



INSTITUTE OF EDUCATION SCIENCES

Director's Biennial Report to Congress

BUILDING PARTNERSHIPS THAT PRODUCE RELEVANT, USEFUL RESEARCH





INSTITUTE OF EDUCATION SCIENCES

**Director's Biennial Report to Congress
Fiscal Years 2009 and 2010**

BUILDING PARTNERSHIPS THAT PRODUCE RELEVANT, USEFUL RESEARCH

December 2011

IES 2012-6002
U.S. DEPARTMENT OF EDUCATION

 **INSTITUTE OF
EDUCATION SCIENCES**

U.S. DEPARTMENT OF EDUCATION

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Secretary

INSTITUTE OF EDUCATION SCIENCES

John Q. Easton
Director

December 2011

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INTRODUCTION & OVERVIEW

The Institute of Education Sciences (IES) is the primary research and evaluation arm of the U.S. Department of Education. Authorized by the Education Sciences Reform Act of 2002 (ESRA), the Institute's mission is to expand fundamental knowledge and understanding of education and to provide education leaders and practitioners, parents and students, researchers, and the general public with unbiased, reliable, and useful information about the condition and progress of education in the United States; about education policies, programs, and practices that support learning and improve academic achievement and access to educational opportunities for all students; and about the effectiveness of federal and other education programs.

ESRA requires the director to transmit a biennial report to the President, the Secretary of Education, and Congress, and make widely available, 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.

This is the fourth biennial report and covers activities for fiscal years 2009 and 2010 (October 1, 2008 to September 30, 2010). On November 21, 2008, Grover J. "Russ" Whitehurst, the Institute's inaugural director, completed his six-year term. On May 22, 2009, John Q. Easton was confirmed by the Senate as the second director of IES, also for a term of six years. In the six-month interim period between Whitehurst and Easton, IES Deputy Director Sue Betka served as acting director.

Under its new leadership, IES maintains its signature commitment to scientific rigor across the agency. With high scientific standards already in place, Director John Easton is adding a renewed focus on making IES research, evaluation, statistics and assessment more useable and relevant to practitioners and policymakers. To move in this direction, IES is encouraging its stakeholders to build partnerships and stronger links with practitioners and policymakers to conduct rigorous research that confronts difficult questions of practice and policy.

RESEARCH PRIORITIES

In 2010, the director developed a set of proposed research priorities to guide the Institute's work over the next five years. The priorities focus on making the Institute's research more relevant and useable, as well as enhancing this relevance and usability by

- developing new ways of facilitating the use of research;
- creating stronger links between research, development and innovation;
- building the capacity in states and school districts to conduct research, evaluate their programs and priorities, and use their longitudinal data systems; and
- developing a greater understanding of schools as organizations and how they can become *learning* organizations.

As required, the priorities were published in the *Federal Register* for public comment. Twenty-nine comments were received and later reviewed by both the director and members of IES's oversight board, the National Board for Education Sciences. Following a thorough analysis of all comments, the research priorities were revised and finalized. Easton presented the priorities to the National Board for Education Sciences on September 30, 2010, the end of this reporting period. Following minor revisions, they were subsequently approved in November 2010. The priorities will act as IES's "mission statement," guiding the kind of work the Institute funds, the methods it uses, the questions it works to answer, and ultimately, the audience it strives to reach through research findings. The *Federal Register* notice inviting comments on the proposed priorities can be found at <http://edocket.access.gpo.gov/2010/2010-16527.htm>.

ORGANIZATION OF THIS REPORT

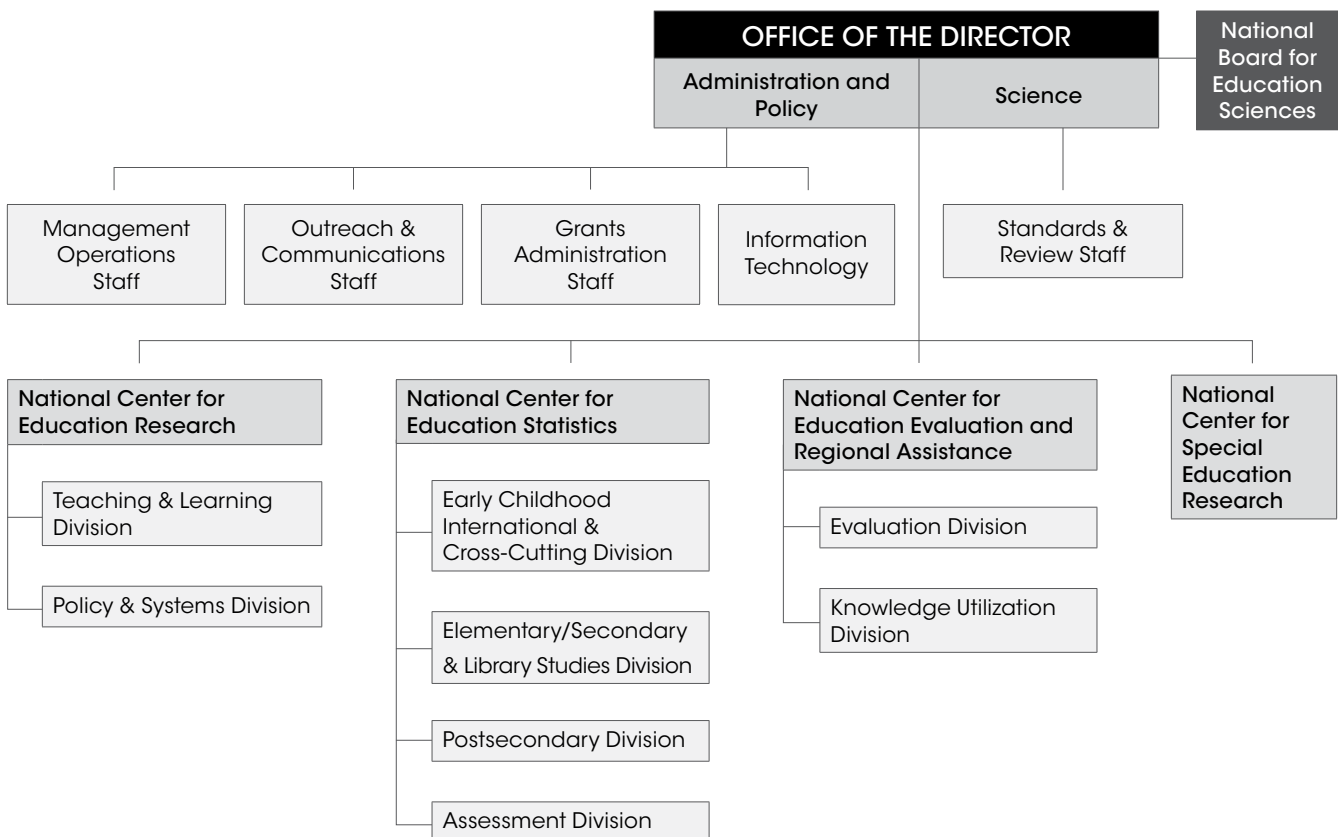
This report comprises three sections: an overview of IES; highlights of IES center activities, accomplishments, and findings; and an appendix containing all awards and grants made in fiscal years 2009 and 2010.

