principal Investigator: Roger Goddard

Amount: \$2,989,775

Period of Performance: 7/1/08–6/30/12

A Randomized Controlled Trial to Assess the Efficacy of the Balanced Leadership Program

The purpose of this project is to assess the efficacy of the Balanced Leadership Professional Development Program for School Leaders developed by Mid-Continent Research for Education and Learning (McREL). Based on more

than 10 years of research, the program uses the Balanced Leadership framework to teach principals how to fulfill 21 key leadership responsibilities, build a purposeful community, focus their leadership appropriately, and adjust their leadership based on the magnitude of the change they want to encourage. The research team will conduct an experimental study in which one-half of a sample of schools is randomly assigned to receive the Balanced Leadership program (the treatment group) and the other half (the control group) is assigned to continue conducting “business as usual” using existing school and district practices.

University of Pennsylvania

Principal Investigator: Andrew Porter

Amount: \$1,597,179

Period of Performance: 9/1/08–8/31/12

The Development and Validation of the Vanderbilt Assessment of Leadership in Education

Principal leadership is an essential element of successful schools. The identification and development of effective leadership, however, has been hampered by the paucity of technically sound tools for assessing and monitoring the performance of school leaders. The purpose of this project is to continue the development and validation of the Vanderbilt Assessment of Leadership in Education (VAL-ED), a newly developed instrument that assesses the effectiveness of principal leadership behaviors. VAL-ED is an evidence-based rating scale that assesses principals’ behaviors known to directly influence teachers’ performance and, in turn, student learning.

Vanderbilt University

Principal Investigator: Leonard Bickman

Amount: \$1,995,709

Period of Performance: 3/1/07–2/28/11

Improving Principal Leadership Through Feedback and Coaching

Principal leadership has been suggested as having an indirect but important influence on student achievement. Numerous studies outside of education have reported that improved leadership, increased leader self-awareness, and overall improved performance are associated with supervisors receiving feedback from subordinates. However, school principals rarely receive systematic

feedback from staff and are even less likely to receive systematic coaching on how to use this feedback. A major purpose of this project is to develop a system of feedback from teachers to principals, and to determine whether systematic feedback regarding principal leadership influences both the quality of that leadership and in turn student achievement.

Education Policy, Finance, and Systems

Massachusetts Department of Elementary and Secondary Education

Principal Investigator: Carrie Conaway

Amount: \$2,948,195

Period of Performance: 7/1/08–6/30/12

Massachusetts Expanded Learning Time: Implementation and Outcomes

Providing additional instruction time in the school day and/or year is one reform initiative that may improve academic outcomes. To address this potentially promising strategy, the Massachusetts Legislature funded the Expanded Learning Time (ELT) initiative, which provides successful district applicants with grants to plan for and implement expanded schedules in selected schools. In this project, the research team is using a mixed methods quasi-experimental design and interrupted time series analysis to examine the impact of the ELT initiative on student achievement.

University of Pennsylvania

Principal Investigator: Elliot Weinbaum

Amount: \$968,683

Period of Performance: 8/1/08–7/31/11

School Responses to AYP Classification Due to Student Subgroups and the Relationship to Student Achievement

The purpose of this project is to examine the effects of school classification under No Child Left Behind on school improvement and student achievement. Rather than focus on generally low-performing schools as other research has done, this research focuses on schools that fail to meet adequate yearly progress (AYP) goals due to one student subgroup. In 2008, schools in Pennsylvania will be required to meet minimum proficiency levels that shift

from 45 to 56 percent in mathematics and from 54 to 63 percent in reading. More than 2,000 public schools will need to increase achievement in order to meet these new goals and avoid classification as a “school in need of improvement.” Some percentage of these schools (forecasts for the number are difficult to make at this time but range from 200 to 500 schools) will fail to meet AYP for the first time and will do so because of the performance of one student subgroup in the schools. The research team will use mixed-methods and a regression-discontinuity design to estimate the effect on achievement outcomes of being labeled “in need of improvement” at the whole school level, as well as for various subgroups.

University of Pennsylvania

Principal Investigator: John Fantuzzo

Amount: \$699,999

Period of Performance: 7/1/08–6/30/10

Kids Integrated Data System: An Evidence-based System for Enhancing Educational Proficiency and Social Adjustment

This research project is designed to demonstrate the utility of the Kids Integrated Data System (KIDS) to provide unique and detailed information concerning students’ eventual academic proficiency and social adjustment. KIDS is one of the nation’s first fully integrated archival systems of municipal data for children and youth. The ultimate goals are to provide educational policymakers with accurate student growth trajectories for academic nonproficiency, truancy, and problematic classroom behavior; show the relations of such outcomes with early biological and social risks; reveal the growth trajectories of school precursors to such outcomes and the earliest accurate detection points for outcomes; and clarify the geospatial manifestation of risk factors as they are associated with school and home neighborhood contexts. A developmental epidemiological model will focus on what, how, when, and where early biological and social risk factors impede the development of educational competencies for an entire population of third-grade students in a large, economically distressed urban city. For this study, educational records from the school district will be integrated with biological birth risks, poverty, low maternal education, maternal depression, homelessness, and child

maltreatment. The primary education outcomes of interest for this study are third-grade standardized reading and mathematics achievement, classroom behavioral adjustment, and attendance.

National Bureau of Economic Research

Principal Investigator: Susan Dynarsky

Amount: \$610,705

Period of Performance: 3/1/08–2/28/10

Catholic School Prices, Private School Attendance, and Student Outcomes

The purpose of this project is to inform the school choice debate by identifying the relationship between private school attendance and academic outcomes. Specifically, the researchers are examining the use of tuition discounts in Catholic schools to estimate the causal impact of Catholic schooling on student achievement. The researchers will estimate how the price elasticity of private school enrollment (the willingness and ability of parents to move their children between schools due to changes in the price of private school tuition) varies with the characteristics of households and local education markets.

University of Wisconsin-Madison

Principal Investigator: Robert Meyer

Amount: \$1,600,000

Period of Performance: 3/1/08–2/28/12

Creating an Integrated Resource Information System to Assess Student, Teacher, Classroom, and School Effects on Value-Added Student Learning Gains and to Support More Cost-Effective Budgeting

With increased accountability demands on school districts to improve student achievement, districts are increasingly asked to link resource allocation decisions to student outcomes. The purpose of this project is to create an integrated resource information system (IRIS) to provide school district leaders and staff with the ability to assess student, teacher, classroom, and school effects on student learning gains, and then to connect these resources to improved student learning. The development of IRIS will be conducted in the Milwaukee Public Schools.

Carnegie Mellon University

Principal Investigator: Dennis Epple

Amount: \$2,069,750

Period of Performance: 3/1/07–2/28/11

Determinants of Student Outcomes in an Urban School District: Educational Interventions and Family Choices

Like many urban school districts, the Pittsburgh Public School District has sustained declining enrollments, increased budgetary pressures, low student achievement relative to state and national norms, and large racial gaps in achievement. In 2005, the Pittsburgh Public Schools enacted a plan for reform. This “right-sizing plan” encompassed a number of specific strategies to improve student achievement, including closing selected low-performing schools; reconstituting other low-performing schools as “accelerated learning academies” with extended school hours; moving away from comprehensive middle schools toward K-8 schools; enhancing professional development; and using a comprehensive school reform model known as America’s Choice. The purpose of this project is to study and evaluate the effect of this reform agenda on student achievement, choices made by parents regarding which school children attend, and the competitiveness of the public schools.

Western Michigan University

Principal Investigator: Gary Miron

Amount: \$348,136

Period of Performance: 1/1/07–12/31/08

Evaluation of the Kalamazoo Promise

The *Kalamazoo Promise* is a scholarship program for students who have attended Kalamazoo Public Schools in Michigan. Announced in November 2005, the scholarship program provides 4 years of tuition and fees at any of Michigan’s public colleges or universities. Funded by a group of anonymous donors, the program seeks to remove financial barriers to attending college for those students who have attended Kalamazoo Public Schools and have lived within its boundaries for at least 4 years. Because all Kalamazoo Public School students are eligible regardless of financial means, the program also seeks to transform the school district by ensuring that all students are prepared for a postsecondary education. The purpose of this

project is to conduct an initial evaluation of the potential efficacy of the scholarship program on student achievement and other education outcomes.

Stanford University

Principal Investigator: Sean Reardon

Amount: \$500,000

Period of Performance: 4/1/07–3/31/09

The Effects of Racial School Segregation on the Black-White Achievement Gap

Over the last few decades, African-American students have scored on average from one-half to one standard deviation below White students on national tests of math and reading. The primary research question addressed in this project is whether school segregation patterns (both racial and economic) account for some of the variation in the racial achievement gap. More specifically, are policies and school assignment practices aimed at reducing racial segregation associated with reductions in racial achievement gaps? The research team is examining data on achievement gaps using state assessment data systems for the years 1995-1996 through 2006-2007. Data on segregation levels are drawn from the Common Core of Data, a publicly available dataset compiled annually since 1986-1987 by the National Center for Education Statistics.

Education Technology

University of Connecticut

Principal Investigator: Scott Brown

Amount: \$1,496,566

Period of Performance: 8/1/08–7/31/11

Expanding the Science and Literacy Curricular Space: The GlobalEd II Project

Recent policy initiatives across local, state, and national levels have placed increased pressure on schools to improve student performance in the domains of literacy, mathematics, and science. Concurrent with the demands for accountability, academic standards in these areas have also expanded, requiring teachers to cover more material in a curricular space that has not grown commensurately. As a direct consequence, many school districts redesignated instructional time from other disciplines, such as social studies, in order to dedicate more time to subjects that are

assessed through state-mandated, high-stakes standardized tests. However, it has been argued that because of the interdisciplinary nature of subjects like social studies, the shift in instructional time deprives students of the opportunity to ground their knowledge of literacy, math and science in areas that can demonstrate authentic applications, and promote learning outcomes. Problem-based learning researchers have illustrated for decades that leveraging interdisciplinary contexts as a venue to engage in real-world problem solving can deepen students' understanding, flexibility in application, and transfer of knowledge. Recognizing this, the GlobalEd II Project utilizes educational technologies currently available in most eighth-grade classrooms to build upon the interdisciplinary nature of social studies as an expanded curricular application aimed at increasing instructional time devoted to science and persuasive writing in a virtual environment.

University of Memphis

Principal Investigator: Danielle McNamara

Amount: \$2,015,456

Period of Performance: 7/1/08–6/30/11

The Writing Pal: An Intelligent Tutoring System that Provides Interactive Writing Strategy Training

The purpose of this project is to develop an automated, intelligent tutoring system that provides writing strategy instruction. This system will be evaluated with high school students (grades 9 through 12) and English/Language Arts teachers from urban and suburban school districts. The project's goal is to provide interactive and adaptive strategy training that scaffolds the students toward independent use of writing strategies, and to provide the educational community with an automated, instructional writing tool.

Harvard University

Principal Investigator: Christopher Dede

Amount: \$1,500,000

Period of Performance: 7/1/08–6/30/11

Advancing Ecosystems Science Education via Situated Collaborative Learning in Multi-User Virtual Environments

Content knowledge about ecosystems and populations is an important strand of the life science content standards, and the processes underlying ecosystems exemplify sophisticated causal

mechanisms (e.g., systems dynamics) foundational for advanced science and mathematics. However, even after instruction, students often hold inaccurate interpretations about ecosystems' structural patterns and systemic causality. To meet this shortfall in current, largely textbook-based, curricula, the purpose of this project is to develop a multi-user virtual environment-based ecosystems science curriculum based on grades 6 and 7 life science National Science Education Standards.

WestEd

Principal Investigator: Edys Quellmalz
Amount: \$1,499,459
Period of Performance: 7/1/08–6/30/11

SimScientists: Interactive Simulation-Based Science Learning Environments

The purpose of this project is to develop and document the feasibility and potential efficacy of a technology-based science intervention for middle school students. SimScientists will incorporate design principles for effective instruction and assessment derived from learning research. Simulation-based modules will supplement and extend existing science instructional materials, and will be designed to immerse students in authentic environments that model principles in three natural world systems: ecosystems, force and motion, and climate systems.

University of Memphis

Principal Investigator: Andrew Olney
Amount: \$1,858,176
Period of Performance: 7/1/08–6/30/11

Guru: A Computer Tutor That Models Expert Human Tutors

The purpose of this project is to develop Guru, an expert computer tutor, by modeling the strategies and dialog of expert human tutors. Expert human tutors promote larger learning gains than novice human tutors. The research team has previously built and evaluated a novice computer tutor that performs as well as novice human tutors. The Guru expert tutor, by using expert human tutor strategies, actions, and dialog, should promote larger learning gains than previous novice computer tutors. In future efficacy studies, Guru could be used to further our understanding of the processes and mechanisms of expert tutoring by manipulating

strategies and dialog moves and observing student learning outcomes. The developed intervention will consist of an expert computer tutor for ninth-grade biology, with the goal of improving educational outcomes on the Tennessee Gateway Science Test, which students must pass in order to receive a high school diploma.

Carnegie Mellon University

Principal Investigator: David Mostow
Amount: \$2,581,691
Period of Performance: 7/1/08–6/30/11

Accelerating Fluency Development in an Automated Reading Tutor

The purpose of this project is to develop an automated tutorial intervention to accelerate second- and third-grade children's development of oral reading fluency by improving the process of text selection, combining story reading with practice on individual words in varying amounts of context, optimizing the spacing of word practice, and providing graphical feedback on oral reading prosody so as to encourage comprehension processes. The project will exploit and extend a uniquely instrumented research platform developed previously—an automated Reading Tutor that displays stories on a computer screen, uses speech recognition to listen to children read aloud, and responds with spoken and graphical assistance. Its ability to listen enables novel continuous assessments of students' reading progress; its ability to vary its instruction enables it to administer randomized controlled trials; and its ability to log its interactions enables it to capture detailed, longitudinal data on development of reading skills.

University of California, Santa Cruz

Principal Investigator: Judith Scott
Amount: \$1,493,113
Period of Performance: 7/1/08–6/30/11

Explicit Scaffolding for Word Learning in Context Through Multimedia Word Annotation

According to a recent NAEP report on reading, a persistent and significant gap exists in reading scores between middle-class and socioeconomically disadvantaged groups of students in middle school classrooms. Although many factors contribute to the underperformance of low-income students and English language learners, research indicates that

differences in students' knowledge of vocabulary are a key element in academic achievement. When too many words are unknown in a text, reading comprehension suffers. The goal of this project is to develop a computer system that can provide middle school students with explicit scaffolding for word learning in context through multimedia, multilingual word annotation.

University of Massachusetts Amherst

Principal Investigator: Beverly Woolf

Amount: \$1,348,601

Period of Performance: 7/1/08–6/30/11

Teaching Every Student: Using Intelligent Tutoring and Universal Design to Customize the Mathematics Curriculum

Student emotion can have a large impact on learning and high-stakes testing. The purpose of this project is to collect process data to determine the feasibility and usability of intelligent tutors that detect and respond to student affect, with the ultimate goal of improving mathematics achievement for all students. The research team will develop and evaluate three major software components: affect detection software to automatically monitor and recognize student disengagement; a suite of interventions that have the potential to bring students back to an engaged state; and teacher assessment tools that inform teachers about each student's progress and affect. In addition, web-based tutors will provide teachers with student and class assessment by individual topics and provide data for teachers to make instructional decisions.

Harvard University

Principal Investigator: Christopher Dede

Amount: \$1,164,167

Period of Performance: 9/1/08–8/31/11

Studying the Potential of Virtual Performance Assessments for Measuring Student Achievement in Science

The teaching of scientific inquiry has been identified as a crucial part of the science curriculum. However, research has documented that higher order thinking skills important to scientific inquiry, such as formulating scientific explanations, communicating scientific understanding, and finding approaches to novel situations, are difficult to measure

with multiple choice or even with constructed-response paper-and-pencil tests. In this project, the researchers are developing and validating a virtual performance assessment tool based on National Science Education Standards in middle school science. Single-user, immersive interactive simulations that serve as virtual performance assessments will be developed as a complement to conventional paper-and-pencil tests that researchers have demonstrated are not aligned with nor are adequate measures of state standards on scientific inquiry.

Interventions for Struggling Adolescent and Adult Readers and Writers

Harvard University

Principal Investigator: Nonie Lesaux

Amount: \$640,544

Period of Performance: 7/1/08–6/30/11

Increasing Opportunities to Learn in Urban Middle Schools

Increasing opportunities to learn for all students in urban public schools is imperative, especially for students who are English language learners. English language learners are almost twice as likely as their native English-speaking peers to be retained a grade and/or to drop out of school. This study will use an experimental design to evaluate the efficacy of a comprehensive vocabulary instruction intervention, Academic Language Instruction for All Students (ALIAS), in urban middle school classrooms. ALIAS is an instructional intervention designed to improve the reading comprehension of English language learners and their classmates through explicit instruction in vocabulary and word-learning strategies.

University of Texas at Austin

Principal Investigator: Sharon Vaughn

Amount: \$3,000,000

Period of Performance: 7/1/08–6/30/12

Collaborative Strategic Reading Interventions for Struggling Adolescent and Adult Readers and Writers

At a time when the school-aged population in the United States is becoming more and more diverse, culturally and linguistically diverse students and students living in poverty continue to underachieve

in our schools. This project is designed to test the efficacy of a fully developed intervention, Collaborative Strategic Reading (CSR), with adolescent struggling readers. Over a 10-year period, CSR has been evaluated using quasi-experimental designs and has yielded positive outcomes for students with learning disabilities and students at risk for reading difficulties, as well as average and high-achieving students and English language learners. This project will employ randomized controlled trials to more rigorously assess the effectiveness of CSR with adolescent struggling readers.

California State University, Long Beach

Principal Investigator: Claude Goldenberg

Amount: \$1,999,939

Period of Performance: 7/1/07–6/30/11

Content-Rich Vocabulary Development to Improve Reading Achievement of Struggling Adolescent Readers

Although there have been modest gains in fourth-grade reading scores nationwide over the past 5 years, eighth-grade scores have declined. The premise of this project is that limited vocabulary, and the limited background knowledge that accompanies it, severely limits the reading comprehension of struggling adolescent readers. Clearly, other issues can contribute to poor adolescent reading, such as inadequate reading fluency or lack of skill in using reading strategies; however, there is growing evidence that poor vocabulary and inadequate background knowledge create significant obstacles for many students. The purpose of this project is to develop a content-rich vocabulary program for struggling adolescent readers and to obtain pilot data on the association between exposure to the program and subsequent vocabulary and reading comprehension gains.

Success for All Foundation

Principal Investigator: Nancy Madden

Amount: \$1,955,269

Period of Performance: 7/1/07–6/30/11

The Reading Edge: Development and Evaluation of a High School Cooperative Learning Reading Intervention Program

Although the poor reading skills of students in high-poverty high schools have long been recognized as a

problem, there are very few replicable interventions available to improve the reading achievement of students in these grades, and fewer still that have even rudimentary evidence of effectiveness from experimental-control comparisons. This research project is designed to adapt a middle school reading intervention titled The Reading Edge for use in high school, and to conduct a preliminary evaluation of the program's impact on students' reading. The Reading Edge emphasizes cooperative learning, metacognitive strategies, and generative study skills.

University of Kansas

Principal Investigator: Daryl Mellard

Amount: \$1,991,961

Period of Performance: 7/1/07–6/30/11

Improving Adults' Reading Outcomes With Strategic Tutoring and Content Enhancement Routines

The National Assessment of Adult Literacy indicates that approximately 40 percent of U.S. adults (70 million people) read at the basic level or below, well below the recommended literacy requirements for a majority of entry-level occupations. In response to the challenges of low literacy among the U.S. workforce, the federal government funds a variety of adult education programs (e.g., Adult Education and Family Literacy Act, Workforce Investment Act, Job Corps). Job Corps provides an educational and training program designed to help economically disadvantaged young adults achieve successful outcomes in its academic and trades programs (e.g., carpentry, health care, welding, and culinary arts). Job Corps enrollees have limited academic skills, especially in reading. This creates a laboratory setting for developing evidence-based adult literacy interventions, which may then be applied successfully to other relevant settings, such as vocational and technical schools, community colleges, and adult education, family literacy, and workplace education programs. The purpose of this study is to develop and conduct initial evaluations within the Job Corps setting of two interventions for adults that are designed to improve participants' reading and content-based curricular outcomes.

Mathematics and Science Education

Biological Sciences Curriculum Study (BSCS)

Principal Investigator: Janet Carlson

Amount: \$1,498,828

Period of Performance: 10/1/08–9/30/11

BSCS Science: An Inquiry Approach—Development of a Conceptually Coherent, Multidisciplinary Science Program for Grade 8

The purpose of this project is to develop and document the feasibility of a standards- and inquiry-based multidisciplinary eighth-grade science curriculum. The intervention, developed using principles from Understanding by Design and the National Science Education Standards, will provide a year-long research-based approach to teaching life, earth/space, and physical science. The middle school materials will correspond with BSCS Science: An Inquiry Approach—the recently developed, inquiry-based, multidisciplinary science curricula for grades 9 through 11.

University of Illinois at Urbana-Champaign

Principal Investigator: Arthur Baroody

Amount: \$3,099,995

Period of Performance: 7/1/08–6/30/12

Fostering Fluency With Basic Addition and Subtraction

The purpose of this project is to evaluate the efficacy of previously developed software designed to foster the memorization (mastery) of the single-digit (basic) addition facts, such as $9+7=16$, and related subtraction facts, such as $16-9=7$. Previous evaluations of the software indicated that blends of direct instruction and discovery learning techniques may be more helpful than “pure” forms of these approaches alone. This project entails systematically comparing various blends of features to determine which feature or combination of features best help primary-grade children identified as at risk for academic failure master different types of mathematical problems. This vulnerable population in particular needs effective, early, stand-alone interventions to ensure mastery of basic facts—a key foundation for success with school mathematics.

Stanford University

Principal Investigator: Patrick Suppes

Amount: \$2,996,641

Period of Performance: 9/1/08–8/31/12

Closing the Achievement Gap in Middle School Mathematics Utilizing Stanford University’s Education Program for Gifted Youth Differentiated Mathematics Program

Title I Schools, defined as those in which at least 40 percent of the students qualify for free or reduced-price lunch, routinely fail to meet the educational needs of their students, as measured by statewide end-of-year assessments. The failure to adequately educate low socioeconomic status students has long been viewed as a problem of national significance. Over the past 14 years, Stanford University’s Education Program for Gifted Youth (EPGY) has developed a comprehensive sequence of computer-based mathematics courses ranging from kindergarten through undergraduate mathematics. During this time, evidence has accumulated that these courses have the potential to accelerate and deepen student learning of mathematics, both for gifted and for general ability students. This project investigates the efficacy of the EPGY Stanford University Kindergarten Through Prealgebra Mathematics Course to improve the mathematics achievement, as measured by the California Standards Test, of Title I middle school students.

Pepperdine University

Principal Investigator: Eric Hamilton

Amount: \$692,257

Period of Performance: 7/1/08–6/30/11

Agent and Library Augmented Shared Knowledge Areas

This project uses an iterative and teacher-mediated design process to complete development of a mathematics instructional approach that received initial startup support from the Computer Science Directorate of the National Science Foundation. This intervention, referred to as Agent and Library Augmented Shared Knowledge Areas, blends four technologies: digital libraries, pedagogical agents, collaborative workspaces, and tablet computers. The project also will develop and test a novel approach to teacher professional development, instructional preparation, and reflective practice, referred to as Preparing Digital Libraries for Customized Access to Educational Experience.

Carnegie Mellon University

Principal Investigator: Vincent Aleven

Amount: \$1,490,705

Period of Performance: 3/1/08–2/28/11

Bringing Cognitive Tutors to the Internet: A Website That Helps Middle School Students Learn Math

One way to improve students' math achievement is to augment in-school learning with after-school activities. However, after-school tutoring is limited and, of the many websites available for math instruction, few are free and few offer guided learning by doing. In this project, researchers are developing a website for middle school mathematics (grades 6 through 8) where students can work with artificial-intelligent software called Cognitive Tutors. The website will offer step-by-step tutoring on conceptually rich math problems; provide support for tutors, teachers, and parents who want to give guidance to students using the site; and be potentially useful in a wide range of contexts, including after-school programs, homework, classroom exercises, and libraries.

Pacific Institutes for Research

Principal Investigator: Scott Baker

Amount: \$4,280,188

Period of Performance: 3/1/08–2/28/12

Early Learning in Mathematics: Efficacy in Kindergarten Classrooms

The purpose of this project is to test the efficacy of the Early Learning in Mathematics curriculum, which was developed and field tested under a previous IES grant. The curriculum is designed to teach early mathematics skills, including concepts and skills related to numbers and number operations, geometry, measurement, and mathematics vocabulary. It will be adapted to accommodate small group instruction and to make the program accessible to English language learners.