ORGANIZATION, STAFF, AND BUDGET

IES encompasses four centers (see the organization chart) and has a staff of nearly 200 full-time research scientists, statisticians, mathematicians, and other professionals. In 2009, the Institute recruited to fill senior leadership positions in the National Center for Education Evaluation and Regional Assistance and the National Center for Special Education Research. In 2010, Rebecca Maynard—a distinguished scholar at the University of Pennsylvania and a national leader in education and social policy research—was appointed as commissioner of the National Center for Education Evaluation and Regional Assistance. Also in 2010, Sean P. “Jack” Buckley was nominated by the President and confirmed by the Senate as the commissioner of the National Center for Education Statistics (NCES). He served as deputy commissioner of NCES from 2006 to 2008.

In FY 2010, IES had a total budget of \$927,475,000, including money from FY 2010 appropriations to IES (\$650,283,000), additional funding through the American Recovery and Reinvestment Act (ARRA) appropriated in FY 2009 (\$250,000,000), and additional funds appropriated to other Department of Education (ED) programs for evaluations or other national activities (\$27,192,000). These funds were administered by the four centers of IES as follows:

- The National Center for Education Statistics (NCES) administered \$108,521,000 for statistics; \$130,121,000 for assessment; \$58,250,000 for statewide data systems; and \$3,000,000 for surveys and assessments using funds from other ED components.
- The National Center for Education Evaluation and Regional Assistance (NCEE) administered \$37,000,000 for dissemination and evaluation activities from the research, development and dissemination appropriation; \$70,650,000 for the RELs; \$11,460,000 for special education studies and evaluations; and \$24,200,000 for evaluations of ED programs using funds appropriated to other ED principal offices.



- The National Center for Education Research (NCER) administered \$162,900,000 for research and research training from the research, development and dissemination appropriation.
- The National Center for Special Education Research (NCSER) administered the \$71,085,000 appropriation for research in special education.

In addition, the National Board for Education Sciences (NBES) was budgeted approximately \$300,000 of research, development and dissemination funds to carry out its activities.

The table below shows the budget by the various sources of funds.

SCIENTIFIC PEER REVIEW PROCESS

Research Grants

Between October 1, 2008 and September 29, 2010, the Standards and Review Office (SRO) handled the processing and scientific peer review of applications to the Institute's

FY 2009 and FY 2010 research competitions. During this period, 2,245 applications were scientifically reviewed by 50 review panels comprising 908 external reviewers. In addition, the first round of FY 2011 reviews, which culminated with panel meetings in October 2010, was almost complete by the end of this period. That review session involved an additional 500 applications that were reviewed by 212 external reviewers across 11 review panels. In addition to the regular research competitions, SRO also managed the external scientific peer review of 38 applications to the Institute's FY 2009 Statewide, Longitudinal Data System grant competition, as well as 53 applications to a similar competition under ARRA. Finally, several applications submitted in April 2010 that proposed evaluating activities funded through Race to the Top awards were also received, processed, and reviewed.

Institute Reports

During the period from October 1, 2008 through September 29, 2010, SRO handled the scientific peer review of 167 reports from IES Centers. Of these 167 reports, 90 were from NCES, 55 from NCEE, one from NCER, and 21 from NCSER.

INSTITUTE OF EDUCATION SCIENCES FY 2010 BUDGET	
From funds appropriated to IES	Amount (dollars in thousands)
Research, development, and dissemination (NCER \$162.9M; NCEE \$37M; NBES \$.3M)	\$200,196
Statistics (NCES)	\$108,521
Assessment (NCES)	\$130,121
Regional Educational Laboratories (NCEE)	\$70,650
Research in special education (NCSER)	\$71,085
Statewide data systems (NCES)	\$58,250
Special education studies and evaluations (NCEE)	\$11,460
Subtotal	\$650,283
From ARRA funds appropriated in FY 2009	
Statewide data systems (NCES)	\$250,000
From funds appropriated to other ED Principal Offices	
Evaluation and national activity set-asides in the budgets of other ED programs (NCES \$3.0M; NCEE \$24.2M)	\$27,192
TOTAL	\$927,475

OUTREACH AND COMMUNICATIONS

IES continues to inform the public and reach out to practitioners, policymakers, and others through the IES website (<http://ies.ed.gov>), which has a wealth of information from the National Center for Education Statistics, the *What Works Clearinghouse*, the Education Resources Information Center, regional educational laboratories, research and development centers, conferences, publications, and other products. The website will continue to evolve as IES strives to make its work more accessible and ensure that it continues to meet the needs of a wide range of education stakeholders in a well-organized and useful manner.

NATIONAL BOARD FOR EDUCATION SCIENCES (NBES)

The National Board for Education Sciences (NBES) oversees the primary functions of IES. It is composed of 15 highly qualified education experts and researchers representative of the research community and general public—all nominated by the President and confirmed by the Senate.

As of September 30, 2010, the board members and term expiration dates were:

- Jonathan Baron (November 28, 2011)
- Deborah Loewenberg Ball (November 28, 2012)
- Adam Gamoran (November 28, 2011)
- Carol A. D’Amico (November 28, 2010)
- David C. Geary (November 28, 2010)
- F. Philip Handy (November 28, 2011)
- Eric A. Hanushek (November 28, 2010)
- Bridget Terry Long (November 28, 2012)
- Margaret R. (Peggy) McLeod (November 28, 2012)
- Sally E. Shaywitz (November 28, 2011)

Anthony S. Bryk, Kris D. Gutiérrez, Beverly L. Hall, and Robert Underwood were nominated to be members by the President and are awaiting confirmation. Hall subsequently withdrew herself from consideration for the board. Biographical sketches of all members can be found at <http://ies.ed.gov/director/board/members.asp>.

The NBES held five meetings during this biennium and submitted annual reports for 2009 and 2010 to Congress, the director, and the Secretary of Education. These reports, as required, “assessed the effectiveness of the Institute in

carrying out its priorities and mission, especially as such priorities and mission relate to carrying out scientifically valid research, conducting unbiased evaluations, collecting and reporting accurate education statistics, and translating research into practice.” In the Chair’s Message to the 2010 NBES annual report, Eric A. Hanushek stated that:

“... Over the short period of operation of IES, we have seen a remarkable transformation in the character of educational research. Where education research was once frequently viewed as being unscientific, that is no longer the case. IES has shown that it is possible to do rigorous research on the processes of education. This renaissance of education research is beginning to inform policy and practice.

“We must build on the current solid base of research to enhance our schools. This will require a close and cooperative relationship between IES and our state and local school authorities. It will also require a continued commitment to maintaining the highest scientific standards for the research and evaluation of the federal government.”

GRANT AND CONTRACT AWARDS

IES carries out its programs through grants and contracts. The appendix includes all awards made in fiscal years 2009 and 2010.

CONCLUSION

Over the past several years, the Institute of Education Sciences has become known for conducting rigorous research. As the Institute continues to build on this commitment to scientific rigor in its work, IES is also renewing its focus on making its research, evaluation, statistics, and assessments more useable and relevant to practitioners and policymakers. IES will pursue relevance and usability with the same energy and commitment as the first generation of IES that pursued rigorous methods.

As described in this report, IES is making progress on many fronts—from creating new grant programs that require funded researchers to better understand educational and learning processes and the mechanisms through which schooling policies and practices affect students, to evaluating the federal stimulus funds for education and making the results of our work more accessible—and looks forward to reporting on its progress in the next biennial report.

HIGHLIGHTS OF CENTER ACTIVITIES

NATIONAL CENTER FOR EDUCATION RESEARCH (NCER)

The National Center for Education Research (NCER) supports research that is intended to develop and validate solutions to the challenges encountered by education practitioners and leaders in their efforts to improve education outcomes for students in our nation and to contribute to the scientific understanding of education. The work of NCER is carried out through long-term research grant programs, national research and development centers, and the Small Business Innovation Research program.

In FY 2010, NCER received about 1,000 applications to its regular research and research training competitions, which resulted in 108 new research and research training awards. The total cost of these awards was about \$282 million. To put FY 2010 into perspective, in FY 2009, the total number of applications that were reviewed across both funding rounds was 622; a total of 100 proposals were funded. The total cost of grants awarded in FY 2009 was approximately \$228 million. The newly funded research projects address a wide range of issues. For example, researchers at Stanford University will examine the attributes, skills, orientations, and behaviors of school leaders to determine the characteristics that are associated with well-functioning schools. A team of researchers at the University of Memphis will develop an intelligent tutoring system for teaching high school physics. Researchers at the University of Georgia will evaluate the efficacy of a teacher professional development program intended to improve the academic development of English learners in the upper elementary grades. A team of researchers at the Southwest Educational Developmental Corporation will conduct a scale-up evaluation of the *Everyday Mathematics* curriculum in kindergarten through grade 5 to determine whether the curriculum improves mathematics learning and, if so, for which students and under what conditions.

Among the major awards were two new research and development centers. The goal of the new *National Center on Scaling Up Effective Schools* is to (1) identify school-level practices that distinguish between more and less effective high schools and are associated with improved student

outcomes, including high school graduation and college enrollment rates for students from traditionally under-achieving groups; and (2) develop and test processes to transfer these strategies to less effective schools. The purpose of the new *Center on Cognition and Mathematics Instruction* (Math Center) is to apply what is currently known about improving the acquisition, retention, and transfer of knowledge to redesign a mathematics curriculum in ways that will improve student learning in mathematics. After the curriculum redesign is completed, the Math Center will test the efficacy of the revised curriculum to determine if the revised curriculum leads to better student learning.

HELPING STATES AND DISTRICTS LEARN WHAT WORKS

IES recognizes that evidence-based answers for all of the decisions that education decision makers and practitioners must make every day do not yet exist. Furthermore, education leaders cannot always wait for scientists to provide answers. One solution for this dilemma is for the education system to integrate rigorous evaluation into the core of its activities—that is, to incorporate impact evaluations into the implementation of new programs and policies. To help states and districts conduct rigorous impact evaluations of their programs, IES launched its research program on *Evaluation of State and Local Education Programs and Policies*. Through this program, state or local education agencies work with researchers to evaluate a program that the state or district is implementing in its schools. The education agency funds the implementation of the program; IES funds the evaluation

research. Among the current projects is an evaluation of the impact of the Ohio Department of Education's professional development course for preschool teachers on both teacher outcomes and young children's early literacy skills at the end of preschool and kindergarten. Another project is an evaluation of the impact of two Michigan high school programs—Michigan's Merit Curriculum, which requires students to complete more advanced coursework, and the Promise Scholarship program, which provides financial assistance for postsecondary education—on students' course-taking, achievement on the state eleventh grade examination, high school graduation, college enrollment, and college completion.

READING FOR UNDERSTANDING RESEARCH INITIATIVE

Although the nation has invested billions of dollars in teaching children to read, many American students continue to struggle in reading. The latest data from the National Assessment of Educational Progress show that one out of three fourth-graders and one out of four eighth-graders cannot read at the *Basic* level—that is, when reading grade-appropriate material, these students do not understand what they read. It is difficult to imagine that students who cannot understand what they read will be successful in school or gain the skills necessary to succeed in the 21st century workforce. Through the Reading for Understanding Research Initiative, launched in FY 2010, IES has established an aggressive, coordinated research initiative to rapidly develop and test interventions to improve reading for understanding among children from prekindergarten through grade 12. Six multidisciplinary teams were selected through a competitive, scientific review process to participate in the Reading for Understanding Network, five to develop and test interventions and one to focus on reading comprehension assessment. Over the first three months of this project, the teams have been coordinating the efforts of the more than 130 individual researchers participating in these projects. As the Initiative moves into the 2010–2011 school year, the teams will continue to meet as they strive to solve the challenge of designing, delivering, and evaluating instruction to support reading for understanding.

SMALL BUSINESS INNOVATION RESEARCH (SBIR)

Although it is one of the smaller IES research programs, the SBIR program is an important component of the IES research portfolio. Through this program, IES provides awards up to \$1.05 million to small business firms for the research and development of commercially viable education technology products or tools. IES supports SBIR projects to develop products to improve student learning or to improve teacher efficiency in regular education delivery settings, products to improve outcomes among infants or toddlers in early intervention settings or K–12 students in special education settings, or tools used by education researchers.

One marker of SBIR success is the commercialization of products developed under SBIR awards. For example, through SBIR funding, Polyhedron Learning Media developed a virtual physics laboratory, a set of 28 online labs for use in year-long introductory college physics courses. Each lab contains the necessary support materials and tools for students to conduct a laboratory experiment, including the theoretical background and objectives, 3D simulations, brief videos, data collection tools, virtual equipment, and post-lab automated quizzes. Recently, Polyhedron entered into advanced discussions with publisher Brooks/Cole Cengage Learning to discuss a partnership to distribute the *Virtual Physics Lab* along with their college textbooks.