University of Illinois at Urbana-Champaign

Principal Investigator: Sarah Lubienski

Amount: \$314,367

Period of Performance: 5/16/08–5/15/10

A Longitudinal Study of Gender and Mathematics Using ECLS-K Data

Females continue to be under-represented in mathematics-related fields, thus diminishing

the pool of professionals available to work in STEM fields. Gender gaps in school mathematics performance lay the foundation for these career path differences. Although such gaps were originally thought to appear in secondary school, mathematics achievement gaps are now surfacing in early elementary school, raising new questions about the sources of these gaps. This study will provide a detailed examination of factors that predict gender differences in elementary school mathematics performance. This research will shed light on ways in which boys' and girls' early experiences differ at both school and home, and will determine which of those differences relate to gender disparities in K-5 mathematics achievement.

WestEd

Principal Investigator: Edys Quellmalz

Amount: \$1,599,998

Period of Performance: 3/1/08–2/28/12

Multilevel Assessments of Science Standards

In formative assessment, teachers use a student's correct and incorrect responses to adapt their teaching to better meet the individual learner's needs. The purpose of this project is to create a new generation of technology-enhanced formative assessments that will improve teachers' formative assessment practices and increase student science learning. The assessments, designed for use both during and at the end of science curriculum units, will include simulation-based tasks with immediate, individualized feedback and a hint system.

WestEd

Principal Investigator: Steven Schneider

Amount: \$2,868,006

Period of Performance: 3/1/08–2/28/12

A Randomized Controlled Study of the Effects of Intelligent Online Chemistry Tutors in Urban California School Districts

The purpose of this project is to test the efficacy of Quantum Chemistry Tutors, a suite of computer-based cognitive tutors designed to provide individual tutoring to high school students in 12 chemistry topics. The findings from this study will tell us about the efficacy of this specific intervention for improving student chemistry performance, and contribute to a better understanding of the general

effects of the use of intelligent tutoring software on student learning, when used in conjunction with a range of commercially available science curricula.

Quantum Simulations, Inc.

Principal Investigator: Benny Johnson

Amount: \$1,000,000

Period of Performance: 1/1/07–12/31/09

Integrated Software for Artificial Intelligence Tutoring and Assessment in Science

Compared to students in other industrialized countries, U.S. students perform poorly in studies of achievement in high school chemistry, a core subject in the physical sciences course sequence in U.S. high schools. The purpose of this project is to complete the development of a computer-based tutoring and assessment system for a 1st-year chemistry course; and to obtain initial evidence of the system's potential to improve student learning and achievement in chemistry. In previous work, the researchers completed 10 chemistry topics for this computer-based learning and assessment system. In this project, they are developing three additional modules to yield a comprehensive chemistry curriculum.

University of Virginia

Principal Investigator: Mable Kinzie

Amount: \$1,772,797

Period of Performance: 3/1/07–2/28/11

PreK Mathematics and Science for At-Risk Children: Outcomes-Focused Curricula and Support for Teaching Quality

There are significant differences in students' mathematical and science knowledge and performance from prekindergarten through high school across socioeconomic groups, with students who live in poverty exhibiting lower levels of achievement and being at risk for later school failure. Currently, there is a lack of integrated prekindergarten mathematics and science curricula that also incorporate materials for teacher professional development and implementation. To address this limitation, the researchers are developing, implementing, and conducting an initial evaluation of an integrated preschool math and science curriculum that is anchored to state benchmarks. The curriculum includes detailed lesson

plans that are linked to demonstration videos of high quality implementation, along with a range of teaching resources.

University of Alaska, Fairbanks

Principal Investigator: Jerry Lipka

Amount: \$1,551,407

Period of Performance: 6/1/07–5/31/10

The Potential Efficacy of Math in a Cultural Context: Sixth-Grade Math Modules

Alaska Native-majority rural school districts typically score between the 10th and 30th percentiles in math on Alaska's Benchmark Exam, whereas urban school districts in Alaska average between the 40th and 70th percentile. Culturally based instruction has been suggested as one way to close the academic gap between rural Alaska Native and majority culture students. The purpose of the Math in a Cultural Context project is to develop an accessible, engaging curriculum with which students can identify culturally, thus motivating them to learn. Math in a Cultural Context is a series of supplemental math modules that incorporate the knowledge of Native Yup'ik elders. For example, the star navigation module integrates Yup'ik knowledge about environmental features (e.g., mountains and rivers) and seasonal indicators (e.g., snowdrifts) to teach angles, movement, and measuring. Preliminary results provide evidence that the five modules published thus far may increase Alaska Native students' math performance. In the current project, the researchers are refining and testing five additional modules for use with sixth-graders.

RAND Corporation

Principal Investigator: John Pane

Amount: \$5,999,950

Period of Performance: 3/1/07–2/28/11

Effectiveness of Cognitive Tutor® Algebra 1 Implemented at Scale

Although many educators recognize the need for improved mathematics instruction, school staffs currently have few evidence-based options from which to choose. The primary purpose of this study is to evaluate the impact of the Cognitive Tutor® Algebra 1 curriculum on mathematics achievement. Researchers are evaluating the effectiveness of the curriculum when it is implemented across

diverse school populations and conditions. Cognitive Tutor® is designed to promote students' understanding of algebraic concepts and principles, problem-solving skills, and mastery of higher order mathematical concepts. A central component of Cognitive Tutor® is an automated computer-based tutor that provides individualized instruction to address students' specific needs.

WestEd

Principal Investigator: Steven Schneider
Amount: \$1,999,446
Period of Performance: 7/1/07–6/30/11

Algebra Intervention for Measured Achievement: Full-Year Curriculum

The purpose of this project is to develop a full-year algebra curriculum designed to target typical troublespots in school algebra, in order to strengthen students' mastery of key algebra skills. Under a previous IES award, the researchers developed and tested curriculum materials for the first semester of algebra I. Building on this work, the team is developing curriculum materials for the second semester of their curriculum, Algebraic Interventions for Measured Achievement.

Vanderbilt University

Principal Investigator: Paul Cobb
Amount: \$1,120,353
Period of Performance: 8/1/07–7/31/09

Evaluating Math Recovery With Student Outcomes

Data from the Early Childhood Longitudinal Study-Kindergarten Class show that mathematics achievement gaps that appear in kindergarten continue to widen throughout elementary school. The goal of Math Recovery is to enable first-graders whose performance is below the 25th percentile nationally to achieve at the level of their higher performing peers, thus changing the longitudinal trajectory of their mathematics development. Although Math Recovery is a fully developed intervention that has been implemented in 19 states, it has not been rigorously evaluated. The purpose of this project is to evaluate the potential of Math Recovery to increase mathematics achievement among low-performing first-graders.

Johns Hopkins University

Principal Investigator: Robert Balfanz
Amount: \$2,478,127
Period of Performance: 7/1/07–6/30/11

Successful Transitions to Algebra 1: A Randomized Control Trial of Two Theories of Ninth-Grade Algebra Instruction

States and school districts increasingly mandate not only that all students earn algebra 1 course credit in order to graduate but also that students enroll in algebra 1 in the ninth grade. Data from districts that have implemented “Algebra for All” policies indicate that course failure rates approach 50 percent. Despite the pressure on districts and states to have all students “college ready,” there is a dearth of rigorous research on the most efficacious methods of teaching algebra 1 to underprepared students. The purpose of this project is to examine the impact of two approaches to teaching algebra 1 on student achievement and course completion among high school freshmen who are 1 to 4 years below grade level in mathematics. In the Transition to Advanced Mathematics/Algebra 1 sequence developed at Johns Hopkins University, students spend the first semester learning and practicing intermediate mathematics skills and mathematical reasoning before beginning algebra 1, and in the second semester, they cover the algebra 1 course content. In the other approach, students are provided with a “stretch algebra” course in which the amount of instructional time for algebra is doubled. That is, in the stretch algebra course, students are introduced to algebra 1 course content at the beginning of the year, but the instruction proceeds at a slower pace relative to a regular algebra 1 course.

WestEd

Principal Investigator: John Flaherty
Amount: \$859,940
Period of Performance: 7/1/07–8/31/10

Randomized Trial of First in Math: New York City

The purpose of this project is to examine the impact of the First in Math online mathematics program on fourth- and fifth-grade student achievement in the New York City Public School District. The First in Math program is a supplemental instructional tool designed to increase mathematics achievement using interactive online games. In addition to the online

program, the intervention includes professional development for teachers on the technical aspects of the program and how to integrate the program into their instructional practice. The study examines individual- and classroom-level conditions that influence First in Math program use, the impact of the program on mathematics performance, and variation in impact across classrooms with high and low support of technology integration.

Teachers College, Columbia University

Principal Investigator: Herbert Ginsburg

Amount: \$1,566,565

Period of Performance: 9/1/07–8/31/11

mCLASS:Math: Development and Analysis of an Integrated Screening, Progress Monitoring, and Cognitive Assessment System for K-3 Mathematics

The purpose of this project is to develop and evaluate a comprehensive handheld computer assessment system that helps kindergarten through grade 3 teachers monitor student progress in mathematics, identify students at risk of failure, and conduct clinical interviews to understand the cognitive processes underlying student performance. The handheld computer assessment system provides teachers with questions to pose to students and allows the teacher to record students' responses directly onto the device. Students' responses are then automatically scored and synchronized to a web-based reporting system. Frequent and efficient use of formative assessments can help teachers monitor students' performance and adjust instruction to better fit the needs of their students.

University of Massachusetts Dartmouth

Principal Investigator: Stephen Hegedus

Amount: \$1,979,295

Period of Performance: 7/1/07–6/30/11

Development: Democratizing Access to Core Mathematics Grades 9 Through 12

Careers in the natural sciences, technology, engineering, and math typically require that students pass mathematics courses beyond algebra. This project addresses the need for a curriculum focused on deepening students' understanding of core concepts within 1st- and 2nd-year algebra, and connecting and sustaining the development of mathematical ideas across higher mathematics

classes, such that foundations can be laid in algebra 1 for material later studied in calculus. The research team is refining, further developing, and evaluating the potential impact on student algebra achievement of SimCalc Connected Math Worlds, which includes software and curriculum materials that address core mathematical ideas for 1st- and 2nd-year high school algebra students.

University of California, Berkeley

Principal Investigator: Geoffrey Saxe

Amount: \$1,584,613

Period of Performance: 8/21/07–7/31/11

Teaching Fractions and Integers: The Development of a Research-Based Instructional Practice

The National Council of Teachers of Mathematics considers integers and fractions central to elementary mathematics education, and foundational for learning algebra and other topics in secondary mathematics. However, U.S. national assessment data routinely show poor performance on knowledge of integers and fractions even at the secondary level. The purpose of this project is to develop a 16-lesson sequence aimed at improving understanding of integers and fractions among fifth-graders. The research team is assessing the impact of this lesson sequence on student understanding of integers and fractions using an experimental design.

WestEd

Principal Investigator: Steven Schneider

Amount: \$2,730,259

Period of Performance: 7/1/07–6/30/11

Diagnostic Embedded Classroom Assessment: An Efficacy Study

The purpose of this project is to test the efficacy of Assessing Science Knowledge, a diagnostic formative assessment system. The diagnostic assessment tools in this system are designed to monitor student progress at critical junctures in the curriculum, enabling teachers to adjust their instruction according to how well their students are mastering the material. Assessing Science Knowledge comprises two kinds of assessments: embedded and benchmark. The embedded assessments are incorporated into instruction and provide continuous information about students' learning to both teachers and students. The

benchmark assessments are summative measures of students' accumulated knowledge and understanding of science. The content covered by the four modules examined in this study maps directly onto several of the New York State standards for science at the elementary grades.

Worcester Polytechnic Institute

Principal Investigator: Neil Heffernan

Amount: \$1,992,306

Period of Performance: 7/1/07–6/30/11

Making Longitudinal Web-Based Assessments Give Cognitively Diagnostic Reports to Teachers, Parents, and Students While Employing Mastery Learning

To help students achieve mathematics proficiency, teachers need to know how well their students are performing throughout the school year, so that instruction can be tailored to better fit their needs. The purpose of this project is to develop a computer-based assessment and tutoring system designed to track and support mastery learning in mathematics among sixth- and seventh-graders. The ASSISTment system is a web-based assessment program that provides tutoring on mathematics questions that students get wrong. It offers tutoring associated with each of the 300 released eighth-grade Massachusetts state mathematics assessment items. The researchers are developing and refining components to the ASSISTment system and conducting an initial evaluation to assess the potential efficacy of the system on mathematics learning.

Middle and High School Reform

Johns Hopkins University

Principal Investigator: Robert Balfanz

Amount: \$1,465,981

Period of Performance: 7/1/08–6/30/11

High School Preparation for College Completion

The goal of this project is to develop two curriculum interventions that will complement the core high school academic curriculum and improve preparation of students for transition to college, success in the freshman year, and college completion with a bachelor's degree. The theory of action is that students will be better prepared for college when they are exposed to college environments and

college expectations for intellectual work while in high school. First-generation college students and economically disadvantaged students will benefit from explicit support while still in high school to ensure college graduation at rates comparable to those of more advantaged students. The research team is developing two curricula—a 12th-grade course and an advisory strand for grades 10 to 12—that will provide support for first-generation college students.

New York University

Principal Investigator: Leanna Stiefel

Amount: \$482,584

Period of Performance: 9/1/08–8/31/10

Do Small Schools Improve Student Performance in Large, Urban Districts? Evidence From New York City

U.S. high school students graduate from high school at unacceptably low rates, especially at-risk students. While many reforms are aimed at high school students, small school reform stands out because of its adoption in major cities including New York and Chicago, its large public and philanthropic funding base, and the interest it has drawn in other cities (e.g., Los Angeles, San Diego, Philadelphia, Boston). Given the popularity and resources devoted to small school reform, it is important to understand its efficacy and particularly the impact on student outcomes. This project uses quasi-experimental methods to estimate the impact of small high schools on student performance and identify the characteristics of schools that may explain differential effectiveness. This study is analyzing an existing longitudinal database to explore relationships among school size, other school variables, and student outcomes to inform high school reform.

Johns Hopkins University

Principal Investigator: Nettie Legters

Amount: \$1,499,430

Period of Performance: 7/1/08–6/30/11

A Curriculum Engagement: Micro-Process Interventions in Middle and High School to Improve Attendance, Behavior, Achievement, and Grade Promotion for At-Risk Ninth-Graders

In an economy where living wage work increasingly requires postsecondary training, dropping out of

high school has disastrous individual and social consequences. The purpose of this project is to develop and conduct a feasibility study for an intervention designed to improve attendance, behavior, achievement, and grade promotion for ninth-graders at risk for dropping out of high school. The research team is developing an intervention with three components: an attendance outreach and incentive program, an academic counseling and support program, and a team-based behavior management program.

Harvard University

Principal Investigator: Richard Murnane
Amount: \$193,369
Period of Performance: 3/1/08–2/28/10

The Consequences for High School Students of Failing State Exit Exams: Evidence From Massachusetts

In recent years, many states have implemented high-stakes exit exams that students must pass to graduate from high school. Opponents of these tests argue that they cause students, particularly those from low-income and urban backgrounds who are already struggling in the educational system, to drop out of high school. Exit exam performance may also affect students' decisions about postsecondary education. In this project, the research team is using a longitudinal dataset from the Massachusetts Department of Education to examine the effects of failing one or both of the state exit exams (in mathematics and English) on outcomes such as dropping out of high school and enrolling in and graduating from college.

Florida State University

Principal Investigator: Patrice Iatarola
Amount: \$499,484
Period of Performance: 7/1/07–6/30/09

Implications of High School Course Availability and Course-Taking

Research is needed to determine which high school courses improve student learning the most, whether and how the number of courses taken matters, whether all students benefit equally from advanced courses, and whether enrollment in particular courses increases or reduces socioeconomic and racial disparities in achievement and attainment. In this project, the researchers seek to identify factors

associated with course offerings across schools and coursetaking within schools, as well as the relation between coursetaking and the following student outcomes: 10th-grade achievement, graduation within 4 years of entering high school, and attendance at a postsecondary institution in the year following graduation.

MDRC

Principal Investigator: James Kemple
Amount: \$2,996,259
Period of Performance: 7/1/07–6/30/11

A Randomized Efficacy Trial of Academically Enhanced Rigorous Career Academies: Studying the Impact of the National Academy Foundation Model

Career Academies combine several key school improvement strategies, including creation of small learning communities, use of school-to-work curriculum to better align high school learning with anticipated professional pursuits, and creation of partnerships with local employers and social institutions to strengthen the relationships between schools and communities. In previous evaluations of Career Academies, researchers found a positive effect on labor market outcomes for males but no significant impact on academic outcomes in high school or at the postsecondary level. The National Academy Foundation responded to these findings by designing an academically enhanced Career Academy model. The purpose of this project is to evaluate the effect of the enhanced academies on academic outcomes during high school.

Postsecondary Education

MPR Associates

Principal Investigator: Karen Levesque
Amount: \$1,499,889
Period of Performance: 7/1/08–6/30/11

Using High School Transcript Data to Improve Student Access to 4-Year Colleges

Research indicates that lack of appropriate academic preparation is a major reason why students do not attend college. Strategies to increase students' awareness of college requirements and to encourage them to take the necessary courses may be an effective way to increase access to college and reduce college-going gaps among socioeconomic

and racial/ethnic groups. In this project, MPR Associates, in partnership with the University of California Office of the President, is expanding and enhancing their development of the Transcript Evaluation Service, an intervention that offers students, counselors, and school administrators data tools concerning student preparedness for college; and provides outreach services to support counselors and administrators in using the data for college advising and school-level planning.

University of Texas at Dallas

Principal Investigator: Isaac McFarlin

Amount: \$638,003

Period of Performance: 7/1/08–6/30/11

Transitions Through Higher Education: Evidence on the Mismatch Hypothesis

This study will examine two questions related to the effect of access to selective colleges on student outcomes. The first is whether automatic admissions to selective colleges granted under “10 percent plans,” which stipulate that students graduating in the top 10 percent of their high school class are automatically admitted, affect student outcomes. The second directly examines the impacts of attending a selective versus a less-selective university. Since minority students are under-represented at the nation’s selective universities, this study will focus on the impact of access on minority outcomes. To examine the effect of graduating in the top 10 percent, the research team will use a regression discontinuity design that compares the outcomes of students just above and just below the 90th class rank percentile cutoff used to determine eligibility for automatic admissions to the University of Texas system.

Berkeley Policy Associates

Principal Investigator: Johannes Bos

Amount: \$362,065

Period of Performance: 1/1/08–6/30/09

Evaluation of the SOURCE Program: An Intervention to Promote College Application and Enrollment Among Urban Youth, Primary Outcomes

Many studies have shown that differences in rates of college attendance among high school students are largely based on family income; only about half of the variation in college enrollment can be explained by differences in high school grades and

achievement test scores. In order to offset this enrollment discrepancy, the SOURCE mentoring program was created to provide college-eligible, low-income high school juniors with counseling, information, and oversight as they complete the college application process. The program leverages existing resources; for example, it ensures that students access financial aid and scholarships for which they qualify. Moreover, it targets specific gaps in students’ knowledge about how to apply for college admission and financial aid. The purpose of this project is to test whether the mentoring program impacts college enrollment at a significantly lower cost than other existing mentoring programs.

University of Chicago

Principal Investigator: Melissa Roderick

Amount: \$986,031

Period of Performance: 3/1/08–2/28/11

Improving Postsecondary Preparation in Urban Public High Schools: An Evaluation of AVID in Chicago

Racial and ethnic minority and low-income students are much less likely to leave high school with the qualifications that are critical for access to college, especially 4-year colleges, than are White and middle-class students. The purpose of this project is to evaluate the efficacy of the Advancement via Individual Determination (AVID) program in Chicago. This program seeks to ensure a successful transition from high school to college for urban, low-income, and racial and ethnic minority students who do not have strong family histories of college attendance. The premise of the program is that these students can be successful in rigorous coursework and can enroll in and graduate from college if they are provided with an organized, school-based system of social and academic supports.

National Bureau of Economic Research

Principal Investigator: Bruce Sacerdote

Amount: \$918,274

Period of Performance: 3/1/08–2/28/11

Getting Qualified High School Seniors to Enroll in College: An Experimental Study in Vermont

This project seeks to increase the number of Vermont high school seniors who attend 4-year colleges. It will also explore why qualified students fail to go to college. In so doing, the researchers

will develop and refine a low-cost policy program that is effective in promoting college attendance among academically able high school seniors. Using financial incentives and additional guidance counseling, this project will attempt to increase college enrollment for Vermont's academically qualified high school seniors.

SRI International

Principal Investigator: Louise Yarnall

Amount: \$1,568,413

Period of Performance: 3/1/08–2/28/12

Domain-Specific Assessment: Bringing the Classroom Into Community College Accountability

In this project, the researchers are developing an assessment to measure how well students in the first 2 years of college are learning the deep forms of knowledge that cognitive researchers have identified as the foundation for domain expertise. These forms of knowledge support flexible, innovative thinking that will ensure workforce competitiveness in the global economy.

University of California, Davis

Principal Investigator: Michal Kurlaender

Amount: \$470,808

Period of Performance: 7/1/07–6/30/09

The Effects of Institutional Practices on Postsecondary Trajectories: Matriculation, Persistence and Time-to-Degree

College completion rates remain significantly lower for minority students and for those students who come from poor or modest economic backgrounds than for White and relatively advantaged students. Unfortunately, relatively little is known about the effects of postsecondary institutional practices on college completion. In this project, researchers examine the effects of three practices on college persistence and completion. First, using a recently implemented Early Assessment Program, 11th-graders who do not meet a minimum criterion on the California Standards Test are provided with recommendations for courses to take in their senior year to better prepare them for college. The researchers are investigating whether this practice reduces the probability of students needing remedial coursework in college. Second, researchers are examining whether the practice of requiring students who do not meet a minimum criterion on college placement exams to take remedial courses

in their 1st year improves college persistence and time to degree completion. Third, given enrollment constraints and overcrowding at many large 4-year institutions, students may be unable to enroll in one or more courses due to course capacity constraints when they register. The researchers are investigating whether institutional course scheduling constraints relate to students' 4-year college completion trajectories.

University of Texas at Dallas

Principal Investigator: Isaac McFarlin, Jr.

Amount: \$301,687

Period of Performance: 7/1/08–6/30/11

The Effects of College Remediation on Students' Academic and Labor Market Outcomes

Nearly one-third of college freshmen enroll in remedial courses because they are not prepared to handle college coursework. Each year, public postsecondary institutions spend more than \$1 billion on remedial education. To date, very little rigorous research has been conducted to determine if taking remedial courses improves subsequent student outcomes. The purpose of this study is to examine the effects of remediation coursework on academic outcomes (e.g., persistence, course completion, and time to degree) and labor market performance among postsecondary students in Texas and Florida.

Correctional Education Association

Principal Investigator: Stephen Steurer

Amount: \$1,997,936

Period of Performance: 7/1/07–6/30/11

Developing a Program of Postsecondary Academic Instruction Over the Corrections Learning Network

Within 3 years after their release, on average 67 percent of former prisoners are rearrested and 52 percent are reincarcerated. A number of educational programs are offered through prisons to improve educational and occupational outcomes for prisoners. The purpose of this project is to examine the impact of the College of the Air curricula delivered via the Corrections Learning Network on academic achievement and motivation, educational aspirations, progress toward completing a postsecondary degree, and employability among incarcerated young adults, as well as on institutional climate and rates of recidivism.

Reading and Writing

Mid-Continent Research for Education and Learning (McREL)

Principal Investigator: Helen Apthorp

Amount: \$2,284,149

Period of Performance: 7/1/08–6/30/11

Efficacy Trial of Robust Vocabulary Instruction

Poverty increases the risk for poor vocabulary and reading achievement. Impoverished vocabularies restrict children's ability to recognize single words. Moreover, young children who struggle with reading do not increase vocabulary on their own. They do not develop vocabularies, and therefore do not read well; because they are not reading well, they are not learning vocabulary. The purpose of this project is to provide unbiased estimates of the effects of robust, aural/oral vocabulary instruction as provided in Elements of Reading: Vocabulary on vocabulary and reading comprehension in schools serving children from low-income households.

Educational Testing Service

Principal Investigator: Paul Deane

Amount: \$1,599,412

Period of Performance: 9/1/08–8/31/12

Measuring the Development of Vocabulary and Word Learning to Support Content Area Reading and Learning

Vocabulary development is a critical part of learning to read well, and contributes significantly to the gap between competent and struggling readers. Teaching vocabulary directly can help enhance vocabulary learning and reading comprehension. While the importance of vocabulary development may be apparent to researchers and practitioners, the state of the art in vocabulary assessment is still rather limited. The purpose of this project is to develop improved methods for measuring vocabulary and word learning among middle schoolers in specific subject areas such as social studies or science.

Carnegie Mellon University

Principal Investigator: David Mostow

Amount: \$2,379,658

Period of Performance: 3/1/08–2/28/11

Developing Vocabulary in an Automated Reading Tutor

The research evidence on vocabulary instruction indicates that explicit instruction benefits students' word learning and text comprehension. A daunting instructional challenge is how to teach enough words to matter, and how to teach them so that the taught words are actually learned and retained. The purpose of this project is to develop, iteratively refine, and evaluate the usability and feasibility of an automated tutorial intervention to help children in grades 2 through 3 learn vocabulary they must understand in order to read with comprehension. The immediate goal is to teach words in a way that combines the efficacy of individual tutoring with the economy of automated instruction; the long-range goal is to improve children's reading comprehension by expanding their vocabulary.