An important indicator of success is the transition of products from development under SBIR awards to the evaluation of the efficacy of the product on student outcomes through one of our regular research grant programs. With support from the IES SBIR program and other sources, Quantum Simulations developed a web-based artificial learning tutor for high school chemistry. An efficacy trial of *Quantum Chemistry Tutors* is currently being conducted with a grant from the IES Mathematics and Science Education research program.

Finally, our SBIR projects are also gaining national recognition. Filament Games is being considered for the Grand Prize from the National STEM Video Game Challenge for *You Make Me Sick!*, the first of five games that the company is developing under its 2010 SBIR award. The game is intended to teach students about the physical structure of bacteria and viruses, as well as how they are spread. A demonstration of the game prototype can be viewed at <http://www.filamentgames.com/gils/videos/yms-demo-2>.

IMPROVING ACCESS TO POSTSECONDARY EDUCATION

Among the many studies that were completed by NCER researchers this past year are two postsecondary education research projects—one focusing on improving college readiness and the other on increasing enrollment in college. Through California's Early Assessment Program students voluntarily take additional assessments in their junior year of high school in order to receive feedback on their college readiness. Under a small 2007 Exploration project, Michal Kurlaender found that participation in the Early Assessment Program was associated with a reduction in the probability of students needing remediation in English (6.1 percentage points) and in math (4.1 percentage points) for one California State University campus.¹ Kurlaender is now conducting an efficacy study with IES funding to further evaluate the impact of the Early Assessment Program on the need for college remediation in the California State University system.

EARLY LEARNING RESEARCH

One of the first awards under NCER's Evaluation of State and Local Education Programs and Policies program went to Vanderbilt University to evaluate the impact of Tennessee's voluntary prekindergarten program on the school readiness of economically disadvantaged children and their subsequent academic performance. The project includes two studies. One is a randomized controlled trial of oversubscribed programs in which children are in a lottery for places in the program, and the second study is a regression discontinuity study comparing children who are eligible for the program based on their age at the cut-off date to children who are

required to wait a year due to missing the cut-off date. Findings from these studies will be released in 2011, and will be relevant to states and districts as they consider whether to implement prekindergarten programs for economically disadvantaged children.²

Research being conducted by IES's *National Center for Research on Early Childhood Education* exploring the characteristics of current early learning settings indicates that many young children who are at risk for school failure attend classrooms that are of mediocre quality and that do not maximize children's learning to the extent that is possible based on findings from high-quality classrooms. For example, analyses of state-funded prekindergarten programs in 11 states with mature programs indicated that a little over half of the school day was spent on learning activities.³ Children in early childhood classrooms may participate in very few of the types of interactions that are associated with improving school readiness.⁴ These results suggest that there is much to be done to improve early childhood education for young children in our country.

IMPROVING MATH LEARNING

A fundamental discovery of perception research is that human cognition depends upon pattern recognition. One classic line of research finds that expert chess players perceive the chess board as composed of sets of pieces that make up possible moves; in contrast, novices perceive many individual pieces. It is rare, however, to find education interventions that leverage the perceptual foundations of cognition. Philip Kellman and his colleagues, through an FY 2010 IES SBIR award, decided to exploit the potential of perceptual learning by developing computer-delivered

¹ Howell, J. S., Kurlaender, M., & Grodsky, E. (in press). Postsecondary preparation and remediation: Examining the effect of the Early Assessment Program at California State University. *Journal of Policy Analysis and Management*.

² <http://peabody.vanderbilt.edu/Documents/pdf/PRI/TN%20PreK%20PDF.pdf>.

³ Early, D.M., Iruka, I.U., Ritchie, S., Barbarin, O., Winn, D., Crawford, G.M., Pianta, R.C. (2009). How do prekindergartners spend their time? Gender, ethnicity, and income as predictors of experiences in prekindergarten classrooms. *Early Childhood Research Quarterly*, 25(2), 177-193.

⁴ Early et al. (2009); Mashburn, A.J., Pianta, R.C., Hamre, B.K., Downer, J.T., Barbarin, O.A., Bryant, D.,... & Early, D.M. (2008). Measures of classroom quality in prekindergarten and children's development of academic, language, and social skills. *Child Development*, 79(3), 732-749.

interventions called perceptual learning modules. In these, for example, students are asked to match multiple instances of different representations of the same equation (e.g., a number sentence to the correct word problem or graph) in 30-minute practice sessions. Students are not asked to solve these equations, but only to identify the representations that are equivalent. This repeated exposure to instances, with feedback as to whether the match is correct or incorrect, draws upon the human capacity to seek out structure. In an experiment with high school students, the perceptual learning module was found to substantially improve students' performance on mapping the relations between word problems, equations, and graphs.⁵

INDIVIDUALIZING READING INSTRUCTION

Although many have observed that effective teachers are able to differentiate instruction according to children's knowledge and skills, simply telling teachers to individualize instruction does not help teachers figure out how to differentiate instruction in ways that improve learning. Simply providing teachers with data on children's knowledge and skills does not help them figure out how to tailor instruction to best help children learn.

A team of researchers led by Carol Connor at Florida State University spent hundreds of hours observing reading instruction to determine which types of instruction were associated with the greatest gains in reading outcomes for students beginning at different skill levels. They then developed a software program that takes children's reading assessment data and provides an instructional profile for each child—indicating, for example, how much time should be spent on teacher-directed activities to support decoding or

how much time should be spent on independent reading by the child. In efficacy studies of first and third grade teachers using the software program, children have attained a two- to three-month advantage over children in control classrooms. In a randomized trial of first grade teachers and their students, results revealed significant effects of treatment when compared to a business-as-usual control condition. Students in the treatment classrooms showed a two- to three-month advantage on their word reading and passage comprehension scores.⁶ The team recently completed a randomized controlled efficacy study in which 448 students in 33 third grade classrooms participated. Teachers and their students were assigned to either the technology intervention or a vocabulary intervention program. Findings revealed that third-graders in the technology classrooms made greater reading comprehension skill gains (on a standardized measure of reading comprehension, the Gates-MacGinitie) than did students in the vocabulary intervention classrooms with students in the technology classrooms showing a two-month advantage.⁷

⁵ Kellman, P.J., Massey, C.M., & Son, J.Y. (2010). Perceptual learning modules in mathematics: Enhancing students' pattern recognition, structure extraction, and fluency. *Topics in Cognitive Science*, 2, 285-305; Kellman, P.J., Massey, C.M., Roth, Z., Burke, T., Zucker, J., Saw, A., Agüero, K.E., & Wise, J.A. (2008). Perceptual learning and the technology of expertise: Studies in fraction learning and algebra. *Learning Technologies and Cognition: Special Issue of Pragmatics and Cognition*, 16, 356-405.