Pennsylvania State University

Principal Investigator: Kay Wijekumar

Amount: \$2,999,932

Period of Performance: 7/1/08–6/30/12

Efficacy and Replication Research on the Intelligent Tutoring System for the Structure Strategy: Rural and Suburban Schools Grades 4, 5, 7, and 8

The purpose of this study is to evaluate a program in which a web-based intelligent tutoring system teaches elementary and middle school students how to use the Intelligent Tutoring System for the Structure reading strategy. The structure strategy attempts to improve reading comprehension skills of late elementary school students by enhancing their ability to use and analyze text structure to abstract main ideas. The study will focus on changes for students in their reading comprehension skills, changes in their sense of personal capabilities related to reading and school, and attitudes toward reading.

Center for Applied Linguistics

Principal Investigator: Igone Arteagoitia

Amount: \$1,828,906

Period of Performance: 6/1/07–5/31/11

Content-Based Vocabulary Instruction: Using Cognates to Promote the Vocabulary Development and Reading Comprehension of Native Spanish Speakers

On the 2005 National Assessment of Educational Progress, among students who are English language learners, only 4 percent of 8th-grade and 5 percent of 12th-grade students read at or above the proficient level. Despite the evident need, very little is known about how English language learners become fluent readers at advanced levels. The goals of this project are to compare two interventions on the development of English and science content knowledge among native Spanish speakers in the middle school grades; determine whether the outcomes of these interventions vary as a function of amount of exposure to Spanish at home and/or school, and/or their current levels of English and Spanish oral proficiency and literacy ability; and contribute to the research base on the transfer of skills from Spanish to English.

University of Oregon

Principal Investigator: Scott Baker

Amount: \$3,498,216

Period of Performance: 8/1/07–7/31/11

Reading Intervention With Spanish-Speaking Students: Maximizing Instructional Effectiveness in English and Spanish

Little rigorous research has been conducted to evaluate the efficacy of different instructional approaches for students who are learning English. The purpose of this research is to test the efficacy of an instructional approach designed to increase the early literacy achievement of Spanish-speaking English language learners in transitional bilingual education programs. The researchers are investigating whether enhancing core reading instruction with Systematic and Explicit Teaching Routines improves the immediate and long-term Spanish and English literacy achievement of English language learners in first and second grade.

Florida State University

Principal Investigator: Carol Connor

Amount: \$3,000,000

Period of Performance: 6/1/07–5/31/11

Child-Instruction Interactions in Reading: Examining Causal Effects of Individualized Instruction in Second and Third Grade

Individualizing reading instruction according to students' language and literacy skills may improve learning because the effect of particular instructional strategies appears to depend on these initial skills. In an earlier IES project, this team of researchers developed and conducted an initial evaluation of a web-based software system, Assessment-to-instruction (A2i), which enables teachers to individualize reading instruction according to students' language and literacy skills. Using algorithms to compute recommended amounts and types of instruction for each student, the A2i web-based system prepares instructional profiles for each child and, based on the student instructional profiles, provides teachers with suggestions for organizing children into groups with similar instructional needs for small-group reading instruction. In the initial evaluation, the researchers tested the A2i system in first-grade classrooms and found significantly stronger student reading outcomes in the A2i classes. The purpose of this project is to examine the impact on students' reading achievement of implementing this system in second- and third-grade classrooms, following two cohorts of children who participated in the evaluation of A2i as first-graders.

University of Nebraska-Lincoln

Principal Investigator: J. Ron Nelson

Amount: \$694,884

Period of Performance: 7/1/07–6/30/09

Effects of a Supplementary Vocabulary Intervention for Students With Limited English Proficiency

English language learners are the fastest growing population in U.S. schools, increasing 65 percent since 1994. In urban schools, English language learners account for 21 percent of students. To date, little research has been conducted to rigorously evaluate the effects of curricula intended to improve reading instruction for students who are also learning English. In this study, researchers examine the relation between a supplemental

English vocabulary program, Early Vocabulary Connections, and the beginning reading skills of students with limited-English proficiency. This vocabulary program, designed so that it can be used in conjunction with existing beginning reading curricula, is intended to develop students' vocabulary knowledge and reinforce decoding skills that are taught in the beginning reading curricula.

Washington Research Institute

Principal Investigator: Patricia Vadasy

Amount: \$1,323,429

Period of Performance: 7/1/07–6/30/10

Efficacy of Sound Partners Supplemental Tutoring for ELL Students, Grades K Through 1

The purpose of this study is to examine the efficacy of Sound Partners, a fully developed supplemental reading intervention. Sound Partners is a published program that has been used with students at risk for reading disabilities. In this study, the research team is evaluating the effects of the program on improving reading outcomes for kindergarten and first-grade English language learners. Students receiving the reading intervention are individually tutored in research-based, code-oriented instruction designed specifically to be implemented by para-educators.

University of Colorado at Boulder

Principal Investigator: Barbara Wise

Amount: \$1,901,977

Period of Performance: 3/1/07–2/28/11

Early ICARE: Early Independent Comprehensive Adaptive Reading Evaluation

Children identified early for reading problems have a much better chance of reaching grade-level reading achievement than do students identified in third grade or later. Many assessment instruments exist to find and profile these children, but most require significant teacher time and training to be appropriately used. The purpose of this project is to develop a computer-delivered early reading assessment system, Early ICARE, which children can complete with minimal attention required by teachers. Early ICARE will enhance and merge with ICARE, a computer-delivered assessment battery that is currently under development and is being used to identify older children with or at risk for reading comprehension problems. The new system

will be early—that is, aimed at finding problems in young children in grades K through 3 who speak English as a first language and for English language learners who can follow basic directions in English. It will be comprehensive in identifying weaknesses that underlie difficulties in word reading, language comprehension, and/or speed. Finally, it is an adaptive measure in which children do only needed measures and items. Early ICARE will be translated to Spanish for independent use with English- or Spanish-speaking children, from kindergarten to third grade. Finally, the researchers are developing a subsystem, Independent dynamic early estimates of reading (I-deer), to measure growth in reading and to predict later growth.

Social and Behavioral Context for Academic Learning

DePaul University

Principal Investigator: Kathryn Grant

Amount: \$1,152,935

Period of Performance: 8/1/08–7/31/11

Development of an Intervention to Improve Academic Outcomes for Low-Income Urban Youth Through Instruction in Effective Coping Supported by Mentoring Relationships

The middle school years are a critical period for preventing academic disengagement, school failure, and drop out for low-income urban youth; and for preventing increases in delinquency, substance use, and depression that further contribute to academic problems. The purpose of this project is to develop and pilot a coping curriculum that supports low-income urban adolescents through mentoring relationships and connections that link them and their school to community partners. The goals of the intervention are to promote effective and contextually relevant coping for engaging and succeeding in school, and managing the severe and chronic stressors in these low-income urban areas that impede learning.

Rutgers, the State University of New Jersey

Principal Investigator: Linda Reddy

Amount: \$1,438,905

Period of Performance: 9/1/08–8/31/12

Development and Validation of a Teacher Progress Monitoring Scale for Elementary School Teachers

Although a number of measures of child classroom behavior exist, there is currently no widely available, reliable, valid, and brief teacher progress monitoring scale that assesses educators' practices and responses to students' behavior in school. This project will follow a carefully prescribed set of test development steps over a 4-year period to design a brief, multidimensional teacher progress monitoring scale for general education elementary school teachers. It will measure teachers' use of positive instructional strategies and management practices, and integrate them with student behaviors and outcomes. The scale will be designed to assess proximal outcomes (e.g., teachers' use of effective behavior management strategies) that predict meaningful distal outcomes (i.e., student behavior and academics).

New York University

Principal Investigator: Sandra McClowry

Amount: \$2,919,913

Period of Performance: 7/1/08–6/30/12

Testing the Efficacy of INSIGHTS in Enhancing the Academic Learning Context

Teachers' evaluations of student abilities, level of adjustment, and intelligence are highly influenced by their perceptions of children's temperament. Consistently, school-age children whose temperaments are low in task persistence, high in activity, and high in negative reactivity are much more likely to demonstrate negative outcomes including disruptive behavior patterns and poor academic achievement. INSIGHTS is a comprehensive preventive intervention for children in kindergarten and first grade, in which teachers and parents are taught strategies that match a child's temperament and enhance self-regulation. The primary aim of this group randomized controlled trial is to test the efficacy of INSIGHTS, compared to a Read Aloud program, in enhancing the academic learning context of kindergarten and first-grade inner-city classrooms.

Johns Hopkins University

Principal Investigator: Nicholas Ialongo

Amount: \$2,807,781

Period of Performance: 7/1/08–6/30/12

A Randomized Controlled Trial of the Combination of Two Preventive Interventions

The Good Behavior Game (GBG) and Promoting Alternative Thinking Strategies (PATHS) are two universal, elementary school preventive interventions that have been shown in large-scale, randomized controlled trials to have an immediate and beneficial impact on aggressive/disruptive and off-task behavior. Aggressive/disruptive and off-task behaviors in elementary school are strong indicators of chronically poor academic achievement and, later, more serious antisocial behavior. Nonetheless, the effects of the GBG and PATHS on early aggressive/disruptive and off-task behavior have proven modest. In this project, the research team is conducting a school-based group randomized controlled trial to evaluate whether combining GBG and PATHS leads to a greater reduction in aggressive/disruptive behavior and time off-task in grades K through 5 than the GBG alone or a standard setting (control) condition.

Oregon State University

Principal Investigator: Brian Flay

Amount: \$2,993,222

Period of Performance: 4/1/08–3/31/12

The Chicago Social and Character Development Trial: Extension to Grade 8

Positive Action responds to a national need that schools address a range of student social and behavioral outcomes, including social skills, character development, and antisocial behavior, in ways that promote improved achievement. Positive Action is a comprehensive program designed to enhance the instructional and emotional climates of the school and classroom, increase parental involvement, and improve students' character, self-concepts, and skills. Previous data, during which students were followed up to grade 5, show effects of Positive Action for a wide range of outcomes. This project provides follow-up evaluation of the program through grade 8 to determine its effects on social and academic outcomes during the middle grades and after 6 years of implementation.

Teacher Quality: Mathematics and Science Education

University of California, San Diego

Principal Investigator: Loren Thompson

Amount: \$948,447

Period of Performance: 9/1/08–8/31/11

Education Research: BioBridge Teacher Quality

The BioBridge Teacher Professional Development model was implemented as a pilot in 2006-07 between the University of California, San Diego (UCSD) and a local urban school district as a result of local science teachers' stated needs, and current educational research identifying programmatic elements associated with more effective teacher training. Three San Diego area districts serving large populations of economically disadvantaged, ethnically diverse students will collaborate with UCSD in further systematic development and broader implementation of the program. The professional development program takes place in four phases: (1) teachers spend a day at the university learning about a topic from scientists who conduct research on the topic; (2) teachers and three to four of their better students, who will become "science student leaders" (laboratory assistants), participate in a trial of the laboratory activity; (3) project staff provide further support a few days prior to teachers' use of the laboratory activity in the classroom; and (4) implementation of the laboratory activity, assisted by the science student leaders and, in the first 2 days of the lab, by a project staff member. The fully developed BioBridge professional development program is anticipated to significantly increase teachers' understandings of evolving scientific discovery, their comfort levels while implementing newly developed cutting-edge content-based lab activities into existing curricula/standards and ongoing instructional activities, and their appreciation of progressive scientific research for producing significant increases in student motivation and learning. Longer term goals include demonstrating positive impacts on student achievement scores in science and their decisions to enter higher educational and career pathways in science.

Milwaukee School of Engineering

Principal Investigator: Ann Batiza

Amount: \$1,262,083

Period of Performance: 9/1/07–8/31/11

Effect of the SUN Teacher Workshop on Student Achievement

A recent instructional analysis of middle school and secondary biology textbooks concluded that their presentation of the ideas of energy and the flow of matter in living things was uniformly poor. The purpose of this project is to develop an in-service training workshop, Students Understanding eNergy (SUN), on the fundamental topic of energy transfer in biological systems (i.e., respiration and photosynthesis), and the impact of these processes on the flow of matter and energy in biology. The workshop material aligns with four of the six areas of the Wisconsin State curriculum for the topic of life and environmental science. In the 2-week workshop, teachers learn to use physical models of molecular structures that serve as "thinking tools." The interactive physical models provide multisensory experiences that are intended to help learners develop mental models on which to build a deeper understanding of potentially difficult concepts. In addition to the physical models, teachers are provided with interactive and hyperlinked computer visualizations, animations, pen and paper exercises, schematics, and other materials to help them teach high school biology.

Mills College

Principal Investigator: Catherine Lewis

Amount: \$1,997,590

Period of Performance: 9/1/07–8/31/11

Improving the Mathematical Content Base of Lesson Study: Design and Test of a Research-Based Toolkit

In lesson study, teachers work together in a cycle of improvement that includes planning, teaching, and debriefing an actual classroom lesson. Lesson study originated in Japan and has been initiated by U.S. teachers only since 1999. Preliminary evidence suggests that lesson study can improve mathematics instruction. The purpose of this project is to develop and test two research-based toolkits designed to help mathematics lesson study groups access and use content knowledge effectively. The toolkits focus on two areas of mathematical content

knowledge that are problematic for U.S. students (proportional reasoning and representation), and include resources designed to help lesson study groups increase their knowledge about the teaching and learning of each topic.

University of Virginia

Principal Investigator: Sara Rimm-Kaufman
Amount: \$2,814,668
Period of Performance: 3/1/07–2/28/11

The Efficacy of the Responsive Classroom Approach for Improving Teacher Quality and Children's Academic Performance

Although standards-based math curricula may provide teachers with strategies for improving student learning of academic content, typically these curricula do not provide teachers with well-articulated strategies for creating classroom environments conducive to learning. The purpose of this study is to conduct a randomized controlled trial to assess the efficacy of a widely used professional development program, the Responsive Classroom® approach, designed to integrate social and academic learning and to create optimal classroom learning environments that enhance children's ability to learn. The Responsive Classroom® approach offers teachers a set of strategies designed to create efficient classroom environments with fewer behavior problems and more opportunities to learn.

WestEd

Principal Investigator: Steven Schneider
Amount: \$1,990,754
Period of Performance: 7/1/07–6/30/11

Understanding Science: Improving Achievement of Middle School Students in Science

In 1999-2000, 42 percent of public school students were taught physical sciences by teachers who had neither a major nor a certification in the field. The purpose of this project is to develop three teacher professional development courses in the Understanding Science series that address challenging physical science and earth science topics (heat and energy, plate tectonics, and climate and weather). The first two courses have a pedagogical focus on supporting students' writing in science and the last one has a pedagogical focus on supporting students' reading in science. The courses are intended to build the science content knowledge of

middle school teachers (grades 6 through 8), and thereby improve the science achievement of middle school students.

University of South Florida

Principal Investigator: Robert Potter
Amount: \$1,444,403
Period of Performance: 3/1/08–2/28/11

Leadership for Integrated Middle School Science

Despite the importance of scientific expertise to America's global competitiveness, student interest and participation in science declines through the school years. Moreover, many science teachers themselves have misconceptions and deficiencies in their content knowledge. The purpose of Leadership for Integrated Middle School Science is to develop a replicable national model for developing teacher-leaders in science, to create model instructional and professional development materials, and to provide a system for improving the teaching of middle school integrated and comprehensive science.

Teacher Quality: Reading and Writing

University of Michigan

Principal Investigator: Joanne Carlisle
Amount: \$1,770,582
Period of Performance: 7/1/08–6/31/12

Development of an Interactive, Multimedia Assessment of Teachers' Knowledge of Early Reading

The purpose of this project is to develop a measure that rates how effectively teachers use their pedagogical content knowledge in teaching reading, and to develop a closely related measure to assess the knowledge teachers use in analyzing reading lessons. The second measure will be embedded in a multimedia, interactive system in which teachers will analyze the quality of videotaped reading lessons, which present dynamic and complex portraits of instruction. Similarly, teachers' evaluations of videotaped reading lessons are an extremely promising medium for eliciting and measuring teacher knowledge, which should be a considerable improvement over traditional paper-and-pencil assessments. Once developed and validated, this measurement tool could be used diagnostically to improve teacher professional development.

National Bureau of Economic Research

Principal Investigator: Jesse Rothstein

Amount: \$294,295

Period of Performance: 7/1/08–6/30/10

Value-Added Models and the Measurement of Teacher Quality: Tracking or Causal Effects?

Policy regarding teacher quality can proceed effectively only with an accurate measure of quality. If an inaccurate measure is used, programs to increase quality cannot be validated and accountability policies may create perverse incentives. A near-consensus holds that quality should be measured by teachers' effects on student achievement. So-called value-added models (VAMs) purport to do this, but have not themselves been validated. The purpose of this project is to validate VAMs, focusing particularly on the maintained assumptions about the mechanism by which students are assigned to teachers (i.e., randomly). If these assumptions are violated, for example, where ability tracking is prevalent, value-added estimates will not accurately detect teacher effects. This study will test these assumptions and, if warranted, offer an alternative model that can identify teachers' contributions to student knowledge in the presence of plausible real-world tracking.

University of Pittsburgh

Principal Investigator: Linda Kucan

Amount: \$1,386,901

Period of Performance: 4/1/08–3/31/11

The Iterative Design of Modules to Support Reading Comprehension Instruction

In this project, the research team is identifying the current knowledge base for teaching reading comprehension, and working to translate that knowledge base into high-leverage practices that should be at the core of teacher preparation courses in reading methods. The researchers are developing, assessing, and refining five reading comprehension instruction modules for use by teacher-educators in the preparation of teachers who work with students in grades 4 through 8. Although these modules will focus on reading comprehension instruction in upper elementary classrooms, they will also be usable by middle school teachers, especially those who teach struggling readers.

Purdue University

Principal Investigator: Douglas Powell

Amount: \$1,738,508

Period of Performance: 10/1/07–3/15/11

Classroom Links to Vocabulary and Phonological Sensitivity Skills

A primary purpose of prekindergarten education is to promote the acquisition of knowledge and skills linked to later reading success. In an earlier IES-supported project, this research team developed a case-based hypermedia resource for preschool teachers with 16 cases covering topics such as reading with children, writing, letter knowledge, and conversations. Each case includes video clips of research-based teaching practices, accompanying text that highlights key elements of the practice, and practitioner-oriented material describing research related to the case topic. The researchers also developed an individualized coaching model that allows coaches to provide support to teachers at a distance. The initial evaluation of this teacher professional development program showed promising effects on instructional practice and child outcomes. The purpose of this project is to develop and test additional case-based hypermedia modules that specifically target vocabulary development, phonological sensitivity, use of classroom materials, and literacy practices.

Postdoctoral Research Training Program in the Education Sciences

City University of New York

Training Director: Bruce Homer

Amount: \$650,020

Period of Performance: 8/1/08–7/31/12

Interdisciplinary Postdoctoral Research and Training Fellowship in the Educational Sciences

This program provides recent Ph.D. recipients with intensive training in educational science and technology research. Given the growing importance of computers and the Internet for education and research, the training program has a strong focus on the use of technology for developing educational tools, and technology as a tool for conducting educational research. Interdisciplinary Postdoctoral Research and Training fellowships provide young researchers with the theoretical knowledge and

rigorous methodological and statistical skills they need to make major contributions to our understanding of learning and education, and to develop and empirically validate technology-based solutions for real-world educational settings.

University of Nebraska-Lincoln

Training Director: Susan Sheridan

Amount: \$599,694

Period of Performance: 8/1/08–7/31/12

Postdoctoral Fellowship for Research on Consultation-Based Interventions for Students With Social and Behavioral Concerns

The primary focus of this program is to provide fellows with the tools they need to conduct methodologically rigorous interventions for students with social and behavioral concerns that interfere with learning and development. By participating as students in advanced seminars on methodological techniques, as researchers in large-scale evaluation projects, and as collaborators in developing grant proposals, this training program prepares researchers to conduct investigations that determine the efficacy of approaches designed to support student learning and achievement via the reduction of social and behavioral problems.

University of Oregon

Training Director: Gerald Tindal

Amount: \$608,892

Period of Performance: 3/1/08–2/28/12

Postdoctoral Fellowships on Progress Monitoring in Reading and Mathematics

This program trains methodological researchers who will become expert in the development and validation of measurement tools used to document progress in reading and mathematics among elementary and middle school students. Fellows are being trained in several aspects of measurement development and research, including curriculum-based measurement, item response theory, and growth modeling. These techniques can be used to develop formative measurement systems that are accessible to all and diagnostically sensitive. Fellows are learning how to develop a variety of assessments in reading and mathematics that are appropriate for the full range of students, including students with disabilities and English language learners.

Vanderbilt University

Training Director: Paul Cobb

Amount: \$732,956

Period of Performance: 6/1/08–5/31/12

Postdoctoral Training: Research Methods in the Learning Sciences

This program provides fellows with an opportunity to participate in cognitive science research, develop computer-based learning and assessment tools, conduct classroom studies, and design and validate a variety of instruments that evaluate student learning in early mathematics and middle school math and science. Fellows learn a variety of methods that range from systematic design-based research, to developing assessment instruments that measure learning gains under different interventions and different classroom settings, to conducting randomized field trials for a fully developed intervention.

University at Buffalo, State University of New York

Training Director: Julie Sarama

Amount: \$613,354

Period of Performance: 3/1/07–2/28/11

Comprehensive Postdoctoral Training in Scientific Education Research

This program immerses fellows in ongoing projects in applied scientific research in education. Senior researchers provide fellows with complementary training in the use of state-of-the-art methodologies. The research team is currently evaluating the scale-up of a preschool mathematics curriculum and is examining the conditions under which the intervention improves student learning and achievement. This scale-up project provides the immediate context for work with postdoctoral fellows and offers multiple opportunities for fellows to extend the research and to develop empirical questions of their own.

Georgia State University

Training Director: Rose Sevcik

Amount: \$639,430

Period of Performance: 6/1/07–5/31/11

Postdoctoral Research Training in Language and Literacy Interventions With Special Populations

This program offers postdoctoral fellows individualized research experiences within the context of interdisciplinary research teams. The program is housed within the Center for Research in Atypical Development and Learning, which includes program faculty from psychology, special education, public policy, and communication disorders. Currently, faculty members have externally funded research projects designed to evaluate education interventions that promote language or literacy development in special populations—that is, children, adolescents, or adults at risk for or with identified disabilities. All projects include random assignment to intervention and control conditions in field settings and represent interventions with students who vary in age and type of disability.

University of California, Berkeley

Training Director: Mark Wilson

Amount: \$624,400

Period of Performance: 3/1/07–2/28/11

Berkeley Research Experience and Methodology Program

This training program enables fellows to investigate the characteristics, resources, and practices of teachers that make educationally significant differences in the students they teach. A major methodological focus of the program is multilevel or hierarchical modeling, and the design and analysis of both randomized and observational studies in the presence of clustering. A second methodological focus of the program is measurement models and the design and analysis of educational assessments. Fellows are engaged in a selection of the multiple projects that are based in the Berkeley Evaluation and Assessment Research Center, including projects to develop and evaluate educational programs and, in particular, to develop and evaluate assessment systems in education.

Predocctoral Research Training Program in the Education Sciences

New York University

Training Director: J. Lawrence Aber

Amount: \$4,221,025

Period of Performance: 9/1/08–8/31/13

The New York University Predocctoral Training Program in Education Sciences

This program in education sciences provides a focus on learning in context; rigorous experimental and quasi-experimental approaches to causal inference; and interdisciplinary perspectives on education and learning. A quantitative core curriculum ensures that fellows are well trained in sophisticated statistical methods. Additional course options and research apprenticeships ensure that students develop content expertise in academic achievement, especially in reading and mathematics; social/behavioral contexts of learning; and/or education policy. Participating New York University faculty and two strategically selected external research partners—MDRC and the Research Partnership for New York City Schools—offer fellows a rich set of research apprenticeships and dissertation project options.

Johns Hopkins University

Training Director: Karl Alexander

Amount: \$3,695,851

Period of Performance: 7/1/08–6/30/13

Using Research to Improve Student and School Outcomes by Improving Programs and Practices, Grades K Through 12

This training program brings together four academic and research units at Johns Hopkins to prepare fellows to conduct cutting-edge research to improve student and school outcomes in grades K through 12. Graduate students receive training in a core discipline (education, sociology, or public health) and learn how to integrate research perspectives and techniques from other disciplines to produce more comprehensive and methodologically sophisticated research. By improving skills and providing access to state-of-the-art research strategies being developed and implemented by the affiliated academic units, the training program provides fellows with the expertise needed to conduct leading-edge research on improving programs and practices in grades K through 12.