⁶ Connor, C. M., Morrison, F. J., Fishman, B. J., Schatschneider, C., & Underwood, P. (2007). THE EARLY YEARS: Algorithm-guided individualized reading instruction. *Science*, 315(5811), 464-465.

⁷ Connor, C. M., Morrison, F. J., Fishman, B., Guilianni, S., Luck, M., Underwood, P., et al. (in press). Testing the Impact of Child Characteristics X Instruction Interactions on Third Graders' Reading Comprehension by Differentiating Literacy Instruction. *Reading Research Quarterly*, 46 (3).

NATIONAL CENTER FOR EDUCATION STATISTICS (NCES)

The National Center for Education Statistics (NCES) is moving in new directions to make the most of the data it is collecting. NCES is redesigning the content, collection modes, starting points, and periodicity of its studies to keep up with current policy priorities and research needs. In addition, NCES is exploring ways of integrating data from its studies with administrative data in all areas of education.

LONGITUDINAL STUDIES

During this biennium, NCES has incorporated redesign work into the development of its longitudinal studies to keep their content current with changes in the educational experiences of our children and youth. For example, in the Early Childhood Longitudinal Study: Kindergarten Class of 2010–11 (ECLS-K:2011), NCES developed a new reading assessment for children who speak Spanish but not English. It is intended to address a problem that was identified in the first longitudinal kindergarten study in 1998–99, which could not capture information about these children's reading skills, making the development of growth models in reading a challenge.

NCES's newest secondary school longitudinal study, initiated in 2009, underwent significant redesign. The design of the High School Longitudinal Study of 2009 (HSLs:09) is similar to past studies but with several innovations: all surveys and assessments were administered via computer, school counselor and parent input into students' decision-making about courses and postsecondary choices was and will continue to be collected, and the mathematics assessment developed specifically for this study focuses on algebra skills critical to success in secondary and postsecondary education.

NCES also redesigned the timing and frequency for collecting data in these longitudinal studies. The first longitudinal kindergarten study from 1998–99 has provided a wealth of useful information. However, because of budget constraints, the study had to skip the second and fourth grade data collections originally scheduled. As research

has shown, the learning curves for children are steepest in the earliest years of their lives. The lack of data from the second and fourth grade years has limited analyses useful for understanding when children start to experience problems in school or when learning problems are ameliorated.

To address this shortcoming, the new ECLS-K:2011 has collected data in the fall and spring of kindergarten, and the plans are to continue to collect in the spring of every year for cohort members from first through fifth grade. NCES also intends to include at least limited collections in fall of first and second grades to better understand academic gains and losses associated with summer breaks and learning throughout a single academic year and how they relate to instruction and other aspects of schooling. NCES has also for the first time taken the assessment of science down to the kindergarten level in order to capture the beginning scientific knowledge and skills of young children.

For HSLs:09, NCES moved the first year of collection to the beginning of ninth grade, when most youth start high school. The most recent previous high school longitudinal study, the Education Longitudinal Study or ELS, began at the end of tenth grade with the goal of studying the transition from high school into college or the work force. However, by starting at the end of tenth grade as opposed to the beginning of ninth grade, the study missed data for most of the first two years of this cohort's high school experiences, years that research suggests are critical to decisions about dropping out or pursuing further schooling. Moreover, in HSLs:09 students will be followed in eleventh grade and again directly after their intended high school graduation

date to determine if and where they applied to postsecondary education, financial aid offers, acceptances, intended institution of matriculation, and immediate post-high school plans. This cohort will continue to be followed through their postsecondary education and entry to the workforce.

At the same time, NCES is also working to establish new links between HSLs:09 and longitudinal administrative data from state data systems. The Center has worked with 10 states to include representative samples for these states in HSLs. NCES continued to work with these states to develop memorandums of understanding that will provide key information about the sample of students and schools included in HSLs from the states' administrative data systems. The combination of these state data with HSLs data will provide information about student academic achievement prior to ninth grade.

Working in collaboration with education economists, NCES put the Beginning Postsecondary Students Longitudinal Study (BPS) on a new conceptual footing, grounding its study of student persistence and degree attainment in human capital theory, and developing innovative instrumentation to elicit key study concepts, such as wage expectations and discount rates. NCES also began exploring opportunities to expand its collaboration with Federal Student Aid (FSA), including initiating work to match historical federal financial aid records to existing longitudinal data sets. These matching opportunities will not only expand the usefulness of older data sets for researchers but also meet the need of FSA to understand the relationship between student aid and student outcomes.

NCES currently has longitudinal studies of elementary school children, high school children, and college students; however, no study up to this point has focused on the critical transition period of the middle school years. In FY 2010, NCES began discussions about a middle grades longitudinal study that will focus on a nationally representative cohort of students in sixth grade and follow them at least through eighth grade. The study would enable analysts to investigate research questions pertaining to the distal outcome of college and career readiness as we capture predictive indicators at this critical stage in children's schooling. It would measure environmental factors about the children's families, neighborhoods, and classrooms and relate these to adolescents' cognitive and socioemotional development.

NATIONAL ASSESSMENT OF EDUCATIONAL PROGRESS (NAEP)

The National Assessment of Educational Progress (NAEP) is transitioning to eventual computer administration of all assessments for upcoming NAEP cycles. The first subject to go completely online will be a national sample of eighth and twelfth graders who will respond to writing prompts administered electronically in winter 2011. Electronic administration of a writing assessment provides a number of benefits. First, it eliminates the errors inherent in scorers trying to decipher illegible handwriting. Second, it captures information not previously available in group administration, such as the number of keystrokes, time spent on task, and number of revisions. Third, it allows students to use the mode which many now prefer for writing, the use of a keyboard. Fourth, it easily permits revisions without the need for pencil erasures. Fifth, it provides an opportunity for more engaging prompts. Sixth, it allows for easily incorporating universal design principles to accommodate student needs. Finally, it opens up the possibility of computer-aided intelligent scoring, which conceivably could make scoring much less expensive.

NCES plans to pilot an adaptive version of the NAEP mathematics assessment in 2011. As a result of this tailoring of the assessment, more precise ability estimates can be obtained. Also, the computer delivery allows analysts to identify those items where the student was not engaged, based upon time taken to respond. In 2009, NCES administered innovative Interactive Computer Tasks (ICTs) as part of its NAEP science assessment. The ICTs were designed to explore students' abilities to combine their science knowledge with the investigative skills that reflect the nature of science and inquiry. The assessment simulates a laboratory environment where the tasks can model natural phenomena and allow students to work with materials that may be difficult or hazardous to administer in a hands-on environment. NAEP is currently developing a computer-delivered Technology and Engineering Literacy (TEL) assessment. Computer delivery will be leveraged to offer innovative, interactive assessment tools allowing for meaningful realistic problems to be solved and offering a rich context for demonstration of TEL skills. Realistic problems create better evidence of student ability because TEL requires them to do a meaningful piece of work online. Computer delivery allows for more direct measures of TEL skills, makes new types of measures possible, creates a more engaging assessment environment, and allows for multimodal information presentation.

INTERNATIONAL STUDIES

In international studies, NCES continued to conduct or facilitate linking studies to obtain greater efficiency and enhance the usefulness of its statistical portfolio. The intent is to learn more about how the international assessments relate to assessments used more regularly in U.S. schools and to enable states to benchmark their performance internationally without the cost and burden of fielding international assessments themselves. The largest effort will link the National Assessment of Educational Progress (NAEP) and Trends in International Mathematics and Science Study (TIMSS) in mathematics and science at grade 8 in 2011. To create the link, a subsample of students will be administered special booklets during the NAEP administration window that contained both NAEP and TIMSS items. Likewise, during the TIMSS administration window a subsample of students will be administered special booklets. By analyzing the relationship between student performance on NAEP and TIMSS items, a linking function will be created that will allow the projection of TIMSS-like scores for all states. In addition to the national data collection for TIMSS, eight states were invited to participate in TIMSS with independent state representative samples to provide the data needed to validate the linking function.

Through NCES, the United States is connecting internationally by participating in the new international assessment of adult literacy called PIAAC, the Program for the International Assessment of Adult Competencies. NCES administered the PIAAC field test in 2010. The main study will be fielded in 2011 and results will be released in 2013. PIAAC builds on previous work but is much larger than prior international assessments of adults in terms of the number and variety of countries. Some 26 countries are participating, and they include nearly all the advanced economies in the Organization for Economic Cooperation and Development, which coordinates the Program for International Student Assessment (PISA). PIAAC will also include adults' reports of the skills they use on the job.

This component of the study is based on similar national work done in the United Kingdom and the United States, but is new to international assessments of adults and is being conducted in collaboration with the U.S. Department of Labor, as well as representatives of labor ministries internationally. PIAAC will be administered on computers, except in cases in which respondents are not familiar enough with computers to use them or have literacy skills so limited that a paper-and-pencil assessment makes more sense for

them. In addition, PIAAC will include an assessment of problem-solving in a technology-rich environment, which is also new to adult assessments. One of the benefits of administering PIAAC on computers is the opportunity to adapt assessment items to responses in real-time, that is, to make the assessment easier or harder depending on the items each respondent is able to successfully complete.

NCES also continued to improve the accessibility of international data, including assessment results and more contextual information about what education systems are like around the world. In 2010, NCES launched the International Data Explorer, an online analysis tool on the NCES website that enables users to create and download their own tables and charts with international assessment results. And for the first time, in an effort to improve school participation rates in our international assessments, NCES provided participating schools with school-level reports on their performance relative to international and U.S. averages. It is another way of connecting with practitioners and improving their access to information they can use.

INTEGRATED POSTSECONDARY EDUCATION DATA SYSTEM (IPEDS)

NCES' IPEDS program has spent much of the last few years implementing data collection requirements in the Higher Education Opportunity Act of 2008. Several new data items, such as the net price of attendance after grant and scholarship aid, were collected and have been made available in online data tools, including College Navigator, a college search site for prospective students and parents.

PREPARING STUDENTS TO ENTER THE WORKFORCE

At the request of the Under Secretary of Education and with the support of the Council of Economic Advisers and the Office of Management and Budget, NCES is leading an effort to improve federal data collection and statistics on the education that youth and adults need to prepare for jobs and contribute to economic growth. Redesign efforts underway include a project to provide new information about educational certificates and industry-recognized certifications through developing valid and reliable counts of U.S. adults with these qualifications. In collaboration with the Census Bureau and Bureau of Labor Statistics, NCES supported the collection and analysis of pilot study data to evaluate the effectiveness of a set of survey items to enumerate these credentials. The Census Bureau plans to field these items in

an upcoming household survey. Other efforts include work to revise data collections that address the NCES legislative mandate to collect and report data on education in preparing individuals for work. NCES is currently finalizing plans for an expert panel meeting to discuss new and revised survey items to describe the relationship between education and work. In a similar manner, NCES is working to coordinate future international and national assessments of adults, including the collection of background items focused on education and training. In addition, NCES proposed a new household study focusing on the education required to attain various levels of qualifications, the relationship between industry-recognized certifications and employment, the career pathways of adults seeking advanced certifications, and the supports and barriers faced by adults seeking additional educational qualifications to help them find and keep good jobs.

IES and the Department have spent approximately \$514 million and invested considerable staff resources to help states establish or improve P-20W (early childhood through workforce) longitudinal data systems. In order to improve data quality within these state data systems, NCES initiated a comprehensive Common Education Data Standards initiative to help define data definitions and standards from early childhood to postsecondary state data systems. NCES also launched the Privacy Technical Assistance Center (PTAC) in 2010 and neared completion of the Educational Technical Assistance Program (EDTAP), two national programs to assist states with their data system development. These initiatives serve as a “one-stop” resource for states and districts to learn about best practices and receive expert technical assistance on all matters of data system development.

STATEWIDE, LONGITUDINAL DATA SYSTEMS (SLDS)

The development of Statewide, Longitudinal Data Systems (SLDS), including their extensions into postsecondary education and the workforce, has focused attention on the need for good and consistent guidance on issues of data stewardship—privacy, confidentiality and data security. Requirements to protect personally identifiable information (PII) are delineated in the Family Educational Rights and Privacy Act (FERPA) and related regulations, other legislation, and guidance from OMB and the National Institute of Standards and Technology. Understanding and complying with privacy regulations can be a complex task for the organizations and individuals tasked with assimilating and using student-level data, especially as they balance these regulations with the goal of using the richness of the data to improve education at local and even individual levels. In June 2010, NCES—in consultation with the Department of Education’s Chief Privacy Officer, the Family Policy Compliance Office (which oversees FERPA), the Office of Planning, Evaluation, and Policy Development, and the Office of the General Counsel—began providing technical assistance for states and organizations that are engaged in building and using student-level longitudinal education data systems. NCES began this process by developing three technical briefs on such topics as definitions and concepts, data stewardship and managing PII, and statistical methods for protecting PII in aggregate reports. The Privacy Technical Assistance Center (PTAC), launched in 2010, will extend efforts in the areas of privacy, confidentiality, and security by disseminating information, answering individual questions, conducting training and, as appropriate, referring questions to experts in the Department.