Vanderbilt University

Training Director: David Cordray

Amount: \$5,000,000

Period of Performance: 9/1/08–8/31/13

Vanderbilt Predoctoral Research Training in Education Sciences

This training program, ExpERT-II, relies on multiple instructional and research activities to train a sizable cadre of scientists who are experts in conducting randomized field experiments of theory-based interventions and approaches aimed at enhancing student learning in educational settings. These main training activities include formal courses and substantial research experience. In addition, the program offers teaching opportunities, mini-workshops, a distinguished lecture series, and provisions for conference attendance. Predoctoral trainees acquire expertise in conducting high-quality randomized controlled trials of education programs, policies, and practices that are grounded in strong theoretical frameworks and supported by relevant prior empirical evidence. Coupled with skills in the use of meta-analytic procedures, accumulation of evidence from such studies will provide an additional basis for answering questions of what works for whom under what circumstances.

Northwestern University

Training Director: David Uttal

Amount: \$4,116,861

Period of Performance: 9/1/08–8/31/13

Multidisciplinary Program in Education Sciences

The Multidisciplinary Program in Education Sciences (MPES) program trains students to conduct research on educational policy and student learning. Effective educational reform requires that researchers understand the basic cognitive foundations of learning. The MPES program has three related goals: (1) to provide a unified interdisciplinary program of coursework and research mentoring on linkages among educational policy, student cognition, and achievement in mathematics and reading; (2) to ensure that students receive training in rigorous, causally focused research methods; and (3) to foster research collaborations among faculty and graduate students from the different disciplinary traditions who have common interests in policy, learning, and methodology.

Bringing together faculty from diverse disciplinary backgrounds, the program seeks to create collaborations that result in cutting-edge empirical, methodological, and theoretical work on relations between education policy and practice.

University of California, Los Angeles

Training Director: Noreen Webb

Amount: \$4,200,000

Period of Performance: 7/1/08–6/30/13

Advanced Quantitative Methodology for Improving Educational Practice

The University of California, Los Angeles Departments of Education and Psychology offer an interdisciplinary predoctoral training program in Advanced Quantitative Methodology for Improving Educational Practice with a substantive focus on mathematics teaching, learning, and assessment. The goals are to produce world-class experts in quantitative methodology who can conduct rigorous educational research to advance methodological and substantive knowledge; train succeeding generations of methodologists and researchers focusing on educational issues; and who are well grounded in research on improving teaching and learning of mathematics in U.S. schools. Students receive in-depth training in causal inference, the hierarchical linear modeling and structural equation modeling statistical frameworks, item response theory and generalizability theory psychometric approaches, and strategies for measuring classroom practice and program implementation.

National Research and Development Centers

The 21st Century Partnership for STEM Education

Center Director: F. Joseph Merlino

Amount: \$9,995,038

Period of Performance: 7/1/08–6/30/13

National Research and Development Center on Cognition and Science Instruction

Center research teams will apply three theoretical principles of cognitive science—analogue reasoning, spatial reasoning, and student prior knowledge—to modify and adapt two widely used middle school science curricula: the traditional text

series published by Holt and the National Science Foundation sponsored FOSS program. Adaptations will be made to the life science, physical science, and earth science units in each of the curricula. These units have a high intersection of content between the two curricula and with state standardized science assessments. Team members will design and conduct small-scale pilot studies to evaluate the curriculum adaptations in terms of potential impact on student learning and fidelity of implementation in the classroom. Following selection and refinement of the adaptations, team members will produce professional development materials to support teaching the specified curriculum through the use of the adaptations. When all adaptations have undergone the full cycle of small-scale piloting and 1 year of large-scale testing, analysis, and modification, an efficacy study will be conducted to evaluate the impact of these adaptations on student learning.

University of California, Los Angeles

Center Director: Eva Baker

Amount: \$9,833,451

Period of Performance: 9/15/08–9/14/13

National Research and Development Center on Instructional Technology: Center for Advanced Technology in Schools

Center teams will design a challenging and motivating game to foster learning of prealgebra and algebra concepts. The PC-based game will be housed on an Internet portal, will be implemented to supplement ninth-grade math curricula, and will specifically target underperforming students. To succeed in the game, students will use math skills to maneuver through various levels, whose difficulty will vary online via an embedded self-assessment component. Content areas will include concepts of rational number equivalence, solving equations, and functions. Initial development will use 2-dimensional versions of the game to understand how variables such as reasoning, practice, and feedback affect academic outcomes, with iterative testing expected to reveal the most promising game design variation. A commercial game design partner, Tabula Digita, will subsequently create a 3-dimensional version. Efficacy trials will be conducted on both game versions in order to assess their effect on learning algebra concepts, performance on a transfer task,

and measures of interest and engagement in mathematics.

Education Development Center, Inc.

Center Director: Cornelia Brunner

Amount: \$9,197,582

Period of Performance: 7/1/08–6/30/13

National Research and Development Center on Instructional Technology: Center for Children and Technology and Center for Science Education

This Center will conduct a 5-year program of research and development around a multimedia-enhanced curriculum, Super Sleuths, that uses the Nintendo Dual-Screen (DS) portable gaming environment to support science and literacy learning among middle-grade students. Well-developed portable gaming applications have the potential to improve science and literacy achievement by providing three key supports that middle-grade students need: a motivating story/game context that unfolds over time, and in which students have a competitive role; multiplayer communication capacities that support classroom problem solving and teamwork; and mini-games that build specific science knowledge and skill, and concrete literacy skills. Super Sleuths will be universally designed for seventh-graders, including those who are struggling, by offering multiple points of entry into subject matter and literacy. The Education Development Center will develop Super Sleuths using a formative research process in which the research team will work with teachers and students to design activities and a larger game narrative that are both compelling and educationally substantive.

Unsolicited and Other Awards

Northwestern University

Principal Investigator: Larry Hedges

Amount: \$469,214

Period of Performance: 9/1/08–8/31/11

Representing and Combining the Results of Randomized Experiments in Education

The multisite randomized experiment is an important tool in education science, but the use of evidence from such trials has sometimes posed technical problems. This research will make it easier to interpret, represent, and use the results of randomized experiments in education.

RAND Corporation

Principal Investigator: Bing Han

Amount: \$399,960

Period of Performance: 9/1/08–8/31/10

Simultaneous Statistical Inference in Evaluating Teacher Performance

There is widespread interest in using student achievement data to evaluate the performance of individual schools for accountability. Such evaluations are the capstone of many federal and state education policies. Currently, there is also increasing interest in using sophisticated value-added models (VAMs) as a part of the evaluations for individual teachers as well as schools, and using the measures for a variety of purposes including merit pay. Evaluation systems based on value-added measures typically involve classifying teachers or schools into several groups according to their estimated performance. These classifications can involve simultaneous decisions for hundreds or even thousands of teachers/schools. Although using standard statistical procedures can control the probability of misclassification for each individual, of concern is the simultaneous error rate of the whole evaluation system across all involved individuals. At the system level, the entire collection of classifications determines whether scarce resources are well allocated or whether the data is useful for other types of decisionmaking. In statistical terminology, the ensemble of classification decisions is referred to as the problem of simultaneous inference. The purpose of this project is to establish a methodological framework for controlling simultaneous errors in classification of teachers/schools on the basis of student achievement and VAMs.

Northwestern University

Principal Investigator: Larry Hedges

Co-Principal Investigators: David Cordray and Mark Lipsey

Amount: \$1,581,931

Period of Performance: 10/11/07–10/10/10

Proposal for an RCT Training Institute

Well-executed randomized experiments provide the strongest evidence about causal effects of educational interventions, products, and services. Consequently, they have a crucial role to play

in establishing a base of knowledge for the improvement and reform of American education. Yet the number of individuals with the knowledge and experience necessary to design, implement, analyze, and interpret randomized field experiments in education is surprisingly small. The purpose of this project is to plan and conduct a series of three annual training institutes for education research professionals. The institute will focus on methods for designing, conducting, analyzing, and interpreting field-based randomized controlled trials of educational interventions, products, and services, with the ultimate goal of continuing to build capacity in the field of education research.

University of California, Los Angeles

Principal Investigator: Eva Baker

Amount: \$398,886

Period of Performance: 9/30/07–9/29/10

Latent Variable Regression Four-Level/Five-Level Hierarchical Models for Experimental/Quasi-Experimental Studies, Evaluation Studies, and Teacher and/or School Accountability

In this era of intervention-based experimental studies, it is not uncommon to encounter data that needs to be analyzed using hierarchical linear modeling, a data analytic technique that takes account of the nested structure of certain types of data (e.g., all the students in a single classroom are influenced by the same teacher). The primary purpose of this project is to examine new extensions of commonly used hierarchical linear models to provide researchers with new sets of statistical tools that can help to answer questions that could not be previously studied due to a lack of appropriate statistical methods.

University of Iowa

Principal Investigator: Andrew Ho

Amount: \$273,844

Period of Performance: 9/1/07–8/31/09

Evaluating the Impact of the Choice of Test Score Scale on the Measurement of Individual Student Growth

State and federal educational policies are focused increasingly on school accountability for individual student growth. As statistical models and policy approaches to these issues proliferate, little attention is paid to the serious dependency of growth

statistics on the choice of the test score scale. A different score scale, defined by a nonlinear transformation of the original score scale, can theoretically alter growth statistics, reverse aggregate trends, and distort interpretations from so called value-added models. However, the practical consequences of scale choice have not been well described, leaving growth-based educational policies with statistics subject to undocumented scale-dependency. In this project, the researchers are developing a framework for evaluating the impact of scale choice on large-scale, policy-relevant growth statistics.

University of Michigan

Principal Investigator: Kevin Miller

Amount: \$816,936

Period of Performance: 9/1/07–8/31/10

Modeling and Developing Situation Awareness in Teachers

A hallmark of expert teachers is their ability to monitor the complex, chaotic environment of a classroom and hone in on key features relevant to assessing student understanding. This phenomenon, termed “situation awareness,” is central to the performance of many complex activities. We know very little about how teachers manage their attention while teaching, and even less about how this ability develops. This project will develop basic models of situation awareness in teaching and use them to create viewing tasks that may help prospective teachers learn how to watch a classroom. The purpose of this project is to support the development of situation awareness in prospective teachers, so that new teachers can begin their professional lives having at least partially mastered the skill of monitoring student attention and engagement.

Northwestern University

Principal Investigator: Larry Hedges

Co-Principal Investigator: Mark Conchas

Amount: \$656,978

Period of Performance: 7/1/08–6/30/10

The Continued Development of the Society for Research on Educational Effectiveness

The Society for Research on Educational Effectiveness (SREE) was founded as a scientific organization that could support the growing

community of researchers interested in the development and application of scientific methods to produce trustworthy estimates of the causal effects of education interventions. The society aims to increase the capacity to design and conduct investigations that have a strong base for causal inference; bring together people investigating cause-and-effect relations in education; and promote the understanding and use of scientific evidence to improve education decisions and outcomes. The specific goals of this project include sustaining the progress already made under a previous IES grant, including continuing to promote membership, holding annual SREE research conferences, publishing the Journal for Research in Educational Effectiveness, and developing organizational sustainability with regard to financial and governing stability.

Educational Testing Service (ETS)

Principal Investigator: John Sabatini

Amount: \$125,390

Period of Performance: 5/1/07–4/30/08

Assessing Reading in the 21st Century Conference: Aligning and Applying Advances in the Reading and Measurement Sciences

What is reading comprehension? How do we define it? How do we measure it? How do we improve it? Educators, researchers, and policymakers across the United States are grappling with these questions. To tackle these issues around reading, ETS organized a conference that examines these questions by bringing together scholars from different research traditions, who often do not communicate directly, to present emerging research and models of reading and reading assessment. The primary questions addressed at this conference concern how to align advances in reading science and measurement with the applied assessment practices that govern school- and policy-level decisionmaking.

Northwestern University

Principal Investigator: Thomas Cook

Amount: \$787,612

Period of Performance: 9/1/07–8/31/10

Improving Better Quasi-Experimental Practice

The purpose of this project is to improve the yield from cause-probing research in education. Considerable professional consensus already

exists regarding which quasi-experimental designs represent acceptable alternatives when an experiment is not feasible. These include in particular regression-discontinuity, case matching with emphasis on propensity scores, short interrupted time series, and pattern matching. This project will focus on improving research using these four design or analytic principles. Although these are the strongest quasi-experimental designs currently available, the research team will investigate specific ways to improve them.

Northwestern University

Principal Investigator: Greg J. Duncan

Amount: \$600,000

Period of Performance: 9/1/07–8/31/10

The Effects of Disadvantaged Schools and Neighborhoods on the Education of Low-Income Youth

Empirical claims for the powerful effect of social context on schooling outcomes date back at least to the Coleman Report (1966). However, these studies may confound the causal effects of school context with those of unmeasured family attributes that affect both youth schooling outcomes and residential location and school attendance. This project seeks to address the substantial variation across neighborhoods of different socioeconomic compositions in graduation rates, achievement test scores, and other educational outcomes. The researchers will try to find out how neighborhood context affects youth educational outcomes over the long term, and what the primary mechanisms are through which neighborhoods influence youth educational and other outcomes. Their objective is to produce evidence that will help guide the development of education and social policies designed to improve the life chances of low-income youth living in some of our nation's most disadvantaged urban communities.

Small Business Innovation Research

One Planet Education, LLC

Principal Investigator: George Newman

Amount: \$850,000

Period of Performance: 5/22/08–11/19/10

The Digital Earth Explorations Project to Enrich the Middle School Life Sciences

This project will develop a web-based three-dimensional virtual reality game that will align to middle school life science standards. The game will be embedded in representations of real-world national parks in the United States, including Mesa Verde National Park and World Heritage Site, Hawaii Volcanoes National Park, and the Northwestern Hawaiian Islands National Marine Sanctuary (with the support of the Cousteau Ocean Futures Society). Students will perform inquiry-based activities, or quests, to understand and solve problems that arise in the game.

Molysym, Inc.

Principal Investigator: Keith Donaldson

Amount: \$841,875

Period of Performance: 5/22/08–11/19/10

Online Learning System to Advance Teaching of Hyper Molecular Modeling

MolySym has successfully prototyped and classroom tested the MolySym Hypermodeling System, a tangible user interface that provides high school chemistry students with a direct link between a physical model and a software simulation system. The incorporation of electronics and robotics technologies into ball-and-stick models to communicate in real time with a software simulation system is called hypermodeling and it improves students' understanding of important chemical principles relating to 3-dimensional molecular structures. In order to successfully deploy the tool into classrooms, this project will develop a teacher training and implementation interface.

Current Conceptions, LLC

Principal Investigator: Phillip Senger

Amount: \$836,000

Period of Performance: 5/22/08–11/19/10

Higher Learning @ Higher Speeds in Biosciences Using Time Compressed Animated Delivery

This project is developing and evaluating the use of Time Compressed Animated Delivery (TCAD)—consisting of short (10 to 15 minutes), highly animated, content-rich units—to teach the reproductive sciences. TCAD will be designed to educate high school and college students regarding core biological principles, with a focus on how such principles impact health-related processes and interventions.

Select-O-Sep, LLC

Principal Investigator: Christina Gilpin

Amount: \$849,548

Period of Performance: 5/22/08–11/19/10

Electronic Chemistry Laboratory Workbook

This project will develop the web-based Electronic Chemistry Laboratory Workbook with tactile controls and interface hardware that can be used to carry out experimental simulations, as a supplement or an alternative to actual in-laboratory chemistry teaching. The tool will offer a realistic hands-on feeling for simulated lab experiments, including the incorporation of systematic and random errors as well as visual and tactile feedback.

Nimble Assessment

Principal Investigator: Michael Russell

Amount: \$849,777

Period of Performance: 5/22/08–11/19/10

The Universal Assessment System

This project will develop a universally designed test delivery platform that provides accessibility for students with disabilities. This project expands the accessibility features included in a beta version of the Universal Assessment System to provide access to deaf and hearing impaired students through the use of signing, blind students through interactivity with electronic Braille displays, and students with language processing challenges through embedded writing supports. The project examines the usability and efficacy of these accessibility features.

Empirical Education

Principal Investigator: Robert Smith

Amount: \$849,081

Period of Performance: 5/22/08–11/19/10

MeasureResults™: A Tool for Principals to Increase Evidence-Based Decision Making

Educators are expected to make decisions and are responsible for results. Ideally, decisions are based on scientific research, yet most principals lack the facilities or staff for rigorous studies. Data warehouses may include raw data but often lack analytical facilities and assistance in setting up experiments, especially for decisionmakers at the building level. MeasureResults™ is designed to assist principals by building the appropriate design and analytical techniques into a simple framework incorporating a web-based interface, automatically generated reports, and technical support that includes expert in-house statistician review of all analyses and reports.

Seward Incorporated

Principal Investigator: Gregory C. Sales

Amount: \$850,000

Period of Performance: 6/15/07–12/15/09

The First 4,000 Words: Keys to School Success

This project will develop and test a multimedia system for ensuring that students in grades 1 through 4 know the meanings of the 4,000 most frequently used English words when they hear them or see them in print. The product will also ensure that students can pronounce these words. The target population is English language learners, struggling readers, or children of poverty who have small vocabularies relative to their peers.

Community Knowledgebase, LLC

Principal Investigator: Lewis A. Friedland

Amount: \$850,000

Period of Performance: 6/15/07–12/15/09

Youth Map: A Software-Based Program to Increase Service-Learning Quality

In 2004, 28 percent of U.S. schools involved 4.7 million students in service-learning. Service-learning, where students perform community service that is integrated with academic instruction, is theorized to provide students with opportunities for applied learning. The purpose of this project is to develop

Youth Map, a web-based software package to improve high school-level service-learning curricula. Youth Map will be implemented in science, math, or government classes.

MolySym, Inc.

Principal Investigator: Keith D. Donaldson

Amount: \$845,188

Period of Performance: 6/15/07–12/15/09

Intelligent Molecular Model Kit and Software Suite for Improving High School Chemistry Instruction and Student Achievement

Understanding the spatial structure of organic molecules has historically been a source of difficulty for high school chemistry students. The classic ball-and-stick model of molecules, developed in 1865, is still used today to convey the fundamental characteristics of a molecular system. This model is an inadequate representation of a dynamic system, and fails to accurately represent the true relationship of the physical properties within the system.

Furthermore, when asked to create molecular models, students may unknowingly construct a molecule that simply cannot exist in nature, often reinforcing incorrect perceptions of molecular systems rather than teaching valid chemical principles. The purpose of this project is to produce an intelligent molecular modeling kit and software suite for advanced placement chemistry classes for real-time communication between the hand-held physical model and the virtual software model to enable users to view changes in properties as they manipulate the molecular model in their hands.

Spectrum Education Group, LLC

Principal Investigator: R. Shawn Edmondson

Amount: \$849,976

Period of Performance: 6/15/07–12/15/09

Developing a Web-Based Classroom Observation System to Support Increased Teacher Quality

This project is developing the Individualized Remote Information System (IRIS), a small affordable video camera and software system that enables remote observation. Practical education applications of IRIS will enable classroom observations of preservice or inservice education, induction, supervision, or educational research involving observations. The camera will be placed in any area of the classroom

for monitoring, and the software interface will facilitate immediate performance feedback between the observer and the observed. The software will also contain a customizable web-based protocol for logging and tracking data that is collected through the observations.

Polyhedron Learning Media, Inc.

Principal Investigator: Jeanne H. Finstein

Amount: \$850,000

Period of Performance: 6/15/06–5/29/09

Virtual Physics Laboratory

College physics laboratories have traditionally been taught as separate courses under junior faculty or graduate students in laboratories equipped with various levels of instrumentation. As budget cuts become more prevalent, it has become increasingly difficult for colleges to upgrade lab equipment and maintain adequate teaching and grading staff. The purpose of this project is to develop a set of web-based virtual labs that could fully replace, or be used as a supplement to, hands-on labs in a typical introductory physics course.

Tactus Technologies, Inc.

Principal Investigator: Kevin Chugh

Amount: \$850,000

Period of Performance: 6/15/06–5/29/09

The Tactus Immersive Learning Environment

The project team is developing a cost-effective virtual reality simulation platform designed to facilitate student learning of core National Science Education Standards. The Tactus Immersive Learning Environment (TILE) is intended for use as a supplement to middle and high school science curricula, for primary instruction of concepts, or for review, for individual or small-group practice. Because TILE will provide real-time graphical representations and summaries of students' manipulations and the resulting changes due to their manipulations, the virtual reality environment will "bring to life" students' learning of key science concepts. For example, when learning about topics such as force and motion, students using TILE might watch race cars driving and stopping in order to learn about inertia and resistance, or they might watch items of various masses drop on Earth and on the Moon to observe the varying effects of gravity.

Advanced Fuel Research, Inc.

Principal Investigator: Peter Solomon

Amount: \$849,675

Period of Performance: 6/15/06–5/29/09

Technology Enhanced Science Education in Middle School

This project is developing four web-delivered units (including units focused on force and motion, position, energy, and gravity) to replace or supplement middle school physical science curricula. Units will unfold in the classroom as follows. Teachers will begin by presenting an engaging hands-on or computer simulation demonstration of a concept. Then, classes will engage in a “What Do You Know” discussion using web-delivered visuals to gauge knowledge or misconceptions. Student teams then perform inquiry activities using hands-on apparatus and matching computer simulations for viewing phenomena on a molecular level, for varying parameters that cannot be adjusted in a laboratory (e.g., gravity), and for viewing results instantly. At the conclusion of those inquiry activities, teams summarize their findings in a presentation to classmates. Unit activities conclude with classrooms engaging in a “Concept Solidification” discussion where students are asked to compare their initial concepts to what they learned during the unit. The use of the to-be-developed simulations allows students to explore concepts such as force and motion at the everyday world scale (e.g., a basketball trajectory), at the cosmic scale (e.g., Moon orbit), or at the atomic scale (e.g., electron orbit).

Children’s Progress, Inc.

Principal Investigator: Christopher Camacho

Amount: \$850,000

Period of Performance: 6/15/06–5/29/09

Early Childhood Assessment and Intervention Within a Community

The vast majority of current prekindergarten to grade 3 assessments do not provide insight about the child’s misunderstandings and do not provide valuable information regarding what steps are to be taken to correct these misunderstandings. This project is developing and validating technologies for assessment and instruction that can be independently completed by a child on the computer in the classroom and also at home. Moreover, it will

use the Internet to allow teachers and parents to share information about their children’s learning and development.

Contracts**Abt Associates**

Amount: \$365,529

Period of Performance: 4/25/08–11/24/08

The purpose of this project is to identify promising models/programs for turning around chronically low-performing schools and to provide multiple research design options for rigorously evaluating the identified models/programs.

Mathematica Policy Research, Inc.

Amount: \$13,017,311

Period of Performance: 9/24/03–2/28/09

The purpose of this project is to promote positive social and character development and reduce antisocial behavior in school. The approach is to collect and analyze comparable outcome data across seven social and character development intervention programs.

Research Triangle Institute

Amount: \$7,668,706

Period of Performance: 5/13/02–11/13/07

The purpose of this project is to improve the quality of preschool education. The approach is to collect and analyze comparable outcome data across seven randomized controlled trials evaluating the impact of specific preschool curricula on child outcomes.

Synergy Enterprises, Inc.

Amount: \$7,300,385

Period of Performance: 9/27/07–9/30/10

This contract provides logistical and analytic support for IES.

Interagency Agreements

U.S. Army Medical Research Acquisition Activity

Amount: \$2,588,000

Period of Performance: 7/31/07–7/30/08

This interagency agreement is for services to contract for scientific peer review management and administrative support for IES research competitions.

U.S. Army Medical Research Acquisition Activity

Amount: \$3,100,400

Period of Performance: 7/28/08–7/27/09

This interagency agreement is for services to contract for scientific peer review management and administrative support for IES research competitions.

Appendix B

National Center for Education Statistics (NCES)

NCES carries out activities of collecting, analyzing, and disseminating statistics on the condition of education primarily through contracts.

Assessment Division

NATIONAL ASSESSMENT OF ADULT LITERACY (NAAL)

NAAL provides nationally representative assessments of English language literacy skills of American adults. NAAL seeks to describe the status of adult literacy in the United States, report on national trends, and identify relationships between literacy and selected characteristics of adults. NCES has conducted adult literacy assessments since 1985.

Westat, Inc.

Amount: \$19,497,197

Period of Performance: 4/1/01–8/1/07

Westat, Inc.

Amount: \$14,316,804

Period of Performance: 9/29/05–9/28/10

NATIONAL ASSESSMENT OF EDUCATIONAL PROGRESS (NAEP)

NAEP, also known as “the Nation’s Report Card,” is the only nationally representative and continuing assessment of what America’s students know and can do in various subject areas. Since 1969, assessments have been conducted periodically in reading, mathematics, science, writing, U.S. history, civics, geography, and the arts.

American Institutes for Research (AIR)

Amount: \$5,591,430

Period of Performance: 5/10/02–3/23/08

AIR

Amount: \$5,691,195

Period of Performance: 9/25/03–3/29/09

Council of Chief State School Officers (CCSSO)

Amount: \$1,194,973

Period of Performance: 9/16/04–9/17/08

Westat, Inc.

Amount: \$18,983,094

Period of Performance: 9/26/03–9/29/08

Educational Testing Service (ETS)

Amount: \$92,578,011

Period of Performance: 9/17/02–4/16/08

Westat, Inc.

Amount: \$174,020,360

Period of Performance: 9/16/02–3/30/08

NCS Pearson, Inc.