NATIONAL CENTER FOR EDUCATION EVALUATION AND REGIONAL ASSISTANCE (NCEE)

The National Center for Education Evaluation and Regional Assistance (NCEE) continues to serve as the principal center for federally supported evaluations and for the dissemination of research and evaluation findings to support education policy and practice. Notably, NCEE has continued its role in establishing and promoting high standards for evaluation and expanded its attention to enhancing the capacity of state and local education professionals to use research and data to inform their policy and practice.

NCEE typically has around 30 major evaluations underway. These studies cover a range of topics of strategic importance for the U.S. Department of Education including, for example, studies of strategies for improving student achievement in mathematics and literacy, for turning around chronically low-performing schools, and for improving outcomes for English language learners and students with disabilities; school choice policies; and college readiness and access. Currently, a number of ongoing evaluations focus on strategies for improving the quality of the teacher workforce, for example, through pre-service preparation, teacher compensation policies, and in-service professional development and support.

In addition, 25 evaluations have been initiated through the Regional Educational Laboratories (RELs) and their local constituents. The current generation of RELs released 3 rigorous studies in FY 2009 and FY 2010 and has 22 more in progress. These studies evaluate the effects of educational strategies already used in many U.S. schools and classrooms. Although the evaluations are conducted in a specific state or region, the results are helping to build a more expansive body of evidence on what works and does not work in various educational settings.

Both to support NCEE's own evaluation work and to strengthen the quality and relevance of education research, NCEE continues to support work to improve the availability and application of research methods. To this end, NCEE has published 11 methods reports on topics ranging from the value of investing in pretest measures to the validity and reliability of outcome measures. It also has developed and is now piloting standards for judging the causal validity of evidence from single-case design and regression discontinuity design studies, with the intention of applying these standards in evidence reviews conducted by the *What Works Clearinghouse (WWC)*.

NCEE has three major initiatives that are actively supporting more and better use of evidence to guide education policy and practice. The core of these is the National Library of Education (NLE) and the Education Resources Information Center (ERIC), which together are a portal for accessing most research in education that is widely accessible free of charge. The NLE and ERIC also serve as important vehicles for disseminating the evaluation and research methods work supported by NCEE.⁸ However, both the *WWC* and the Regional Educational Laboratories also have become major vehicles for disseminating and promoting effective use of evidence.

⁸ In 2010, ERIC was searched more than 13 million times per month through Internet search engines, the public website at www.eric.ed.gov, and commercial database vendors. Articles in the ERIC digital library are seen by individuals searching for education-related materials through Google, EBSCO, ProQuest, and various state and local education networks that provide access to ERIC.

EVALUATIONS OF PROGRAMS, POLICIES, AND PRACTICES

All NCEE evaluation reports may be accessed through the NCEE website (<http://ies.ed.gov/ncee>). The following are highlights of the findings from three evaluations released during the period covered by this report—a study of supplemental literacy courses for struggling ninth-graders, a study of middle school mathematics professional development, and a study of mandatory random drug testing—each of which involved a large-scale, randomized controlled trial:

The evaluation of **Enhanced Reading Opportunities (ERO)** examined two supplemental literacy programs—Reading Apprenticeship Academic Literacy and Xtreme Reading—targeted to ninth grade students whose reading skills were at least two years below grade level. Over two years, about 6,000 eligible students in 34 high schools from 10 districts were randomly assigned to enroll in the year-long ERO class or remain in a regularly scheduled elective class (non-ERO group). The study found that taken together, the ERO supplemental literacy programs improved students’ reading comprehension skills during the ninth grade, and had a positive impact on students’ academic performance in core subject areas, although 77 percent of students assigned to the ERO class were still reading two or more years behind grade level at the end of the ninth grade.

The evaluation of **Middle School Mathematics Professional Development** examined the impact of the first year of intensive mathematics professional development (PD) on teachers’ knowledge and teaching skills for seventh grade mathematics in rational numbers topics such as fractions, decimals, percentages, ratios, and proportions. Experts believe that professional development for teachers, particularly in STEM (science, technology, engineering, and mathematics) areas, is an important strategy to improve schools through increasing teachers’ knowledge and skills. However, there is limited evidence about effective professional development activities. In its first year, this study randomly assigned 77 schools in 12 districts to either receive intensive PD activities or to receive only the PD activities normally provided by the district. In six of the districts, teachers in the intensive PD condition received training from Pearson Achievement Solutions, and in the

other districts, teachers in the intensive PD condition received training from America’s Choice. The intensive PD intervention was implemented as planned across both study years, but there was high turnover in the initial year of the study. There was no evidence that the intensive PD resulted in improved teacher knowledge or led to improved student achievement on rational numbers topics.

The evaluation of **Mandatory Random Drug Testing** assessed the effectiveness of a policy of random drug testing of students as a condition for participation in athletic or other school-sponsored, competitive, extracurricular activities. Using a study sample of students in schools that were randomly assigned to the random drug testing policy or a control (business-as-usual) condition, the study found that, over the course of a single year, students involved in those activities and subject to in-school drug testing reported less substance use than comparable students in the control high schools. However, there were no statistically significant differences in reported intentions to use drugs in the future and no “spillover effects” on students who were not subject to drug testing (e.g., through peer effects). There also were no impacts on student participation in activities subject to drug testing.

In the last two years, NCEE also initiated three evaluations specifically aimed at learning from the experiences of the education-related initiatives supported under the American Recovery and Reinvestment Act (ARRA). ARRA provided an unprecedented \$100 billion of funding for the U.S. Department of Education. While the initial goal of this money was to deliver emergency education funding, ARRA is also being used as an opportunity to spur innovation and reform at different levels of the education system. In turn, ARRA provides a unique opportunity to foster school improvements and to learn from reform efforts. Although funds are being disbursed through different grant programs, their goals and strategies are complementary, if not overlapping, as are likely recipients. One study will use data on a nationally representative sample of districts and schools to learn from the experiences of the ARRA education initiatives as a whole, examining the following questions: (1) To what extent did ARRA funds go to the intended recipients?; (2) Is ARRA associated with the implementation of the key reform strategies it promoted?

What did implementation look like over time?; (3) Which implementation supports (e.g., state assistance to districts and schools) and challenges (e.g., community opposition) were associated with ARRA?; and (4) Was ARRA associated with improved outcomes?