Amount: \$71,092,305

Period of Performance: 9/16/02–4/16/08

AIR

Amount: \$8,455,126

Period of Performance: 9/16/02–4/16/08

Hager Sharp

Amount: \$12,007,269

Period of Performance: 9/20/02–3/19/07

Human Resources Research Organization

Amount: \$9,271,794

Period of Performance: 9/24/02–9/30/07

ETS

Amount: \$61,173,577

Period of Performance: 9/27/07–9/26/12

ETS

Amount: \$21,561,565

Period of Performance: 9/27/07–9/26/12

ETS

Amount: \$9,694,876

Period of Performance: 9/27/07–9/26/12

Westat, Inc.

Amount: \$150,546,039

Period of Performance: 9/27/07–9/26/12

Westat, Inc.

Amount: \$25,769,493

Period of Performance: 9/27/07–9/26/12

NCS Pearson, Inc.

Amount: \$58,024,739

Period of Performance: 9/27/07–9/26/12

Fulcrum

Amount: \$19,635,603

Period of Performance: 9/27/07–9/26/12

Hager Sharp

Amount: \$13,421,000

Period of Performance: 9/27/07–9/26/12

Human Resources Research Organization

Amount: \$6,843,131

Period of Performance: 6/30/08–6/29/13

CRP, Inc.

Amount: \$6,374,430

Period of Performance: 4/29/08–4/28/13

AIR

Amount: \$1,922,725

Period of Performance: 2/11/08–2/10/13

AIR

Amount: \$30,000,000

Period of Performance: 9/30/05–12/31/10

**NATIONAL COOPERATIVE EDUCATION
STATISTICS SYSTEM (NCESS)**

NCESS was established under the Hawkins-Stafford Education Improvement Amendments of 1988.

The system is meant to organize cooperation with the states on issues of education data collection and dissemination. To this end, the National Forum on Education Statistics was established in 1989 to create a voluntary, democratic, participatory, federal-state group to identify education data needs at the national, state, and local levels.

Multiple awards (all 50 states, DC, and Puerto Rico)

Amount: \$38,708,070

Period of Performance: 9/3/03–9/30/08

**Early Childhood, International, and
Crosscutting Studies Division**

**EARLY CHILDHOOD LONGITUDINAL STUDY
(ECLS)**

The ECLS program is sponsored primarily by NCES in collaboration with other federal agencies and organizations. The program comprises three longitudinal studies: the Early Childhood Longitudinal Study, Kindergarten Class of 1998-99 (ECLS-K), the Early Childhood Longitudinal Study, Birth Cohort (ECLS-B), and the Early Childhood Longitudinal Study, Kindergarten Class of 2010-11 (ECLS-K:11). Combined, these studies provide detailed information on children's developmental status and educational experiences from infancy to early adolescence. The ECLS-K began in fall of 1998 with a nationally representative sample of approximately 21,000 kindergartners from about 1,000 kindergarten programs, both public and private. These children were followed longitudinally through the eighth grade, with data collections in the fall and spring of kindergarten and first grade, and in the spring of third, fifth, and eighth grade. The ECLS-B includes a nationally representative sample of approximately 11,000 children born in the calendar year 2001 who were followed longitudinally from birth through kindergarten entry, with data collected from the child's birth certificate and when the children were about 9 months of age, about 2 years of age, about 4 years of age, and when they were kindergartners. The ECLS-K:11, similar in nature and content to the ECLS-K, will begin in Fall 2010 with a nationally representative sample of approximately 18,000 kindergartners from about 800 public and private schools. The children will be followed annually through spring 2016.

Research Triangle Institute (RTI)

Amount: \$21,400,000

Period of Performance: 4/15/03–1/14/08

RTI

Amount: \$20,500,000

Period of Performance: 7/7/04–7/6/09

Westat, Inc.

Amount: \$40,200,000

Period of Performance: 1/1/98–6/30/06

Westat, Inc.

Amount: \$29,000,000

Period of Performance: 8/15/01–6/30/06

Westat, Inc.

Amount: \$13,600,000

Period of Performance: 9/14/05–9/13/09

Westat, Inc.

Amount: \$21,900,000

Period of Performance: 5/1/08–8/25/11

NATIONAL HOUSEHOLD EDUCATION SURVEYS PROGRAM (NHES)

The NHES program provides descriptive data on the educational activities of the U.S. population and offers researchers, educators, and policymakers a variety of statistics on the condition of education in the United States. NHES surveys cover learning at all ages, from early childhood to school age through adulthood. The most recent data collection in 2007 consisted of two surveys: Parent and Family Involvement in Education and School Readiness.

Westat, Inc.

Amount: \$12,000,000

Period of Performance: 6/9/03–10/31/08

CURRENT POPULATION SURVEY (CPS)

NCES supports supplementary data collection by the Bureau of the Census through the October CPS, a repeated cross-sectional household survey, to gather school enrollment and educational attainment information and validate high school graduation measures. A special data collection involving high school graduation lists is being conducted to verify information respondents provide on young adult high school graduation rates.

Bureau of the Census

Amount: \$115,000 and \$1,700,000

Period of Performance: 6/4/07–5/30/08, 7/26/08–7/25/09, and 7/1/08–5/31/09

QUICK-RESPONSE INFORMATION SYSTEM (QRIS)

QRIS supports quick, ad hoc surveys on issues not covered by NCES's large recurring surveys. It includes the Fast Response Survey System (FRSS) and Postsecondary Education Quick Information System (PEQIS). FRSS was established in 1975 to collect and report data on key education issues at the elementary and secondary levels. Findings from FRSS surveys have been included in congressional reports, testimony to congressional subcommittees, NCES reports, and other U.S. Department of Education reports. State and local education officials also often use the findings. PEQIS serves policy analysts, program planners, and decisionmakers in postsecondary education. In addition to obtaining information on emerging issues quickly, PEQIS surveys are also used to assess the feasibility of developing large-scale data collection efforts on a given topic or to supplement other NCES postsecondary surveys.

Westat, Inc.

Amount: \$9,730,924

Period of Performance: 9/30/04–9/29/09

Westat, Inc.

Amount: \$15,523,224

Period of Performance: 7/15/08–7/14/13

INTERNATIONAL COMPARISONS

NCES supports a variety of activities to provide statistical data for cross-national comparisons of education. These activities focus on two major areas: indicators and assessments. For the Indicators of National Education Systems (INES) project, the United States, the Organization for Economic Cooperation and Development (OECD), and other countries collaborate to develop comparable measures of schools and education, from student enrollment and teacher salaries to graduation rates. The United States also participates in several international assessments, including the Trends in International Mathematics and Science Study (TIMSS) and the Progress in International Reading Literacy Study (PIRLS), both conducted by the International Association for the Evaluation of Educational Achievement (IEA); and the Program for International Student Assessment (PISA) and

the Program for the International Assessment of Adult Competencies (PIAAC), both conducted by OECD.

OECD

Amount: \$99,721

Period of Performance: 10/1/06–9/30/07

OECD

Amount: \$114,971

Period of Performance: 10/1/07–9/30/08

AIR

Amount: \$7,500,000

Period of Performance: 8/30/99–8/29/09

PROGRESS IN INTERNATIONAL READING LITERACY STUDY (PIRLS)

PIRLS is a large international comparative study of the reading literacy of young students. Reading literacy is one of the most important abilities students acquire as they progress through their early school years. It is the foundation for learning across all subjects, it can be used for recreation and for personal growth, and it equips young children with the ability to participate fully in their communities and the larger society. The PIRLS study focuses on the achievement and reading experiences of children in more than 30 countries in grades equivalent to fourth grade in the United States. The study includes a written test of reading comprehension and a series of questionnaires focusing on the factors associated with the development of reading literacy.

International Association for the Evaluation of Educational Achievement (IEA)/Boston College

Amount: \$1,500,000

Period of Performance: 9/28/04–9/29/08

Research Triangle Institute (RTI)

Amount: \$3,704,576 (PIRLS 2006 national contract)

Period of Performance: 8/25/04–8/29/09

IEA (PIRLS 2011 international data collection)

Amount: \$1,753,172

Period of Performance: 8/23/08–8/22/13

Westat, Inc. (PIRLS 2011 national data collection)

Amount: \$2,701,860

Period of Performance: 8/1/08–7/31/13

PROGRAM FOR INTERNATIONAL STUDENT ASSESSMENT (PISA)

PISA, begun in 2000, focuses on 15-year-olds' capabilities in reading literacy, mathematics literacy, and science literacy. In the United States, this age corresponds largely to grade 9 and 10 students. PISA also includes measures of general or cross-curricular competencies such as learning strategies. PISA emphasizes skills that students have acquired as they near the end of mandatory schooling. PISA is currently being administered every 3 years. PISA 2000 focused on reading literacy, and PISA 2003 focused on mathematics literacy. In 2006, PISA focused on science literacy, and in 2009 PISA will again focus on reading. PISA is coordinated by the OECD, an intergovernmental organization of industrialized countries.

RTI

Amount: \$3,911,993 (PISA 2006 national contract)

Period of Performance: 8/25/04–8/29/09

Windwalker Corporation

Amount: \$5,334,309 (PISA 2009 national contract)

Period of Performance: 9/18/07–9/17/11

OECD

Amount: \$1,200,000

Period of Performance: 10/1/06–9/30/07

OECD

Amount: \$1,365,262

Period of Performance: 10/1/07–9/30/08

PROGRAM FOR THE INTERNATIONAL ASSESSMENT FOR ADULT COMPETENCIES (PIAAC)

PIAAC is designed to provide reliable data to measure adult literacy, numeracy, and problem solving in technology-rich environments. The United States and more than 20 other countries will collect data for the first time in spring 2011.

OECD

Amount: \$807,725

Period of Performance: 2/1/08–9/30/08

TRENDS IN INTERNATIONAL MATHEMATICS AND SCIENCE STUDY (TIMSS)

TIMSS provides reliable and timely data on the mathematics and science achievement of U.S. students compared to that of students in other countries. TIMSS data has been collected in 1995, 1999, 2003, and 2007. The United States will next collect data in 2011.

IEA

Amount: \$3,351,638

Period of Performance: 9/13/02–9/15/08

Windwalker Corporation

Amount: \$5,179,025 (TIMSS 2007 national data collection)

Period of Performance: 9/30/05–9/29/09

IEA (TIMSS 2011 international data collection)

Amount: \$3,232,825

Period of Performance: 8/23/08–8/22/13

Westat, Inc. (TIMSS 2011 national data collection)

Amount: \$5,585,278

Period of Performance: 8/1/08–7/31/13

Global Insight, Inc.

Amount: \$753,429

Period of Performance: 6/10/03–6/9/08

Education Modeling System/Projections Data and Model Updates

This project produces projections of education statistics using the NCES Education Modeling System. The contract is used to update the system's databanks, purchase economic data used in the production of projections, execute the forecasting models, revise model specifications, extract projected data and rates, and upgrade the system.

Global Insight, Inc.

Amount: \$900,000

Period of Performance: 6/30/08–6/29/13

Education Modeling System/Projections Data and Model Updates

This project produces projections of education statistics using the NCES Education Modeling System. The contract is used to update the system's databanks, purchase economic data used in the production of projections, execute the forecasting models, revise model specifications, extract projected data and rates, and upgrade the system.

Bureau of the Census

Amount: \$3,437,000

Period of Performance: 9/1/07–8/31/08

Title I Funding

The Census Bureau produces the small area estimates of poverty needed to allocate Title I funding to school districts. Funding for this activity comes from the Office of Elementary and Secondary Education (OESE).

Bureau of the Census

Amount: \$3,930,120

Period of Performance: 9/1/08–8/31/09

Title I Funding

The Census Bureau produces the small area estimates of poverty needed to allocate Title I funding to school districts. Funding for this activity comes from the OESE.

Elementary/Secondary and Library Studies Division**COMMON CORE OF DATA (CCD)**

The CCD is a major NCES program that annually collects fiscal and non-fiscal data about all public schools, public school districts and state education agencies in the United States. The data include information describing schools and school districts, including name, address, and phone number; descriptive information about students and staff, including demographics; and fiscal data, including revenues and current expenditures. In FY 2008, the CCD conducted a pilot data collection about teacher compensation, experience, education, and work assignment from state administrative records.

Bureau of the Census

Amount: \$3,563,000

Period of Performance: 2/28/07–2/27/08

Bureau of the Census

Amount: \$550,000

Period of Performance: 3/1/07–2/29/08

Bureau of the Census

Amount: \$1,670,000

Period of Performance: 2/28/08–2/27/09

Bureau of the Census

Amount: \$1,975,000

Period of Performance: 3/1/08–2/28/09

Bureau of the Census

Amount: \$615,000

Period of Performance: 3/1/08–2/28/09

STATEWIDE LONGITUDINAL DATA SYSTEMS (SLDS)

The SLDS program awards grants to states to aid them in the design and implementation of statewide longitudinal data systems. These systems are intended to enhance the ability of states to efficiently and accurately manage, analyze, and use education data, including individual student records. The data systems developed with funds from these grants should help states, districts, schools, and teachers make data-driven decisions to improve student learning, as well as facilitate research to increase student achievement and close achievement gaps. The program also provides technical assistance to states and promotes voluntary data definitions and data standards to improve data quality.

CCSSO

Amount: \$11,164,310

Period of Performance: 9/29/06–9/28/10

Alaska Department of Education and Early Development

Amount: \$1,881,264

Period of Performance: 12/1/05–10/31/08

Arkansas Department of Education

Amount: \$2,345,408

Period of Performance: 12/1/05–11/30/08

Wisconsin Department of Public Instruction

Amount: \$2,054,000

Period of Performance: 2/1/06–1/31/09

Florida Department of Education

Amount: \$1,425,837

Period of Performance: 12/1/05–11/30/08

Nebraska Department of Education

Amount: \$3,468,335

Period of Performance: 8/1/07–7/31/10

North Carolina Department of Public Instruction

Amount: \$6,000,000

Period of Performance: 8/1/07–7/31/10

Kansas Department of Education

Amount: \$3,834,796

Period of Performance: 8/1/07–7/31/10

Colorado Department of Education

Amount: \$4,244,519

Period of Performance: 9/29/07–9/28/10

Nevada Department of Education

Amount: \$5,999,975

Period of Performance: 8/1/07–7/31/10

Virginia Department of Education

Amount: \$6,054,395

Period of Performance: 9/29/07–9/28/10

Indiana Department of Education

Amount: \$5,188,260

Period of Performance: 9/29/07–9/28/10

Utah Department of Education

Amount: \$4,561,763

Period of Performance: 8/1/07–7/31/10

New Hampshire Department of Education

Amount: \$3,176,272

Period of Performance: 8/1/07–7/31/10

Arizona Department of Education

Amount: \$5,954,518

Period of Performance: 8/1/07–7/31/10

District of Columbia Public Schools

Amount: \$5,738,500

Period of Performance: 8/1/07–7/31/10

Maine Department of Education

Amount: \$3,227,231

Period of Performance: 8/1/07–9/3/10

Oregon Department of Education

Amount: \$4,705,977

Period of Performance: 9/4/07–8/31/10

EDUCATION LONGITUDINAL STUDY (ELS)

The Education Longitudinal Study of 2002 (ELS:2002) is a longitudinal survey that is monitoring the transitions of a national sample of young people as they progress from 10th grade and 12th grade to schooling beyond high school and to the world of work. ELS:2002 obtains information not just from students and their school records, but also from students' parents, their teachers, their librarians and the administrators of their schools. The next follow-up is planned for 2012.

RTI

Amount: \$28,477,921

Period of Performance: 3/22/00–4/13/09

HIGH SCHOOL LONGITUDINAL STUDY OF 2009 (HSL:09)

HSL:09 is a national longitudinal study of public and private school students that will be initiated in the fall of 2009 with a cohort of ninth-graders. These students will be followed through high school and into postsecondary education and the world of work. HSL:09 obtains information not just from students and their school records, but also from students' parents, their teachers, their school counselors and the administrators of their schools. Major issues addressed by this study include math and science coursetaking, and plans to attend postsecondary education.

RTI

Amount: \$15,195,696

Period of Performance: 7/6/07–7/5/12

PRIVATE SCHOOL SURVEY (PSS)

The PSS is conducted on a biennial basis to provide basic data about private schools. The product of this effort is an accurate and complete listing of all private schools in the United States. This list is available to the public in a "school locator" tool on the NCES website. It is used by NCES (and other organizations) as the sampling frame for surveys that include private schools. The data are also used to generate reports on the total number of private schools, teachers, and students. PSS data are similar to those collected through the CCD about public schools and can be used for public-private comparisons. The first PSS collection took place during the 1989-90 school year, and the most recent took place in the 2007-08 school year.

Bureau of the Census

Amount: \$2,009,246

Period of Performance: 7/1/07–6/30/08

Bureau of the Census

Amount: \$1,427,961

Period of Performance: 7/1/08–6/30/09

SCHOOLS AND STAFFING SURVEY (SASS)

SASS is an extensive set of surveys on the characteristics and conditions of the nation's elementary and secondary schools. Its linked design provides information on public, charter, private, and Bureau of Indian Affairs schools, including school districts, principals, teachers, and school libraries. The public data are reliable at the state level, and the private data are reliable at the affiliation level. SASS also includes a Teacher Follow-up Survey (TFS) that takes place a year after SASS with a subset of the teachers responding to SASS. The main purpose of TFS is to provide 1-year attrition rates. Now on a 4-year collection cycle, SASS was first done in 1987-88 and most recently done in 2007-08.

Bureau of the Census

Amount: \$6,766,115

Period of Performance: 7/1/07–3/31/08

Bureau of the Census

Amount: \$5,300,000

Period of Performance: 4/1/08–3/31/09

Bureau of the Census

Amount: \$700,000

Period of Performance: 6/15/08–5/31/09

SCHOOL SURVEY ON CRIME AND SAFETY (SSOCS)

SSOCS is a sample survey of the nation's public schools that provides estimates of school crime, discipline, disorder, and programs and policies related to school crime and discipline from the schools' perspective. SSOCS is designed to provide national-level data for public elementary, middle, secondary, and combined schools. SSOCS was first done in 2000. Since its second collection in 2004, it has been on a biennial schedule. Funding for SSOCS comes from the Office of Safe and Drug-Free Schools (OSDFS).

Bureau of the Census (funding from OSDFS)

Amount: \$684,000

Period of Performance: 7/1/07–5/31/08

Bureau of the Census (funding from OSDFS)

Amount: \$288,000

Period of Performance: 6/1/08–5/31/09

SCHOOL CRIME SUPPLEMENT (SCS)

SCS is a supplement to the Bureau of Justice Statistics' National Crime Victimization Survey (NCVS). SCS is an additional set of items asked of youth ages 12 through 18 that are part of the NCVS sample. Its focus is on school characteristics, including preventive measures employed by the school, the availability of drugs and alcohol, victimization in school (fights and bullying), avoidance behaviors, weapons, and gangs. These data are then analyzed along with the victimization data that are collected in the NCVS. The first SCS was done in 1989, followed by collections in 1995 and 1999. Since 1999, it has been done on a biennial basis. Funding for SCS comes from OSDFS.

Bureau of the Census (funding from OSDFS)

Amount: \$127,000

Period of Performance: 7/1/07–6/30/08

Bureau of the Census (funding from OSDFS)

Amount: \$707,000

Period of Performance: 7/1/08–6/30/09

LIBRARY STATISTICS PROGRAM

NCES initiated and funded a nationwide library statistics program in 1989. The Center works collaboratively with the Census Bureau and the U.S. National Commission on Libraries and Information Science to plan the content of two surveys and to collect, process, and disseminate the data. The surveys are the Academic Libraries serving degree-granting institutions of higher education; and the School Library Media Centers that are organized collections of printed, audiovisual, and/or computer resources in an elementary or secondary school and make resources and services available to students, teachers, and administrators.

Bureau of the Census

Amount: \$595,000

Period of Performance: 2/28/07–2/27/08

Bureau of the Census

Amount: \$280,000

Period of Performance: 9/25/07–12/30/07

Bureau of the Census

Amount: \$967,000

Period of Performance: 2/28/07–9/30/07

Bureau of the Census

Amount: \$668,000

Period of Performance: 2/28/08–2/27/09

School District Demographics System (SDDS)

The SDDS website enables users to directly access school district geographic and demographic data visually on the NCES website, and to provide information about school district demographic concepts, uses, and applications to facilitate effective use of these information resources.

Synergy Enterprises, Inc.

Amount: \$1,865,000

Period of Performance: 9/1/06–8/20/11

Bureau of the Census

Amount: \$508,000

Period of Performance: 6/1/07–2/28/08

Bureau of the Census

Amount: \$600,000

Period of Performance: 5/1/08–4/30/09

ELEMENTARY/SECONDARY AND LIBRARY STUDIES DIVISION GENERAL PROGRAMS

Westat, Inc.

Amount: \$15,100,000

Period of Performance: 9/27/02–9/30/07

Elementary/Secondary Education Cooperative System Support and Task Force Meeting/Administrative Support

This contract provides support for several major areas of work, including task force/working group meetings, training and personnel exchanges, establishment and maintenance of group listservs, and preplanning for the annual Management Information Systems and NCES Summer Data Conferences.

Kforce Government Solutions, Inc.

Amount: \$14,000,000

Period of Performance: 5/7/04–4/27/09

This contract provides website, web tool, and technical support to NCES. This includes on-line collection of library data, enhancement and maintenance of websites and peer comparison tools, and development of online public access tools.

Postsecondary Studies Division

INTEGRATED POSTSECONDARY EDUCATION DATA SYSTEM (IPEDS)

IPEDS, the core postsecondary education data collection program for NCES, is a single, comprehensive system designed to encompass all institutions and educational organizations whose primary purpose is to provide postsecondary education. The IPEDS system is built around a series of interrelated surveys to collect institution-level data in such areas as enrollments, program completions, faculty, staff, and finances.

RTI

Amount: \$35,891,642

Period of Performance: 6/3/03–5/31/09

Optimal Solutions Group, LLC

Amount: \$288,637

Period of Performance: 10/1/07–12/31/08

NATIONAL POSTSECONDARY STUDENT AID STUDY (NPSAS)

NPSAS is a comprehensive nationwide study designed to determine how students and their families pay for postsecondary education, and to describe some demographic and other characteristics of those enrolled. The study is based on a nationally representative sample of students in postsecondary education institutions, including undergraduate, graduate, and first-professional students. Students attending all types and levels of institutions are represented, including public and private not-for-profit and for-profit institutions, and less-than-2-year institutions, community colleges, and 4-year colleges and universities. The NPSAS studies are designed to address policy questions resulting from the rapid growth of financial aid programs and the succession of changes in financial aid program policies since 1986. The first NPSAS study was conducted during the 1986-87 school year; subsequent studies have been carried out during the 1989-90, 1992-93, 1995-96, 1999-2000, and 2003-04 academic years; NPSAS:2008 is in progress.

RTI

Amount: \$35,719,582

Period of Performance: 9/9/05–9/8/10

BACCALAUREATE AND BEYOND LONGITUDINAL STUDY (B&B)

B&B provides information concerning education and work experiences after completion of bachelor's degrees. B&B provides both cross-sectional information 1 year after bachelor's degree completion, comparable to the Recent College Graduate Survey, and longitudinal data concerning entry into and progress through graduate-level education and the workforce. A special emphasis of B&B is on those entering teaching.

RTI

Amount: \$11,186,046

Period of Performance: 7/1/07–6/30/11

BEGINNING POSTSECONDARY STUDENTS LONGITUDINAL STUDY (BPS)

The BPS follows students who first begin their postsecondary education. These students are asked questions about their experiences during, and transitions through postsecondary education and into the labor force, as well as family formation. Transfers, persisters, stopouts/dropouts, and vocational completers are among those included in the studies. In the first BPS study, about 10,600 students were identified in NPSAS:90 as being first-time, beginning postsecondary students during the academic year 1989-90. These students were followed in 1992 (BPS:90/92) and in 1994 (BPS:90/94). A second cohort of first-time, beginning students was identified in NPSAS:96, with follow-ups performed in 1998 (BPS:96/98) and in 2001 (BPS:96/2001). The third cohort was identified in NPSAS:04 and followed in 2006; the cohort also will be followed in 2009.

RTI

Amount: \$11,576,694

Period of Performance: 7/1/04–12/31/10

POSTSECONDARY EDUCATION DESCRIPTIVE ANALYSIS REPORTS (PEDAR)

PEDAR provides a series of analysis reports that focus on postsecondary education policy issues, and an information system that organizes postsecondary data sets and analyses. The crosscutting work done in this program takes advantage of multiple education data sources, especially data from recently completed surveys.

MPR Associates, Inc.

Amount: \$10,878,198

Period of Performance: 9/27/07–9/26/12

POSTSECONDARY STUDIES DIVISION GENERAL PROGRAMS

State Higher Education Executive Officers (SHEEO)

Amount: \$3,345,815

Period of Performance: 9/28/01–9/27/10

State Postsecondary Education Coordination Network

This SHEEO/NCES Coordination Network provides timely dissemination of NCES projects to state policymakers. The SHEEO are the primary policy officials for public institutions (and, in some cases, all institutions) in most states. Their input and interest in NCES data collections is critical to providing policy-relevant data. Incremental funding will continue these activities and provide the services to SHEEO and NCES that are necessary to collect and disseminate policy-relevant data.

Westat, Inc.

Amount: \$7,500,000

Period of Performance: 8/10/01–9/30/07

Postsecondary Analysis and Technical Development

This contract supports special analyses of NCES and other postsecondary data. It also provides support to NCES data users, and provides the capability of conducting feasibility studies for new data collection, assessing the quality of data being collected, carrying out small-scale data collection activities, and providing technical support for methodological studies on an as-needed basis.

Coffey Communications

Amount: \$2,415,640

Period of Performance: 9/25/07–9/24/12

Annual support for the National Postsecondary Education Cooperative (NPEC) to provide a coordinator and administrative support for NPEC projects.

National Science Foundation

Amount: \$275,000

Period of Performance: 8/20/07–08/19/08

This interagency agreement helps support and gives NCES access to data from the Survey of Earned Doctorates (SED). SED began in 1957-58 to collect data continuously on the number and characteristics

of individuals receiving research doctoral degrees from all accredited U.S. institutions. The results of this annual survey are used to assess characteristics and trends in doctorate education and degrees. This information is vital for educational and labor force planners within the federal government and in academia.

National Science Foundation

Amount: \$275,000

Period of Performance: 7/11/07–7/10/08

For SED transfer of funds in FY 2008.

Office of the Deputy Commissioner

STATISTICAL STANDARDS PROGRAM (SSP)

The SSP provides methodological and statistical support to NCES as well as to federal and nonfederal organizations that engage in statistical work in support of the mission of NCES. This program develops standards for procedures to ensure the quality of statistical surveys, analyses, and products; consults and advises on the implementation of standards for all Center projects; coordinates the NCES review process for publications and other Center products; leads the NCES Task Force on Quality Systems; and coordinates the revision of the NCES Statistical Standards. The program also monitors and administers confidentiality procedures and related restricted-use data licenses for Institute of Education Sciences data products. In addition to these ongoing activities, the SSP consults and advises on emerging statistical issues, and initiates and monitors or participates in long-term statistical and methodological research projects.

Harbor Lane Associates, Inc.

Amount: \$1,016,237

Period of Performance: 4/17/03–4/16/08

Office of the Commissioner

OFFICE OF THE COMMISSIONER GENERAL PROGRAMS

National Science Foundation

Amount: \$400,000

Period of Performance: 9/1/07–8/31/08

American Educational Research Association Grants Program

Jointly funded by the National Science Foundation (NSF), NCES, and the Office of Educational Research and Improvement, this training and research program is administered by the American Educational Research Association. The program has four major elements: a research grants program, a dissertation grants program, a fellows program, and a training institute. The program is intended to enhance the capability of the U.S. research community to use large-scale data sets, specifically those of NSF and NCES, to conduct studies that are relevant to educational policy and practice, and to strengthen communication between the educational research community and government staff.

Bureau of the Census

Amount: \$115,000

Period of Performance: 8/18/07–8/19/08

Joint Program in Survey Methodology

This contract helps to support the Joint Program in Survey Methodology, the nation's oldest and largest program offering graduate training in the principles and practices of survey research. Founded in 1993, it is sponsored by the Federal Interagency Consortium on Statistical Policy and located at the University of Maryland. To date, it has 107 graduates working in government agencies, academic settings, and private survey research firms. Its award-winning faculty is drawn from the University of Maryland, the University of Michigan, Westat, Inc., and other organizations.

Bureau of the Census

Amount: \$120,000

Period of Performance: 6/1/08–5/31/09

AIR

Amount: \$75,000,000

Period of Performance: 9/30/05–12/31/09

Education Statistics Services Institute Statistical Activities

This contract conducts a wide range of activities in support of NCES's efforts to carry out a program of more than 100 surveys, maintain a website used by three-quarters of a million customers monthly, and assist states and postsecondary institutions in building a solid infrastructure for accurate and timely statistics. The Education Statistics Services Institute was created in 1995 to support NCES's analytic, research and development activities.

Synergy Enterprises, Inc.

Amount: \$15,000,000

Period of Performance: 9/30/05–1/29/07

NCES Logistics

This contract provides logistics support and services to facilitate NCES analysis, publications, and technical development activities.

Synergy Enterprises, Inc.

Amount: \$3,850,000

Period of Performance: 10/1/06–9/30/11

NCES Seminars

This contract provides logistics support and services to assist NCES in providing summer seminars that train researchers in the use of national databases, including national education sample surveys and statistical analysis.



Appendix C

National Center for Education Evaluation and Regional Assistance (NCEE)

NCEE carries out programs of evaluating federal programs, synthesizing and disseminating information from evaluation and research, and providing technical assistance primarily through contracts.

Evaluations

Abt Associates

Amount: \$5,600,000

Period of Performance: 3/24/05–9/23/08

Impact Evaluation of the Student Mentoring Program

The evaluation will examine the impact of student mentoring programs funded by the Office of Safe and Drug-Free Schools on academic achievement, delinquent behavior, interpersonal relationships, and social and personal responsibility.

American Institutes for Research (AIR)

Amount: \$11,252,534

Period of Performance: 9/17/03–9/30/08

Impact of Professional Development Models on Teacher Practice and Student Achievement in Early Reading

This evaluation will test two promising professional development interventions that focus on learning and implementing content knowledge in the classroom.

MDRC

Amount: \$14,525,000

Period of Performance: 10/1/03–9/30/08

Impact Evaluation of Academic Instruction for After-School Programs

This evaluation assesses the impact of using selected academic programs within the after-school setting to improve student academic achievement in reading or in mathematics.

MDRC

Amount: \$322,549

Period of Performance: 9/10/07–12/15/08

Feasibility and Evaluation of Promising “Boost Up” Math Programs

This project develops design options for a potential future evaluation of programs geared to substantially improve the math skills of entering freshman students.

Optimal Solutions Group, LLC

Amount: \$4,999,643

Period of Performance: 8/25/05–1/16/09

Study of Teacher Preparation in Early Reading Instruction

This study collected information in spring 2007 from a sample of 3,000 preservice teachers in a nationally representative sample of 100 organizations. It includes a preservice teacher survey regarding the content of their programs as well as an assessment of preservice teacher knowledge about the essential components of reading instruction.

Abt Associates

Amount: \$30,713,615

Period of Performance: 9/29/03–3/28/09

Reading First Impact Study

The study assesses the impact of the Reading First program on student reading achievement in 17 districts and 1 state.

Westat, Inc.

Amount: \$3,249,893

Period of Performance: 9/29/06–9/28/09

Follow up to the Even Start Classroom Literacy Interventions and Outcomes Study

The study assesses the longer term impacts of the Even Start Classroom Literacy Interventions and Outcomes Study interventions as the children complete kindergarten and first grade.

Mathematica Policy Research, Inc.

Amount: \$17,610,172

Period of Performance: 9/30/04–9/29/09

Impact Evaluation of Teacher Induction Programs

This study evaluates the impact of high-intensity

teacher induction on teacher retention, teacher practices, and student test scores.

Mathematica Policy Research, Inc.

Amount: \$17,665,141

Period of Performance: 9/30/04–9/29/09

Evaluation of Reading Comprehension Programs

This study assesses the effectiveness of several promising reading comprehension programs on student achievement.

Abt Associates

Amount: \$2,271,022

Period of Performance: 8/31/07–3/1/10

Individuals With Disabilities Education Act National Assessment Implementation Study

This contract supports new data collection from state early intervention and special education agencies and from school districts to address implementation questions for the congressionally mandated National Assessment of the Individuals with Disabilities Education Act.

AIR

Amount: \$22,361,962

Period of Performance: 8/11/05–8/10/10

The Impact of Professional Development Strategies on Teacher Practice and Student Achievement in Math

This evaluation assesses the impact of providing selected math professional development and coaching to teachers that are intended to improve teacher mathematics knowledge, teaching practices, and student academic achievement in critical mathematics topics.

Mathematica Policy Research, Inc.

Amount: \$1,699,731 (feasibility/pilot phase);

\$9,992,793 (full-scale study)

Period of Performance: 9/7/07–9/9/10

Feasibility and Impact Evaluation of Moving High-Performing Teachers to Low-Performing Schools

This study is currently being piloted in order to assess the feasibility of a full-scale study. If feasible to study, the evaluation will first identify through value-added methods teachers within the district who have improved student achievement in their current assignment. The evaluation will assess the impact of incentivizing these identified high-

performing teachers to transfer to teach in targeted low-performing schools within the district to improve student academic achievement in reading and mathematics.

Mathematica Policy Research, Inc.

Amount: \$2,039,560

Period of Performance: 9/13/07–9/13/10

Feasibility and Conduct of an Impact Evaluation of Title I Supplemental Education Services

This evaluation has assessed the feasibility of conducting an impact evaluation of Supplemental Education Services (SES) by identifying districts that expect to be oversubscribed for SES during the 2008–09 school year. IES has determined that there is a sufficient number of oversubscribed districts to conduct the evaluation. The study will move forward to assess the impact of participation in SES on student achievement in reading and mathematics for grades 3 through 8.

RMC Research Corporation

Amount: \$5,951,929

Period of Performance: 9/20/06–9/19/10

Evaluation of the Impact of Mandatory Random Student Drug Testing

This study utilizes experimental methods to assess the impact of the grant program on student substance use among school districts receiving 2006 ED grants.

Mathematica Policy Research, Inc.

Amount: \$20,377,262

Period of Performance: 9/30/05–9/30/10

Evaluation of Math Curricula

This study will evaluate the impact of different commercially available math curricula on student achievement in early elementary school grades.

Research Triangle Institute

Amount: \$9,988,200

Period of Performance: 8/31/04–11/30/10

Impact Evaluation of a School-Based Violence Prevention Program

This study will evaluate the effectiveness of a school-based violence prevention program for middle school students.

Branch Associates, Inc.

Amount: \$7,203,836

Period of Performance: 8/15/06–12/31/10

Evaluation of the Comprehensive Technical Assistance Centers

This project evaluates the technical assistance provided by the Centers to support states' implementation of the No Child Left Behind Act (NCLB) and assesses the extent to which state capacity to implement NCLB has been expanded.

Westat, Inc.

Amount: \$7,998,164

Period of Performance: 9/1/03–1/20/11

Evaluation of the Impact of the DC Choice Program

This is a congressionally mandated evaluation of a federally funded private school voucher program for low-income residents of Washington, DC. The evaluation will assess, using a randomized control trial evaluation design, the impact of the program on academic achievement, school safety, student and parent satisfaction, and other outcomes.

SRI International

Amount: \$972,769

Period of Performance: 8/7/07–2/7/11

IDEA National Assessment Analytic Support

The studies performed under this contract are a part of the congressionally mandated National Assessment of IDEA and involve the synthesis of existing evidence and new analyses of extant data sources to address four topic areas: outcomes for children with disabilities, identification for early intervention and special education, early intervention and special education services, and early intervention and special education personnel.

Mathematica Policy Research, Inc.

Amount: \$6,174,723

Period of Performance: 9/28/03–3/30/11

Evaluation of the Impact of Charter School Strategies

This study will assess the impact of application to and attendance at middle charter schools on academic achievement and parent and student satisfaction. The study also will examine the relationship between impacts and key policy characteristics such as school autonomy, funding, and accountability.

Abt Associates

Amount: \$1,214,186

Period of Performance: 8/4/06–8/3/11

Technical Assistance to Local Impact Evaluations of Striving Readers Projects

This contract provides technical assistance to the evaluators of the grants awarded under the Striving Readers Program who are conducting random assignment evaluations.

Westat, Inc.

Amount: \$2,810,000

Period of Performance: 9/19/07–9/18/11

Evaluation of the Personnel Preparation to Improve Services and Results for Children with Disabilities Program

This evaluation will examine a grant program funded by the Office of Special Education Programs intended to address state-identified needs for personnel who work with children with disabilities. The evaluation will catalog the products and services provided by grantees, the types and numbers of customers targeted and served, as well as the number of students enrolled in and who completed special education courses of study funded by the grants. In addition, a panel of experts will rate the quality of a sample of grantees' products and services.

Westat, Inc.

Amount: \$4,892,290

Period of Performance: 9/20/06–9/19/11

Data Quality Initiative

This contract provides technical assistance to program offices and their grantees in the collection and analysis of program outcome and impact data.

AIR

Amount: \$3,420,130

Period of Performance: 9/18/06–9/29/11

Evaluation of Conversion Magnet Schools

This study assesses the relationship between magnet school conversion and student achievement and other outcomes in elementary schools.

Abt Associates

Amount: \$2,457,469

Period of Performance: 9/15/06–7/31/08

Impact Evaluation of Upward Bound's Increased Focus on Higher Risk Students

This random assignment evaluation, initiated in 2006, was intended to assess the impact of the Upward Bound program on higher risk students, but was terminated when Congress prohibited the use of 2008 funds for this purpose.

Mathematica Policy Research, Inc.

Amount: \$8,087,800

Period of Performance: 8/15/08–8/14/12

Impact on Secondary Student Math Achievement of Highly Selective Routes to Alternative Certification

This evaluation assesses the impact of secondary math teachers entering teaching through highly selective alternative routes to certification on students' math achievement.

AIR

Amount: \$3,626,218

Period of Performance: 2/28/08–2/27/13

Impacts of School Improvement Status on Students with Disabilities

This study, part of the congressionally mandated National Assessment of IDEA, is assessing the feasibility of evaluating impacts from schools required to adopt programs focused on improving academic outcomes for students with disabilities. A full evaluation will follow the initial 9-month feasibility phase.

MDRC

Amount: \$14,543,845

Period of Performance: 3/26/08–3/25/13

Impact Evaluation of Response to Intervention Strategies

This random assignment study, part of the congressionally mandated National Assessment of IDEA, is evaluating the effectiveness of multitiered strategies to identify and provide targeted reading instruction to elementary school students who may be in need of assistance beyond that offered in the general education curriculum.

What Works Clearinghouse**AIR, Campbell Collaboration**

Amount: \$27,306,963

Period of Performance: 8/1/02–8/06/08

What Works Clearinghouse

This contract provides educators, policymakers, researchers, and the public with reviews of the best scientific evidence on the effectiveness of specific interventions—programs, products, practices, and policies—to improve important student outcomes. The What Works Clearinghouse (WWC) gathers published and unpublished studies, screens them for relevance to the topic and validity of the outcome measures, assesses the causal validity of randomized controlled trials and quasi-experimental design studies, reviews the evidence of effectiveness of the interventions, and releases its reports to the public through the WWC website.

Mathematica Policy Research, Inc.

Amount: \$50,316,100

Period of Performance: 6/28/07–6/27/12

What Works Clearinghouse

The contract provides continued support for the operation and further development of the What Works Clearinghouse (WWC). In addition to conducting systematic reviews of evidence-based research on effective educational interventions in an expanded number of topic areas, producing evidence reports on those reviews, and updating evidence standards and criteria for conducting systematic reviews, the WWC is introducing new features to its website, including improved searchable databases, a registry of randomized controlled trials of education interventions, a directory of easy answers to technical issues, and a new system of quick reviews.

Education Resources Information Center (ERIC)**CSC/Professional Services Group**

Amount: \$34,613,434

Period of Performance: 3/12/04–3/11/09

ERIC

The mission of ERIC is to provide a comprehensive, easy-to-use, searchable, Internet-

based bibliographic and full-text database of education research and information for educators, researchers, and the general public.

Information International Associates, Inc.

Amount: \$600,658

Period of Performance: 9/24/04–9/30/07

ERIC, Quality Assurance

This contract provides support for monitoring and measuring the performance of the online ERIC system.

Information International Associates, Inc.

Amount: \$868,758

Period of Performance: 9/30/07–9/29/12

ERIC, Quality Assurance

This contract provides support for monitoring and measuring the performance of the online ERIC system.

National Library of Education

Scientific and Commercial Systems Corporation

Amount: \$2,062,525

Period of Performance: 9/30/02–9/29/07

Library Technical and Reference Services

This contract provides cataloging, government documents and collection management and reference services.

Progressive Technology Federal Systems, Inc.

Amount: \$4,069,076

Period of Performance: 10/1/07–9/30/12

Library Technical and Reference Services

This contract provides cataloging, government documents and collection management, and reference services

Regional Educational Laboratories

Ten Regional Educational Laboratories were funded by the Institute of Education Sciences to bridge research, policy, and practice to serve state and local education agencies, communities, and schools. Under the guidance and direction of their governing boards, the laboratories conduct applied research and development, disseminate knowledge about

best practices, and provide technical assistance. The laboratories also assess the educational needs of their regions, provide opportunities for state and regional gatherings on vital topics, and work jointly as a laboratory network.

WestEd

Regional Educational Laboratory, West

States Served: Arizona, California, Nevada, and Utah

Amount: \$40,934,394

Period of Performance: 1/18/06–1/17/11

Northwest Regional Educational Laboratory

Regional Educational Laboratory, Northwest

States Served: Alaska, Idaho, Montana, Oregon, and Washington

Amount: \$24,494,655

Period of Performance: 2/1/06–1/31/11

Edvance Research

Regional Educational Laboratory, Southwest

States Served: Arkansas, Louisiana, New Mexico, Oklahoma, and Texas

Amount: \$37,540,728

Period of Performance: 3/15/06–3/14/11

Learning Point Associates

Regional Educational Laboratory, Midwest

States Served: Illinois, Indiana, Iowa, Michigan, Minnesota, Ohio, and Wisconsin

Amount: \$38,793,863

Period of Performance: 3/9/06–3/8/11

The CNA Corporation

Regional Educational Laboratory, Appalachia

States Served: Kentucky, Tennessee, Virginia, and West Virginia

Amount: \$26,453,196

Period of Performance: 2/6/06–3/15/11

Mid-Continent Research for Education and Learning

Regional Educational Laboratory, Central

States Served: Colorado, Kansas, Missouri, Nebraska, North Dakota, South Dakota, and Wyoming

Amount: \$25,808,725

Period of Performance: 1/20/06–1/20/11

Pacific Resources for Education and Learning

Regional Educational Laboratory, Pacific
States Served: American Samoa, the Commonwealth of the Northern Mariana Islands, the Federated States of Micronesia (Chuuk, Kosrae, Pohnpei, and Yap), Guam, Hawaii, the Republic of the Marshall Islands, and the Republic of Palau
Amount: \$20,541,926
Period of Performance: 3/16/06–2/28/11

EDC

Regional Educational Laboratory, Northeast and Islands
States Served: Connecticut, Maine, Massachusetts, New Hampshire, New York, Rhode Island, Vermont, Puerto Rico, and Virgin Islands
Amount: \$41,140,338
Period of Performance: 3/15/06–3/14/11

SERVE, University of North Carolina at Greensboro

Regional Educational Laboratory, Southeast
States Served: Alabama, Florida, Georgia, Mississippi, North Carolina, and South Carolina
Amount: \$37,001,198
Period of Performance: 2/24/06–3/15/11

Pennsylvania State University

Regional Educational Laboratory, Mid-Atlantic
States Served: Delaware, Maryland, New Jersey, Pennsylvania, and Washington, DC
Amount: \$34,528,697
Period of Performance: 3/23/06–3/15/11

Grants

ENGLISH LANGUAGE ACQUISITION

Johns Hopkins University

Amount: \$5,395,762
Period of Performance: 10/1/03–9/30/09

Effects of Transitional Bilingual Education, Two-Way Bilingual, and Structured English Immersion Programs and the Literacy and Oracy of Spanish-Dominant Children

This evaluation tests enhanced versions of the Success for All structured English immersion,

transitional bilingual and two-way bilingual programs in 15 high-poverty schools.

University of Houston

Amount: \$8,093,384
Period of Performance: 10/1/03–9/30/09

Optimizing Educational Outcomes for English Language Learners

This study evaluates enhanced versions of structured English immersion and transitional bilingual education programs that differ in the amount of Spanish language used for instruction, compared to typical existing programs.

Texas A&M Research Foundation

Amount: \$6,762,115
Period of Performance: 10/1/03–9/30/09

English Language Literacy Acquisition

This study evaluates enhanced versions of structured English immersion and transitional bilingual education programs compared to existing programs that are already in place. The enhanced versions include the use of additional strategies in intensive English, professional development, and parent training.

Unsolicited Proposals

AIR

Principal Investigator: Steven Fleischman
Amount: \$399,883
Period of Performance: 10/1/07–09/30/09

The Scientific Evidence in Education Forum Series

This series provides a critical information link between rigorous research and the Washington, DC-based policymaking community through a variety of forums, publications, and web-based activities designed to promote the use of scientific evidence in education policymaking across the nation.

Other

Mathematica Policy Research, Inc.

Amount: \$23,136,276

Period of Performance: 9/30/06–9/29/11

Analytic and Technical Support for Advancing Education Evaluations

This technical support contract provides for the preparation of papers and analyses in areas

such as cutting-edge evaluation methodologies, statistical analyses of education issues of national importance, expert reviews of major education studies and reports, and design papers on education research and evaluation; and technical assistance that promotes the conduct of scientifically rigorous studies and the use of information from those studies.

Appendix D

National Center for Special Education Research (NCSEER)

NCSEER carries out programs of special education research primarily through grants.

Early Intervention and Early Childhood Special Education

Ohio State University

Principal Investigator: Laura Justice

Amount: \$3,866,519

Period of Performance: 5/1/08–4/30/12

Sit Together and Read: Early Childhood Special Education

The purpose of this study is to determine the efficacy of a fully developed, print-referencing intervention for improving prereading skills of preschoolers who have a primary language impairment and are educated in early childhood special education classrooms. It will also determine the extent to which children's prereading skills are accelerated by combined use of print referencing in the classroom by teachers and at home by parents. Print referencing employs the adult-child shared storybook-reading context to accelerate children's prereading skills. Each year, 30 classrooms will be randomly assigned to one of two print-referencing interventions or instruction as usual. The two print-referencing interventions differ on who implements print-referencing strategies. In the first intervention, teachers will implement print-referencing strategies while parents continue to read to their children using their typical reading style. In the second intervention, both teachers and parents will implement print-referencing strategies. To determine intervention impacts, a variety of statistical analyses ranging from basic descriptive analyses to multilevel modeling of children's prereading outcomes will be used.

University of Illinois at Urbana-Champaign

Principal Investigator: Michaelene Ostrosky

Amount: \$2,997,953

Period of Performance: 6/16/08–6/15/12

Establishing the Efficacy of the "Special Friends" Project

Researchers are evaluating the efficacy of a classwide kindergarten program called Special Friends. The program is designed to improve social outcomes of children with disabilities. A randomized cluster design will be used to examine the short- and long-term effects of the program. During the first 3 years, kindergarten classrooms will be randomly assigned to receive Special Friends intervention in the fall, Special Friends intervention in the spring, a control intervention focusing on science in the fall, or the control science intervention in the spring. In addition, follow-up data will be collected to determine the long-term effects of Special Friends. Data will be analyzed to examine the efficacy of Special Friends for improving peer acceptance of children with disabilities and social skills of children with and without disabilities. In addition, data will be analyzed to determine if intervention effects are moderated by teacher attitudes about inclusion and teacher perceptions of school administrative support for inclusion.

Oregon Social Learning Center

Principal Investigator: Katherine Pears

Amount: \$2,957,478

Period of Performance: 4/1/08–3/31/12

A Randomized Efficacy Trial of the Kids in Transition to School Program for Children With Developmental Disabilities and Behavioral Problems

The purpose of this study is to evaluate the efficacy of a short-term intensive intervention, Kids in Transition to School (KITS), for improving social-emotional, early literacy, and school readiness skills of young children with co-occurring developmental disabilities and behavior problems. The intervention is designed to fill the gap in services as children transition from preschool to kindergarten. Approximately 200 children transitioning from preschool to kindergarten will participate in this

research. They will be randomly assigned to the intervention condition or a services-as-usual comparison group. Children will be assessed at multiple time points during and after receiving the intervention. Several multivariate analytic strategies will be employed to determine the efficacy of the KITS program. In addition, researchers will investigate potential mediators and moderators of intervention effects.

University of Virginia

Principal Investigator: Martha Snell

Amount: \$1,493,224

Period of Performance: 6/1/08–5/31/11

Building Social Competence for School Success Through a Continuum of Positive Behavior Supports

The purpose of this study is to develop and test the feasibility of a comprehensive intervention, Continuum of Positive Behavior Support (CPBS), designed to build preschool children's social skills and reduce problem behaviors. The intervention will include universal strategies to be used with all children in the classroom and individualized interventions for children who exhibit problem behaviors that persist despite treatment with universal strategies. A three-phase development process is planned. During the 1st year, an initial version of the intervention package and teacher training materials will be developed. During years 2 and 3, an iterative process will be used to further refine the intervention and to test the feasibility of its use in Head Start classrooms. Pretest-posttest comparisons will be made for each classroom to determine whether there are changes in classroom quality, classroom behavior management practices, use of CPBS strategies, and children's behavior.

Oregon Research Institute

Principal Investigator: Barbara Gunn

Amount: \$1,325,716

Period of Performance: 3/1/07–2/28/10

Developing and Testing an Empirically Based Preschool Language and Literacy Curriculum for Children at Risk for Reading Disabilities Using a Components Analysis

Researchers are developing and field testing an instructional program for improving language and early literacy skills for preschool children with or

at risk for reading and learning disabilities. The program will include whole-class and small-group instruction and independent activities designed to develop children's skills in phonological awareness, alphabetic understanding, vocabulary and comprehension, and oral language. The purpose of this study is to develop, refine, and pilot test the intervention components that target these four important skills and to determine the contribution of each component to language and literacy outcomes.

SRI International

Principal Investigator: Kathleen Hebbeler

Amount: \$539,828

Period of Performance: 3/1/07–2/28/09

Early Intervention Graduates at Kindergarten: Analyses of Outcomes From the National Early Intervention Longitudinal Study

The purpose of this project is to take advantage of data from the National Early Intervention Longitudinal Study (NEILS) to investigate whether participation in and characteristics of early intervention services predict child outcomes in kindergarten. Researchers will conduct secondary analyses of data from the NEILS and the relationships between characteristics of early intervention services (e.g., type, amount, focus, and quality), disability or risk (e.g., low birth weight, diagnosed condition), and child outcomes in kindergarten (e.g., receipt of special education, social skills, literacy skills, mathematics skills, and school readiness) will be examined.

University of Florida

Principal Investigator: Patricia Snyder

Amount: \$1,288,510

Period of Performance: 3/1/07–2/28/10

Impact of Professional Development on Preschool Teachers' Use of Embedded-Instruction Practices

The purpose of this study is to develop and validate Tools for Teachers and to conduct an initial evaluation of whether its use leads to increased implementation of evidence-based practices and improved child outcomes. Tools for Teachers is a multimedia toolkit with corresponding professional development materials. An experimental study implementing random assignment of teacher-

to-treatment condition will be implemented to determine the potential efficacy of the intervention as compared to a business-as-usual control group. Data will be analyzed to show evidence of the potential efficacy of the interventions for improving teachers' instructional practices and children's engagement, school readiness, language, emergent literacy, behavior, and social skills.

Iowa State University

Principal Investigator: Gayle Luze

Amount: \$1,112,482

Period of Performance: 4/1/07–3/31/11

Individual Growth and Development Indicators Comprehensive Assessment Project

The purpose of this study is to investigate the reliability and validity of the Infant and Toddler Individual Growth and Development Indicators (IGDI) when used as an integrated battery of assessments and the practical viability of using all of the subtests with infants and toddlers with disabilities. This battery of assessments measures parent-child interaction and children's communication, motor, social, and cognitive skills. Researchers are conducting a longitudinal study in which the IGDI will be administered by interventionists on a quarterly basis for all children and on a monthly basis for individual children as needed. Multiple statistical techniques will be used to examine the reliability of the IGDI when used together as a comprehensive set and to demonstrate whether the entire battery has adequate validity when used as screening, progress monitoring, and outcome assessments.

Georgia State University

Principal Investigator: MaryAnn Ronski

Amount: \$1,998,418

Period of Performance: 3/1/07–2/28/11

Parent-Implemented Language Intervention for Young Children With Developmental Disabilities

The purpose of this study is to develop a parent-implemented language intervention and accompanying training materials designed for young children with a range of developmental disabilities who encounter significant difficulty with speech and language. The researchers are conducting an initial evaluation of whether the intervention improves

young children's communication and school outcomes. Data on communication skills at 3, 6, and 12 months after the intervention will be collected and analyzed to determine the potential effects that the intervention has on communication and school outcomes for two populations of students.

University of Kansas

Principal Investigator: Charles Greenwood

Amount: \$1,598,288

Period of Performance: 3/1/07–2/28/11

The Infancy to Preschool Early Literacy Connection: Validation Studies of the Early Communication Indicator of Growth and Development

The purpose of this study is to assess whether the Early Communication Indicator (ECI) is sufficiently sensitive for use as a progress monitoring assessment and to determine whether performance on the instrument predicts subsequent and important early literacy outcomes when the children are 4 years old. Data on children's communication skills will be collected quarterly using the ECI along with other early language and early literacy measures. The researchers will use these data to determine relationships among key communication skills measured by the ECI and subsequent early literacy skills over time.

Reading, Writing, and Language Development

Georgia State University Research Foundation, Inc.

Principal Investigator: David Houchins

Amount: \$2,951,349

Period of Performance: 7/1/08–6/30/12

Project LIBERATE: Literacy Instruction Based on Evidence Through Research for Adjudicated Teens to Excel

The purpose of this project is to evaluate the efficacy of two evidence-based reading interventions within a juvenile justice setting. The two interventions being compared are direct instruction and direct instruction plus strategy instruction. The primary difference between the two literacy curricula is how reading comprehension and writing skills are taught. Participants will be approximately 600 incarcerated male students between the ages of 12

and 16 years old. This project will use a clustered randomized design with repeated measures to assess student achievement in decoding, reading comprehension, spelling, and writing achievement.

Arizona State University

Principal Investigator: Maria Adelaida Restrepo

Amount: \$1,598,878

Period of Performance: 6/1/08–5/31/12

Spanish Screener for Children With Language Impairment

The purpose of this study is to develop a screener for identifying Spanish-speaking children at risk for language impairment. The screener will be developed for use as a universal screener in prekindergarten and kindergarten and as a screening tool for speech-language pathologists to use with children in first through third grades. The screener will be developed in three phases. Phase I will consist of task development, item writing, item analysis, and validation. The tasks to be developed will include targeting skills in rapid automatized naming, nonword repetition, sentence recall, fast mapping, word association, and morphological cloze task. During Phase II, the screening instrument will be assembled. The internal structure of the screener and the quality of the items will be examined. In Phase III, the screener validity and decision rules will be examined for validity and reliability on a sample of Spanish-speaking children.

State University of New York at Albany

Principal Investigator: Lynn Gelzheiser

Amount: \$1,494,478

Period of Performance: 7/15/07–7/14/10

Extending the Interactive Strategies Approach to Older Struggling Readers

The purpose of this project is to develop an intervention for older struggling readers and writers. Developing an approach to teaching reading and writing to older struggling readers is complicated because it must address students' deficits in knowledge, vocabulary, and comprehension as well as their problems with lower level skills, such as single-word reading. Reading interventions for older struggling readers typically do not integrate instruction on lower level skills (such as phonological skills and single-word reading) with

higher level skills (such as deficits in knowledge, vocabulary, and comprehension). This research team proposes to develop the Interactive Strategies Approach to integrate lower level and higher level skills to better meet the needs of older struggling readers.

Georgia State University

Principal Investigator: Paul Alberto

Amount: \$1,556,035

Period of Performance: 7/1/07–6/30/11

Integrated Literacy for Students With Moderate and Severe Disabilities

The purpose of this project is to develop and conduct an initial evaluation of an integrated literacy curriculum for students with moderate to severe intellectual disabilities, which contains three components: visual literacy instruction, sight-word instruction, and phonics instruction. The curriculum will span emerging to advanced literacy skills and will enable the identification of appropriate entry points for literacy instruction for a wide range of students varying in age and initial skill level. The expected outcomes from this study include a fully developed comprehensive literacy curriculum for students with moderate and severe intellectual disabilities, including a guidebook that contains information about curriculum scope and sequence, teacher guidelines, suggested instructional materials, data collection recommendations, and DVDs of sample lessons for the three intervention components.

Georgia Institute of Technology

Principal Investigator: Thad Starner

Amount: \$1,491,965

Period of Performance: 3/1/07–2/28/10

CopyCat: Learning Through Signing

The purpose of this project is to develop and conduct an initial evaluation of an interactive educational game, CopyCat, that is designed to enhance the language skills of deaf and signing children of hearing parents. Using gesture recognition technology, the program will respond to children's signing and provide language models for children. The program is intended to supplement the regular curriculum in the classroom by providing additional language exposure and practice for

improving language skills. Children can initiate the interaction with CopyCat or have a computer tutor assist them by demonstrating the appropriate signs. Corrective feedback is provided for wrong responses. The computer game progressively increases the difficulty of the signing tasks.

Mathematics and Science Education

University of North Carolina at Charlotte

Principal Investigator: Diane Browder

Amount: \$963,897

Period of Performance: 3/1/08–2/28/11

Project Mastery: Math and Science Teaching That Promotes Clear Expectations and Real Learning Across Years for Students With Significant Cognitive Disabilities

The purpose of this project is to develop high-quality mathematics and science instruction for students who participate in alternate assessments judged against alternate achievement standards. The researchers will produce a framework for developing math and science learning targets for students with significant cognitive disabilities and develop model lesson plans to be used by teachers. The lessons will be evaluated by looking at student outcome data. Participants will be 70 students in grades 3 through 10 from five states with significant cognitive disabilities and their teachers. The researchers will use principles of applied behavior analysis to develop behavioral checklists and repeated trial assessments for math and science progress monitoring.

Mid-Continent Research for Education and Learning

Principal Investigator: Sheila Arens

Amount: \$1,489,399

Period of Performance: 3/1/08–2/28/11

Visualizing Science With Adapted Curriculum Enhancements

The purpose of this project is to provide teachers with a multifaceted approach for engaging visually impaired students in science classrooms to afford learning opportunities that parallel those of their sighted peers. The project involves creating professional development materials for special education and science teachers to help improve

instruction and accessibility in science for students with visual impairments. The project will use a formative research plan with internal and external review to collect feedback and improve the professional development materials. Participants will include 24 special education and science teachers from four states to be trained at two sites. The team is also developing a set of measures for teachers to assess the needs of visually impaired students in the general education science classroom.

University of Texas at Austin

Principal Investigator: Diane Bryant

Amount: \$2,000,000

Period of Performance: 7/1/07–6/30/11

Validating a Response to Intervention Multitiered Model for Primary-Grade Students With Mathematics Difficulties

The purpose of this project is to develop and study two interventions to be used in a Response to Intervention mathematics model in early elementary school. The first intervention, Early Mathematics Boosters Stage 2, is intended for use with students with mathematics difficulties who are struggling with classroomwide mathematics instruction. The second intervention, Early Mathematics Boosters Stage 3, is intended for use with students with severe mathematics disabilities. Both interventions will be tested using randomly assigned groups, and performance for all students will be tracked until the end of third grade.

Penn State University

Principal Investigator: George Farkas

Amount: \$492,482

Period of Performance: 3/1/07–2/28/09

Instructional Effects on Achievement Growth of Children With Learning Difficulties in Mathematics

The purpose of this study is to analyze data from the Early Childhood Longitudinal Study-Kindergarten Cohort in order to identify specific types of mathematics instruction for children with, or at risk for, mathematics disabilities, that are associated with better student outcomes. The project will estimate separate mathematics achievement equations for students in grades 1, 3, and 5. The dependent variables will be measures of mathematics proficiency, and the independent

variables will be specific teacher-reported instructional activities. Findings from this research can be used to help develop coherent interventions that incorporate instructional practices that are most likely to contribute to better student outcomes in mathematics.

CAST, Inc.

Principal Investigator: Anne Meyer

Amount: \$1,997,888

Period of Performance: 3/1/07–2/28/11

The Universally Designed Science Notebook: An Intervention to Support Science Learning for Students With Disabilities

This project will develop and conduct an initial evaluation of a universally designed, web-based science notebook (Universally Designed Notebook) intended to improve the science achievement of students with disabilities, particularly high-incidence disabilities. The researchers will also develop a teacher training module and a teacher guide to support the classroom use of the web-based science notebook. Quantitative data will be analyzed to evaluate the potential effects of the intervention on science achievement, and qualitative analyses will be conducted to explore features of the web-based science notebook that may facilitate effects on achievement.

University of Miami

Principal Investigator: Marjorie Montague

Amount: \$2,085,120

Period of Performance: 6/1/07–5/31/10

Improving Mathematics Performance of At-Risk Students and Students With Learning Disabilities in Urban Middle Schools

A number of interventions have been developed to address the mathematics needs of students with disabilities, but relatively little high-quality research has been conducted to test the efficacy of such interventions. This project will test the efficacy of Solve It!, an intervention designed to teach students with learning disabilities how to understand, analyze, solve, and evaluate mathematical problems by developing the processes and strategies that effective problemsolvers use. Student outcomes will include tests of mathematics achievement, problemsolving, and self-efficacy for learning.

Social and Behavioral Outcomes to Support Learning

Virginia Commonwealth University

Principal Investigator: Maureen Conroy

Amount: \$1,500,000

Period of Performance: 6/1/08–4/30/11

Promoting Social, Emotional, and Behavioral Competence in Young High-Risk Children: A Preventive Classroom-Based Early Intervention Model

The purpose of this project is to develop and conduct an initial evaluation of a multicomponent preschool classroom intervention. The goal is to improve social, emotional, behavioral, and academic competencies in 3- to 5-year-old children identified as being at risk for developing emotional and behavior disorders. The intervention targets classroom instructional components, including interactions between teachers and children, to improve classroom learning environments. The researchers will examine the feasibility and sustainability of the intervention by teachers in early childhood classrooms. Furthermore, the researcher will collect preliminary data indicating whether this intervention leads to improved student outcomes.

University of California, San Francisco

Principal Investigator: Linda Pfiffner

Amount: \$1,431,352

Period of Performance: 4/1/08–3/31/11

Collaborative School-Home Behavioral Intervention for Attention Deficit Hyperactivity Disorder

The purpose of this project is to develop and document the feasibility, acceptability, and sustainability of an integrated school-home behavioral intervention for elementary school students with attention deficit hyperactivity disorder. The program is implemented by school-based mental health professionals and includes school (consultation with teachers, recess supervisors), family (parenting skills groups, family meetings), and child (skills groups) components. The researchers also will collect preliminary data indicating whether the intervention leads to improved student academic, social, and behavioral functioning.

Louisiana State University

Principal Investigator: Frank Gresham

Amount: \$894,418

Period of Performance: 6/1/08–5/31/11

Development of Universal, Selected, and Intensive Social Skills Instructional Programs

The purpose of this project is to develop social skills screening and instructional materials that will prevent or ameliorate behavior disorders in children and youth in grades preK through 5. Specifically, this proposal will develop and conduct an initial evaluation of school-based social skills instructional materials to be implemented across multiple tiers of intervention intensity. This includes the universal program (Classwide Intervention Program) delivered to all students in a classroom, the selected program (Intervention Guide) delivered to students who do not respond to the universal intervention, and the intensive program (Functional Behavioral Assessment/Replacement Behavior Training) delivered to students who are still in need of additional, more intensive, social skills intervention. The researchers will also collect preliminary data indicating whether the intervention leads to improved student social and behavioral functioning.

Johns Hopkins University

Principal Investigator: Philip Leaf

Amount: \$2,849,197

Period of Performance: 5/1/07–4/30/11

Testing the Impact of the Positive Behavioral Interventions and Supports Plus

The schoolwide Positive Behavioral Interventions and Supports Plus program holds promise for enhancing the school climate and reducing student behavior problems. The purpose of this study is to determine whether implementation of PBIS Plus in elementary schools will result in improved outcomes for students beyond those achieved by the standard model. This research team is evaluating PBIS Plus in a group of elementary schools that have already achieved satisfactory implementation of the standard model, but continue to have a high rate of students not responding to the universal intervention. The outcomes of interest include numbers of students requiring special education services, receiving office disciplinary referrals, receiving poor scores on standardized tests, and

being identified by teachers as having behavioral problems or lacking in social-emotional skills.

Penn State University

Principal Investigator: Linda Mason

Amount: \$1,795,462

Period of Performance: 6/1/07–5/31/11

Writing Instruction for Adolescents With Behavior Disorders: Scaffolding Procedural Learning to Extended Discourse

To address the need for more appropriate writing interventions for students with disabilities, researchers propose to develop Writing Instruction for Adolescents with Behavior Disorders: Scaffolding Procedural Learning to Extended Discourse. The purpose of this project is to conduct an initial evaluation of writing strategy and fluency instruction on the written expression and writing fluency performance of seventh- and eighth-grade students with behavior disorders in general education and alternative settings who are struggling with writing.

University of Oregon

Principal Investigator: K. Brigid Flannery

Amount: \$1,985,519

Period of Performance: 7/1/07–6/30/11

Systematic Analysis and Model Development for High School Positive Behavior Support

The purpose of this research is to develop a model to guide implementation of schoolwide positive behavior support in high schools. Schoolwide positive behavior support is a promising model of behavior support that has been widely used in elementary and middle schools, but use in high schools has not been widespread. This research will explore reasons for this and develop guides for high schools interested in implementing this model. In addition, the team will conduct an initial evaluation of the model to assess potential impact on students' academic and behavior outcomes.

Vanderbilt University

Principal Investigator: Mary Louise Hemmeter

Amount: \$1,835,866

Period of Performance: 3/1/07–2/28/11

Examining the Potential Efficacy of a Classroomwide Model for Promoting Social-Emotional Development and Addressing Challenging Behavior in Preschool Children With and Without Disabilities

The purpose of this research is to further develop and conduct an initial evaluation of the Teaching Pyramid intervention, a multitiered intervention for preschool classrooms to address the social-emotional development and challenging behavior of young children with or at risk for disabilities. The research team will first develop and field-test intervention materials for teachers and then assess whether intervention classrooms have improved teacher and child outcomes compared to preschool classrooms implementing business-as-usual practices.

University of Oregon

Principal Investigator: Robert Horner

Amount: \$1,689,910

Period of Performance: 3/1/07–2/28/11

Enhancing Data-Based Decisionmaking in Schools

Schoolwide Positive Behavior Support is a frequently used systems-level intervention that involves school teams to actively engage in assessment, decisionmaking, and implementation of behavior supports. The purpose of this research is to design and validate a direct observation instrument, the Decision Observation, Recording, and Analysis Tool, for assessing the decisionmaking skills of schoolwide positive behavior support teams. The researchers will also investigate the impact of team decisions on student outcomes (e.g., office discipline referrals, reading scores).

University of Kansas

Principal Investigator: Debra Kamps

Amount: \$2,998,625

Period of Performance: 5/1/07–4/30/11

Classwide Function-Based Intervention Teams: A Research to Practice Agenda for Functional Behavior Assessment

This project is conducting an efficacy study of the intervention, Classwide Function-Based

Intervention Teams. This intervention is designed to teach appropriate behavior skills (e.g., how to appropriately gain the teacher's attention) and reinforce the use of those skills through a game format. The intervention package also includes individual intervention procedures for students who do not successfully respond to the classwide intervention. The program will be implemented in elementary schools with students with or at risk of serious behavior disorders in general and special education settings. Researchers will assess whether the intervention improves social and academic outcomes for students, as well as whether improved student behavior translates to significant levels of increased instruction time in classrooms.

University of Washington

Principal Investigator: Richard Neel

Amount: \$1,430,137

Period of Performance: 3/1/07–2/28/10

Think Time Efficacy Study

This project is conducting a randomized efficacy study of the Think Time Strategy, a prevention-oriented behavioral intervention, with elementary school children in elementary school who exhibit disruptive behavior. Think Time is a collaborative process between two or more teachers (i.e., homeroom teacher and a cooperating teacher) who provide the designated Think Time area. Think Time includes four components: (1) teacher use of short verbal statements without resorting to use of ultimatums, warnings, or repeated requests to encourage the child to exhibit positive social behavior; (2) a reflective period to enable the child to gain self-control; (3) teacher checks for child self-control and initiation of a positive social interaction with the child; and (4) self-management for the child including goal setting. The research will examine whether the program leads to improved child behavioral and academic outcomes compared to business-as-usual behavioral interventions for students.

University of Oregon

Principal Investigator: Jane Squires

Amount: \$1,385,742

Period of Performance: 8/1/07–7/31/11

Project SEAM: Preventing Behavior Disorders and Improving Social-Emotional Competence for Infants and Toddlers With Disabilities

The purpose of this research is to develop the Social-Emotional Assessment Measure for assessing and monitoring social-emotional and behavioral development in infants and toddlers (i.e., birth to 3 years) with disabilities. The instrument is designed to assist in the prevention and early identification of social-emotional difficulties, as well as provide information about optimizing positive parent-child interactions in the 1st years of life. The researchers will determine the feasibility, usability, and appropriateness of the instrument for practitioners (e.g., teachers, interventionists, home visitors). They will also evaluate whether practitioners who use the instruments attain better behavioral and developmental outcomes for children than practitioners who do not use the instrument.

Transition Outcomes for Special Education Secondary Students

University of Oregon

Principal Investigator: Deanne Unruh

Amount: \$1,499,998

Period of Performance: 7/1/08–6/30/11

Project READY: Research on Employability Skills for Adjudicated Youth With Disabilities

The purpose of this study is to adapt and further develop an existing employment-related social skills curriculum for implementation within the juvenile justice system. The curriculum to be adapted is WAGES: Working at Gaining Employability Skills – A Job-related Social Skills Curriculum for Adolescents. Participants will be 360 incarcerated adolescents located in youth correctional facilities identified for intervention implementation. A formative evaluation process will be used to adapt the current curriculum for use in a juvenile justice setting, and a quasi-experimental pretest-posttest

design will be used to assess the feasibility and practicality of the adapted curriculum.

Board of Regents, University of Nebraska

Principal Investigators: Mike Epstein and Alexandra Trout

Amount: \$1,443,284

Period of Performance: 7/1/07–6/30/11

On the Way Home: A Family-Centered Academic Reintegration Intervention Model

This project has three primary aims: to identify the child, family, and teacher/administrator training and implementation needs necessary for the successful implementation of the Family-Centered Academic Reintegration Intervention Model with adolescents with high-incidence disabilities reintegrating into the home and school setting following a stay in out-of-home care; to conduct a preliminary field study to evaluate the feasibility of the integrated three-pronged intervention; and to conduct an initial evaluation of the model on the outcomes of adolescents with high-incidence disabilities reintegrating into the home and school settings following a stay in out-of-home care.

University of Missouri-Columbia

Principal Investigator: Gail Fitzgerald

Amount: \$830,716

Period of Performance: 1/1/08–12/31/09

Electronic Performance Support Systems as Assistive Technologies to Improve Outcomes for Secondary Students

The purpose of this project is to conduct an initial evaluation of the potential efficacy of the use of StrategyTools Support System, an electronic performance support system designed to help secondary students with disabilities improve their ability to learn on their own in the context of general education classes. StrategyTools is a set of computerized support tools that are computer templates resembling graphic organizers. The tools are designed to provide support to students in the following areas: getting organized, learning new information, demonstrating learning, working on projects, solving personal problems, and planning for the future.

University of Oregon

Principal Investigators: Lauren Lindstrom and Bonnie Doren

Amount: \$1,878,803

Period of Performance: 9/1/07–8/30/11

Postschool Achievement Through Higher Skills

Failure to understand and address the career preparation needs of young women with disabilities may severely limit their postschool opportunities and outcomes. To address this challenge, this research team proposes to develop, revise, and test the Postschool Achievement Through Higher Skills (PATHS) curriculum intervention that is intended to increase knowledge and skills and improve educational and career outcomes for young women with disabilities. Researchers will use the preliminary curriculum model to design a curriculum that includes lessons and activities in four areas: self-awareness/self-determination, gender role awareness, disability awareness, and career and transition planning.

University of Kansas

Principal Investigator: Michael Wehmeyer

Amount: \$900,490

Period of Performance: 7/1/07–6/30/09

Determining the Efficacy of the Self-Determined Learning Model of Instruction to Improve Secondary and Transition Outcomes for Students With Cognitive Disabilities

The Self-Determined Learning Model of Instruction was developed to promote self-determination and access to the general education curriculum and to support the unique needs of students with disabilities to achieve academic and transition-related goals, such as obtaining post-school employment. The purpose of this study is to conduct an initial evaluation of the potential efficacy of the Self-Determined Learning Model of Instruction for secondary students with cognitive disabilities. The model is designed to teach students to self-direct their own instruction in order to achieve educationally valued goals and enhance self-determination. Three types of outcome measures will be assessed: self-determination, goal attainment, and access to the general curriculum.

Teacher Quality

Florida State University

Principal Investigators: Tim Sass and Li Feng

Amount: \$640,044

Period of Performance: 8/1/07–7/31/10

The Effects of Teacher Preparation and Professional Development on Special Education Teacher Quality

The purpose of this project is to analyze data from the Florida Education Data Warehouse to evaluate the potential impact of preservice and in-service teacher training experiences on academic achievement, high school graduation, and postsecondary education and employment outcomes for students with disabilities. The researchers will use a variety of statistical techniques to study the potential effects of both the quantity and content of teacher preparation courses as well as the number, content, and timing of in-service professional development courses. The findings of this project may suggest best practices for preparing teachers for students with disabilities.

University of Florida

Principal Investigator: Mary Brownell

Amount: \$2,049,920

Period of Performance: 7/1/07–6/30/11

The Influence of Collaborative Professional Development Groups and Coaching on the Literacy Instruction of Upper Elementary Special Education Teachers

The purpose of this project is to develop and conduct a preliminary evaluation of a professional development model to improve special education teachers' reading instruction for students in the upper elementary grades, with the ultimate goal of improving student achievement. The model will consist of a Training Institute and Literacy Learning Cohorts that incorporate a group approach to professional development combined with follow-up coaching designed to help special education teachers improve word study and fluency instruction. Drawing upon input from special education teachers, the project will develop, pilot, and refine the intervention. Following this, the project will test the intervention with samples of special education teachers providing reading instruction to students with learning disabilities.

University of Illinois, Chicago

Principal Investigators: Marie Tejero Hughes and Michelle Parker-Katz

Amount: \$1,207,516

Period of Performance: 7/1/07–6/30/10

Collaborative Teacher Network

The purpose of this project is to develop and conduct an initial evaluation of a professional development program designed to enhance middle school teachers' instruction in content area classes to improve the reading and content area achievement of students with disabilities. This program is based on collaboration between regular and special education teachers, and it focuses on evidence-based content reading strategies designed to enhance students' access to the general education curriculum. After developing, testing, and revising professional development materials and processes during year 1, the project will implement a pilot of the Collaborative Teacher Network in which novice special education teachers and their partnering general education colleagues will participate in the network.

University of Kansas

Principal Investigator: Michael Knight

Amount: \$1,919,577

Period of Performance: 7/1/07–6/30/11

Improving Instruction Through Implementation of the Partnership Instructional Coaching Model

The purpose of this project is to develop and conduct an initial evaluation of a teacher training model called the Partnership Instructional Coaching model for improving instruction and achievement for students with disabilities. This model will incorporate a number of practices that have been demonstrated to promote professional learning in teachers, such as (a) one-to-one nonevaluative partnership relationships between a coach and teacher; (b) empirically proven teaching practices; (c) modeling by coaches in teachers' classrooms; (d) observation of teachers by coaches in teachers' classrooms; (e) collaborative discussions about teaching practices, model lessons, teachers' lessons; and (f) ongoing support (modeling, observation, collaborative discussion) until teachers' use of new practices is fluent and habitual. The project will conduct two studies: a qualitative study to develop the intervention, and a quantitative study to examine the potential effects of the intervention.

Related Services

Vanderbilt University

Principal Investigator: Stephen Camarata

Amount: \$908,546

Period of Performance: 7/1/08–6/30/11

Related Services Intervention for Expressive and Receptive Language Skills in Autism Spectrum Disorder and in Cognitive Impairment

The purpose of the proposed study is to develop an intervention intended to improve receptive and expressive language in preschool children with autism spectrum disorders and children with cognitive impairments. Each participant in the study will receive two language interventions: receptive language intervention and expressive language intervention. The two interventions will be compared using a parallel treatments design. Child outcomes in the acquisition, maintenance, and generalization of language skills will be measured with direct observation. Data analysis will primarily involve visual inspection of the data.

Systemic Interventions and Policies for Special Education

University of North Carolina at Chapel Hill

Principal Investigator: Virginia Buysse

Amount: \$1,340,381

Period of Performance: 7/1/08–6/30/11

Recognition and Response: A Response to Intervention Model for Early Childhood

The purpose of this study is to develop and evaluate the implementation of Recognition and Response, a response-to-intervention model used in preschool. Recognition and Response contains measures, interventions, and activities associated with three components: recognition (i.e., screening and progress monitoring), response, and a collaborative problem-solving process. A 3-year development process is planned, and approximately 20 preschool classrooms from North Carolina will participate in the study over the 3 years. During the 1st year, the focus will be on planning and development. Each component of the system will be manualized, professional development activities will be finalized, and intervention fidelity and social validity measures will be created. During year 2, each component of

the model will be implemented and refined. In the 3rd year, the entire Recognition and Response model will be implemented to evaluate the extent to which teachers implement the system as intended.

University of Kansas

Principal Investigator: Hugh Catts

Amount: \$1,290,897

Period of Performance: 7/1/08–6/30/12

Early Identification of Children With Reading Disabilities Within an RTI Framework

The purpose of this study is to investigate three screening and assessment approaches within a response-to-intervention (RTI) framework for identifying kindergarteners at risk for reading disabilities. Researchers will determine which approach or combination of approaches is most efficient and accurate. Approximately 350 kindergarteners from Kansas will participate in the study. Three measurement approaches will be utilized with all participants: multivariate static assessments, dynamic assessment, and progress monitoring. In addition, some children will receive intensive reading intervention that aligns with the secondary tier of an RTI model. A combination of statistical techniques will be utilized to determine which approach or combination of approaches best identifies kindergarteners with reading disabilities. In addition, data will be analyzed to evaluate the degree to which implementation of the measurement approaches within an RTI model adds to the prediction of reading disability beyond that provided by each approach.

Iris Media, Inc.

Principal Investigator: Brion Marquez

Amount: \$2,293,415

Period of Performance: 7/1/08–6/30/11

Online Teacher Training: Promoting Student Social Competence to Improve Academic and Behavioral Outcomes in Grades K Through 3

Researchers are developing the Student Social Competence Program, an interactive, Internet-based professional development program that will provide teachers with instructional approaches for promoting children's social competence and academic outcomes. The purpose of this project is to develop the program and test its feasibility

when implemented in early elementary school settings. Approximately 250 teachers in Oregon will participate in the study over 3 years. The program will be developed and a comprehensive feasibility evaluation of the entire program will be conducted. Data will be analyzed to determine teachers' use and acceptability of the program. Additional analyses will be conducted to determine whether the use of the program changes teacher attitudes and knowledge and to investigate the relationships among teachers' satisfaction with the program, program usage, and change in knowledge.

University of California at Riverside

Principal Investigator: Rollanda O'Connor

Amount: \$1,990,072

Period of Performance: 7/1/07–6/30/11

Precision in Response to Intervention Models: Variations of Measurement, Instruction, Student Language, and Age

The purpose of this project is to develop and investigate the long-term effects of two response-to-intervention models. The two models will be implemented in kindergarten through fourth grade in elementary schools that serve a significant portion of children from economically disadvantaged and/or culturally and linguistically diverse backgrounds. The models are a standard treatment variation and a problemsolving variation. The purpose of this study is to investigate the potential long-term effects of these two models on reading achievement and special education identification, with a particular focus on the effects on English language learners. Additionally, researchers will examine the relationship between the onset of implementation and student outcomes (i.e., whether outcomes are better if children entered the model in kindergarten as compared to first grade).

SRI International

Principal Investigator: Geneva Haertel

Amount: \$1,599,939

Period of Performance: 3/1/07–2/28/11

Principled Science Assessment Designs for Students With Disabilities

The purpose of this project is to study the use of universal design paired with an approach termed "evidence-centered design" to design assessment

items that can accurately evaluate the proficiency of all students, including students with disabilities, on statewide assessments. The academic content focus is middle school science, but the approach can potentially be applied to other topics and ages. The researchers will analyze existing middle school science items from four states and will redesign selected items from two states, and test the validity of inferences that can be drawn from these items. The researchers will then administer assessments that include original and redesigned items to students with and without disabilities, and determine the effects of the redesign on accessibility and validity for all students.

University of Oregon

Principal Investigator: Gerald Tindal

Amount: \$1,523,562

Period of Performance: 5/1/07–4/30/11

Assessments Aligned With Grade-Level Content Standards and Scaled to Reflect Growth for Students With Disabilities and Persistent Learning Problems

The purpose of this project is to study the challenges related to using “modified academic achievement standards” which are permitted under federal regulations for a small group of students whose disabilities have prevented them from achieving grade-level proficiency and who likely will not reach grade-level achievement in the same timeframe as other students. The project will develop and validate an assessment based on modified academic achievement standards that extends from the general education assessments and can relate to growth within and across elementary and middle school on grade-level content standards. The researchers will focus first on reading and then on mathematics.

University of Oregon

Principal Investigators: K. Brigid Flannery and Bonnie Doren

Amount: \$1,529,867

Period of Performance: 7/1/07–6/30/11

Building Effective and Meaningful Individualized Education Programs for Secondary-Aged Students

The purpose of this project is to develop a professional development training program for Individualized Education Program (IEP)

case managers to improve the meaningfulness, implementation, and monitoring of IEPs at the secondary level. Although there is a growing awareness of the transition-related needs of secondary students with disabilities, IEP case managers have largely not been trained on how to appropriately address these needs. By improving IEPs, the intervention is intended to promote movement from school to post-school activities, including post-secondary education, vocational education, integrated employment, continuing and adult education, adult services, independent living, or community participation.

Vanderbilt University Medical Center

Principal Investigator: Robin McWilliam

Amount: \$1,750,857

Period of Performance: 7/1/07–6/30/11

TEIDS Plus: Integrating Quality Assurance and Data-Based Decisionmaking to Enhance IFSP Quality, Implementation, and Child and Family Outcomes

Despite being compliant with state and federal requirements, Individualized Family Service Plans (IFSPs) are often poorly written. They do not provide detailed descriptions of services to be provided, child and family goals, and criteria for determining when a goal has been achieved. The purpose of this study, therefore, is to develop and conduct an initial evaluation of a web-based quality assurance system, Tennessee Early Intervention Data System Plus. This system will build upon the existing Tennessee data system. It will incorporate components related to statutory requirements and recommended practices for developing and implementing quality IFSPs and improving child and family outcomes.

Arizona State University

Principal Investigator: M. Jeanne Wilcox

Amount: \$2,271,864

Period of Performance: 7/1/07–6/30/11

Development of an IFSP Form and Process to Maximize Learning Opportunities for Young Children With Disabilities

Early interventionists, service providers, and IFSP development teams need support systems for documenting and increasing the use of adaptations for infants and toddlers with disabilities. To address

this need, researchers are developing an IFSP form and accompanying web-based performance support system to help service providers develop and increase use of adaptations for infants and toddlers with disabilities. The purpose of this study is to design, launch, and conduct an initial evaluation of the adaptation-based IFSP and support system.

Autism Spectrum Disorders

University of Pennsylvania

Principal Investigator: David Mandell

Amount: \$2,719,835

Period of Performance: 7/1/08–6/30/12

Efficacy and Sustainability of the STAR Program

The purpose of this project is to evaluate the efficacy of the STAR (Strategies for Teaching Based on Autism Research) Program. The intervention is a classroom-based program that matches applied behavior analysis techniques with curriculum content and will be compared to Structured Teaching and Life Skills Curriculum, the standard practice in classrooms supporting students with autism. Participants will be approximately 345 children with autism between 5 and 8 years of age. This project will use a clustered randomized design with repeated measures to assess student improvements in academic, communication, social and behavioral outcomes.

University of Buffalo, State University of New York

Principal Investigator: Martin Volker

Amount: \$1,199,689

Period of Performance: 7/1/08–6/30/11

Development of an Intervention to Enhance the Social Competencies of Children With Asperger's/High-Functioning Autism Spectrum Disorders

The purpose of this proposed study is to develop a comprehensive school-based intervention that addresses the cognitive, communicative, social and behavioral needs of elementary schoolchildren with high-functioning autism spectrum disorders. The intervention will be adapted from a manualized empirically based summer treatment program for children with Asperger's syndrome. Participants will include 30 elementary students (grades 1 through 5) diagnosed with high-functioning autism spectrum disorder. Formative and summative outcome

and process measures will be used to document completion of prototype materials and evaluate intervention fidelity and a quasi-experimental pretest-posttest design will be used to assess the sensitivity of various treatment outcome instruments.

Rady Children's Hospital Health Center

Principal Investigator: Aubyn Stahmer

Amount: \$1,964,143

Period of Performance: 7/1/07–6/30/11

Translating Pivotal Response Training Into Classroom Environments

The purpose of this research is to develop, refine, and conduct an initial evaluation of an evidence-based intervention, Pivotal Response Training, for use in classroom settings for children with Autism Spectrum Disorder (ASD). For this Classroom Pivotal Response Training intervention, the researchers will adapt the current Pivotal Response Training procedures, manual, and training process for classroom implementation while preserving the integrity of the program. The research will also provide initial evidence of use of the intervention as associated with improvements in the communication, play, academic and social skills of children with ASD.

University of North Carolina at Chapel Hill

Principal Investigator: Samuel Odom

Amount: \$3,019,247

Period of Performance: 7/1/07–6/30/11

Comparison of Two Comprehensive Treatment Models for Preschool-Aged Children With Autism Spectrum Disorders and Their Families

The purpose of this project is to evaluate two established comprehensive autism treatment programs: Treatment and Education of Autistic and Communication-Handicapped Children and Learning Experiences: Alternative Program for Preschoolers and Parents. This study will compare the immediate and long-term effects of the two programs compared to each other, but also to typical classroom services for students with autism. The researchers will examine key outcomes related to the learning and development of young children with autism and to family functioning. The project also will address how well the benefits of the program maintain over time and examine the relative cost of the programs.

University of North Carolina at Chapel Hill

Principal Investigator: Linda Watson

Amount: \$1,213,062

Period of Performance: 7/1/07–6/30/11

Social Communication and Symbolic Play Intervention for Preschoolers With Autism

Prior research has shown that the quality and quantity of young children's social communicative behaviors, specifically joint and symbolic play, is highly predictive of long-term positive developmental and functional outcomes. The purpose of this research is to develop and conduct an initial evaluation of an intervention that targets joint attention and symbolic play in preschool-aged children with autism for use in public schools in either one-to-one intervention settings or classroom group activities. Once the program is developed, the research team will evaluate the full intervention to determine whether there are similar or additive intervention effects when the intervention is implemented in a one-to-one only setting or in combination with classroom activities. In addition, the researchers will examine whether the fully developed intervention compared to business as usual improves developmental and adaptive outcomes for children with autism.

National Research and Development Centers

University of Kansas

Principal Investigators: Charles Greenwood and Judith Carta

Amount: \$10,000,000

Period of Performance: 7/1/08–6/30/13

Center for Response to Intervention in Early Childhood

The primary objectives of this project are to conduct a focused program of research to develop and rigorously evaluate and replicate intensive interventions for preschool language and early literacy skills and to develop and validate an assessment system linked to these interventions. Two interventions will be developed. They will consist of intensified instruction in oral language, vocabulary, phonological and phonemic awareness, print awareness, alphabetic knowledge, and comprehension. The assessments will measure preschoolers' phonological awareness,

comprehension, and language skills. In addition, the research team will conduct supplementary studies related to intervention and assessment issues; broadly disseminate its findings; and provide national leadership on development and implementation of Response to Intervention for young children. The Center's long-term goal is to prevent disabilities in reading by increasing the number of young children who enter school with knowledge and skill in early literacy and language.

Lehigh University

Principal Investigator: Lee Kern

Amount: \$9,603,039

Period of Performance: 7/1/08–6/30/13

Center on Serious Behavior Disorders at the Secondary Level

The Center on Serious Behavior Disorders at the Secondary Level will develop and evaluate a package of intervention strategies for students in grades 9 through 12 with severe behavior disorders. The Center's primary research study will involve the development, implementation, and evaluation of a comprehensive set of intervention strategies. The intervention package will include multiple components addressing academic and behavior knowledge and skills; improving youth competence in social skills, mental health, and general living skills; and increasing family and community supports. An experimental, random assignment test of the efficacy of the intervention package will be conducted to determine whether the intervention package improves both academic and behavioral outcomes as compared to services typically provided to students with serious behavior disorders. The Center also will conduct supplementary studies; broadly disseminate its findings; and provide national leadership on improving education related to serious behavior disorders at the secondary level. The Center's long-term goal is to improve the behavior, social, and academic outcomes of secondary students with serious behavior disorders.

Postdoctoral Research Training

University of Texas at Austin

Principal Investigator: Sharon Vaughn

Amount: \$794,388

Period of Performance: 8/1/08–7/31/12

Postdoctoral Research Training Fellowship Program

This fellowship program focuses on interdisciplinary research in education sciences related to reading disabilities with special emphasis on response-to-intervention strategies. Specifically, the program will provide interdisciplinary training for fellows to acquire competency to conduct high-quality intervention and evaluation research related to improving instruction and outcomes for individuals with disabilities. Fellows will receive extensive training in and exposure to randomized clinical trial designs, and strong quasi-experimental and single-subject designs that may be appropriate when a large-scale randomized trial may not be possible (e.g., research with low-incidence disability populations).

University of Connecticut

Principal Investigator: Sandra Chafouleas

Amount: \$732,134

Period of Performance: 8/1/08–7/31/12

Postdoctorate in Behavior Education and Research

This fellowship program is designed to provide intensive statistical and methodological training while simultaneously providing applied research experience. Specifically, this training program will enhance fellows' research methods through direct participation with research activities within the Center for Behavioral Education and Research (CBER) in the Neag School of Education at the University of Connecticut. Fellows may participate in applied research projects related to the development of teaching materials and curricula, intervention development and evaluation, and assessment of students with or at risk for developing disabilities. Fellows also will be provided access to large-scale databases used by CBER research scientists that will allow application of acquired statistical and methodological skills to large-scale and complex educational questions.

University of California at Riverside

Principal Investigator: Lee Swanson

Amount: \$649,448

Period of Performance: 7/1/08–6/30/12

Postdoctoral Methodological Training in Instruction, Reading, Math, and Cognition Research on Children at Risk for Learning Disabilities

This fellowship program focuses on reading fluency, response to intervention, and cognition as it relates to children with learning disabilities in reading and math. Fellows will become involved in research studies at the University of California (UC) at Riverside, and the UC Special Education Institute for Disabilities (with UC Santa Barbara, Los Angeles, San Diego, Davis, Berkeley, and Irvine). Fellows will receive training in intervention research and training in the design and analysis of experimental, quasi-experimental studies, and single-subject designs.

Vanderbilt University

Principal Investigator: Karen Harris

Amount: \$648,012

Period of Performance: 9/1/08–8/31/12

Vanderbilt University Department of Special Education Postdoctoral Intervention Research Training Program

This fellowship program is designed to provide fellows with training in intervention research grounded in the science of learning, and state-of-the-art design methodology and statistical methods. The ultimate goal of the program is for fellows to conduct the high-quality, rigorous research that will have a significant impact on the lives of those with disabilities, their families, and the professionals who work with them. Fellows will have the opportunity to engage in special education research projects related to content areas of reading, writing, language development, mathematics and science, and early childhood intervention. These research projects allow fellows to engage in secondary data analysis, intervention development, and evaluation and measurement research. Fellows will also receive training in randomized clinical trial designs as well as strong quasi-experimental and single-subject designs that may be appropriate when a large-scale randomized trial may not be possible (e.g., research with low-incidence disability populations).

Georgia State University

Principal Investigator: Randy Kamphaus

Amount: \$666,558

Period of Performance: 7/1/08–6/30/12

Georgia Measurement and Assessment Training– Postdoctoral Program

This fellowship is a collaborative training program between the Colleges of Education at Georgia State University and the University of Georgia. The goal of the program is to develop measurement and applied assessment scientists who can address the significant measurement and assessment research needs within the field of special education. Fellows will participate in research and training activities to improve the inadequate evidentiary base related to testing accommodations for high-stakes testing; the routine use of classification methods in special education and mental health service delivery that are poorly supported or not supported at all by scientific evidence; and assessment methods that enable changes in special education service delivery practices, such as early identification and screening methods that activate prevention and early intervention services.

Contracts

Optimal Solutions Group, LLC

Principal Investigator: Tracie Turner

Amount: \$2,896,295

Period of Performance: 8/2/06–8/1/09

Administrative and Logistical Support for the National Center for Special Education Research

The contract provides the National Center for Special Education Research with administrative, logistical, analytic, and technical support related to the research, evaluation, and dissemination activities of the Center. Activities include providing administrative and logistical support for meetings, conferences, and seminars and coordinating the preparation of papers.

SRI International

Principal Investigators: Renée Cameto and Jose Blackorby

Amount: \$4,410,960

Period of Performance: 10/1/05–9/30/09

National Study on Alternate Assessments

The purpose of this set of studies is to examine

the development and implementation of alternate assessments based on alternate achievement standards. The project team will produce state profiles for all 50 states and the District of Columbia, plus a national summary profile, based on document analyses and a survey; and conduct case studies in a selected sample of states to study the processes of implementation at state and local levels. The project conducted a document analysis based on materials submitted by states in connection with the No Child Left Behind Act peer review of state assessment systems, as well as other documents provided to the researchers by states. The document analysis was coordinated with a telephone survey of state personnel to obtain additional information about current alternate assessments and plans for future alternate assessments in each state. The document analysis and survey will be used to prepare state profiles and a national profile on the implementation of alternate assessments based on alternate achievement standards. The project will also conduct case studies using a teacher survey in several states with relatively stable alternate assessment systems to study elements required in standards-based reform.

SRI International

Principal Investigators: Mary Wagner, Michelle Woodbridge, and Carl Sumi

Amount: \$2,208,547

Period of Performance: 9/29/04–9/28/09

National Behavior Research Coordination Center

This project is coordinating data from behavior research centers (BRCs) at the University of Oregon, the University of South Florida, the University of Washington, and Vanderbilt University. The BRCs are investigating the effectiveness of evidence-based interventions with students who exhibit severe behavior problems in grades 1 to 3. Over its 5-year life, the National Behavior Research Coordination Center (NBRCC) will contribute methodological expertise toward a rigorous cross-site evaluation of the behavioral and educational effects of the interventions under study at the BRCs. The NBRCC research design and analysis elements include descriptive statistics for intervention and control groups in each site and across sites, as well as more complex multivariate and hierarchical analyses that control for a variety of student, classroom, and

school characteristics in determining the effects of interventions. The NBRCC will produce and actively disseminate new knowledge for the special education and mental health fields regarding “what works” in improving the behavior and, through it, the academic performance of children and youth with severe behavior problems.

SRI International

Principal Investigator: Mary Wagner
Amount: \$23,577,423
Period of Performance: 1/1/01–12/31/11

National Longitudinal Transition Study-2

This investigation is intended to provide a national picture of the experiences and achievements of students in special education during high school and as they transition from high school to adult life. The National Longitudinal Transition Study-2 (NLTS2) involves a nationally representative sample of students who were 13- to 16-years old and receiving special education services in December 2000 when the study began. These students will be followed until 2010 in an effort to understand their educational, vocational, social, and personal experiences as they transition from adolescence to early adulthood. Findings from NLTS2 generalize to special education students nationally as a group, to each of the 12 disability categories in use for students in the NLTS2 age range, and to each single-year age group.

Westat, Inc.

Principal Investigator: Marsha Brauen
Amount: \$5,136,864
Period of Performance: 9/30/04–9/29/09

An Evaluation of States’ Monitoring and Improvement Practices

The purpose of this contract is to conduct a 5-year evaluation of states’ monitoring and improvement practices under IDEA. The ultimate goal of this evaluation is to provide information to OSERS about states’ monitoring and improvement systems. The evaluation design includes both a formative and a summative evaluation of states’ monitoring systems. The formative evaluation describes the strengths and weaknesses of current monitoring activities and provides information for system improvements and targeting technical assistance. The summative evaluation examines the relationship

between monitoring system quality and observed improvements in compliance with IDEA and outcomes for children with disabilities.

Westat, Inc.

Principal Investigator: Elaine Carlson
Amount: \$11,542,820
Period of Performance: 10/1/04–9/30/08

Pre-Elementary Education Longitudinal Study

This contract supports new data collection to examine the preschool and early elementary school experiences of a nationally representative sample of children with disabilities and the outcomes they achieve. It focuses on children’s preschool environments and experiences, their transition to kindergarten, their kindergarten and early elementary education experiences, and their academic and adaptive skills including academic achievement, social development, and participation in the classroom and community. The study will follow a nationally representative sample of children through 2008.

Interagency Agreements

National Institute of Child Health and Human Development

Amount: \$500,000
Period of Performance: 8/29/07–8/28/08

This interagency agreement supports research on the development of outcome measures for young children.

National Institute of Child Health and Human Development

Amount: \$500,000
Period of Performance: 8/29/08–8/28/09

This interagency agreement supports research on the development of outcome measures for young children.

National Institute of Child Health and Human Development

Amount: \$100,000
Period of Performance: 9/27/07–9/26/08

This interagency agreement supports research on the effects of exposure to violence on children with disabilities.



National Institute of Child Health and Human Development

Amount: \$100,000

Period of Performance: 9/27/08–9/26/09

This interagency agreement supports the last year of a research grant on the effects of exposure to violence on children with disabilities.

National Institute of Child Health and Human Development

Amount: \$3,000,000

Period of Performance: 9/27/07–9/26/08

This interagency agreement supports research grants in three areas: adolescent literacy; effectiveness of early childhood programs, curricula, and interventions in promoting school readiness; and mathematics cognition and specific learning disabilities. It includes \$1 million from ED's National Institute on Disability and Rehabilitation Research.

National Institute of Child Health and Human Development

Amount: \$500,000

Period of Performance: 9/27/08–9/26/09

This interagency agreement supports the last year of funding for research grants in three areas: adolescent literacy; effectiveness of early childhood programs, curricula, and interventions in promoting school readiness; and mathematics cognition and specific learning disabilities.

National Institute of Mental Health

Amount: \$100,000

Period of Performance: 9/1/07–8/7/08

This interagency agreement supports an evaluation of a family/school intervention for attention deficit hyperactivity disorder (ADHD).

National Institute of Mental Health

Amount: \$100,000

Period of Performance: 8/8/08–8/7/09

This interagency agreement supports an evaluation of a family/school intervention for ADHD.