A second study will focus on lessons from the Race to the Top (RTT) and School Improvement Grant (SIG) programs. RTT is an ED-sponsored initiative that committed \$4 billion of ARRA funds, specifically to support comprehensive K–12 education reform in four areas: teachers and leaders, standards and assessments, data systems, and school turnaround. SIG programs are authorized and funded through Title I of the Elementary and Secondary Education Act, with a supplement through ARRA, for a total of \$3.5 billion. NCEE is conducting a coordinated evaluation of the RTT and SIG programs that will address the following four questions: (1) How well are RTT and SIG implemented at the state, district, and school levels with respect to standards and assessments, data systems, teachers and leaders, school turnaround models including charter schools, and overall state capacity?; (2) Does receipt of SIG and RTT funding to implement school turnaround models (i.e., turnaround, restart, school closure, and transformation models) have an impact on outcomes for low-performing schools?; (3) Are state and district capacity, as defined under RTT, related to improvement in outcomes for schools?; and (4) Is implementation of the four school turnaround models, and strategies within those models, related to improvement in outcomes for low-performing schools? In so far as at least some aspects of the RTT requirements may extend over a number of years, this five-year study may address only the early implementation years.

A third study is examining the effects of the changes in teacher compensation policy supported under the Teacher Incentive Fund (TIF) Program, which is authorized in P.L. 109-149—the Departments of Labor, Health and Human Services, and Education, and Related Agencies Appropriations Act, 2006, Title V, Part D. An expansion in TIF funding through ARRA in FY 2010 presented an opportunity to learn about the effectiveness of the program. Performance pay policies are a growing strategy of interest to address concerns about the overall quality of the teacher workforce and its distribution across schools.

This evaluation will compare outcomes for schools that were randomly assigned to the TIF-supported performance-based compensation policy, which is designed to incentivize teachers to teach in low-performing schools with high-need students, or to an across-the-board one percent bonus. The specific evaluation questions include the following: (1) What is the effect on student achievement of a performance-based bonus compared to an across-the-board one percent annual bonus?; (2) Are there differences in the composition and effectiveness of teachers and principals between these two methods of paying teachers and principals? Are there any differential effects on recruitment and retention of teachers and principals?; (3) Is a particular type of performance-based bonus model—for example, school- or individual-based or mixed programs—associated with greater gains in student achievement? Are other key program features correlated with student and educator outcomes?; and (4) What are the experiences and challenges of districts when implementing these programs?

REL EVALUATIONS OF EDUCATIONAL INTERVENTIONS

The Regional Educational Laboratory (REL) program released three evaluation reports in FY 2009 and 2010. All of these reports are available on the NCEE website (<http://ies.ed.gov/ncee/edlabs/projects/index.asp>).

The first study was a randomized controlled trial conducted by REL West. The study examined the effects of a problem-based high school curriculum on students' proficiency in economics in two Western states. Specifically, the authors examined if the curriculum changed students' and teachers' content knowledge and problem-solving skills in economics. The study also examined whether the curriculum had an impact on the satisfaction with teaching materials and methods. The study found a significant positive impact on increasing content knowledge and problem-solving skills of students whose teachers received professional development and support in problem-based economics compared with their peers.

The second study was also released by REL West and contributed to the body of knowledge informing assessment practices and accommodations appropriate for English language learner students. The study examined students' performance on two sets of math items—both the originally

worded items and those that had been modified. Researchers analyzed results from three subgroups of students—English learners, non-English language arts proficient, and English language arts proficient students. The study found that linguistically modifying the language of mathematics test items did not change the math knowledge being assessed. Additionally, the effect of linguistic modification on students' math performance varied between the three student subgroups. The results also varied depending on how scores were calculated for each student. When scores were constructed based on the one model, there was a significant difference in how English learners and English-proficient students scored on the original and language-modified items. This small but significant effect was not detected in the analyses based on raw scores or other models. Finally, in each of the models used, the effect of linguistic modification was greatest for English learners, followed by non-English language arts proficient and English language arts proficient students.

The final study was released by REL Mid-Atlantic and was the first randomized controlled trial to assess the impact of Odyssey Math, a web-based K–8 mathematics curriculum and assessment tool, on student achievement. The study was designed so that researchers would be able to detect effects if they existed. The results indicate that Odyssey Math did not yield a statistically significant impact on end-of-year student achievement. While this study generated a statistically unbiased estimate of the effect of Odyssey Math on student achievement when implemented in typical school settings with typical teacher and student use, the findings apply only to participating schools, teachers, and students because the study used a volunteer sample.

RESEARCH METHODS AND ANALYTIC SUPPORT

NCEE works to advance the methodological rigor of education research and evaluations in three primary ways: (1) by supporting methods development work, (2) by supporting the development and dissemination of evaluation and evidence standards, and (3) by providing technical and analytic support to grantees and other constituents to build and enhance capacity to conduct rigorous evaluations. The first of these is illustrated by the Center's commissioning research on technical methods, which are made available to the public on the IES website. During FY 2009 and

FY 2010, NCEE released eight methods reports: one on error rates for measuring teacher and school performance using value-added models, one on outcomes measurements on character education programs, another on using state tests in education experiments, a fourth on missing data in group randomized controlled trials, a fifth on the statistical power needed to link impacts to teacher practice and student achievement outcomes, a sixth on the average treatment effects for clustered randomized controlled trials, a seventh on complier average causal effect parameters, and a final report on problems with late pretests in randomized controlled trials.

One example of the Center's role in the development and dissemination of standards is the release in June 2010 of standards for assessing the causal validity of studies using single-case designs and regression discontinuity designs. Another example is the work of the RELs that seeks to build capacity among the policy and practitioner communities to make smart use of evidence through what are called Bridge Events. These typically are day-long workshops on a particular issue that feature discussions of the evidence base and what it means for policy and practice.

NCEE also contributes in multiple ways to building evaluation capacity. One example is the technical and analytic support to the independent evaluators of recipients of the Investing in Innovation (i3) competition sponsored by ED. In 2010, the i3 Fund provided \$650 million to support entities with a record of improving student achievement in order to expand the implementation of, and investment in, evidence-based practices, strategies, and programs to significantly improve student achievement or student growth, as well as to help close achievement gaps, decrease dropout rates, increase high school graduation rates, and increase college enrollment and completion rates.

Grantees receiving funds under this program are required to conduct an independent evaluation of their project and must agree, along with its independent evaluator, to cooperate with evaluation technical assistance provided by the Department and its contractor. This evaluation project entails providing both regular, proactive technical assistance facilitated by a one-on-one relationship with a technical assistance provider and on-demand access to the technical assistance team for help with evaluator-identified issues, with the aim of maximizing the likelihood that evaluations

of the i3 programs will meet *WWC* evidence standards. Other examples include the extensive training in *WWC* review standards and procedures that NCEE has conducted, including training for IES predoctoral and postdoctoral fellows, contractors, and peer reviewers, and the research technical assistance the RELs provide to their constituents.

DISSEMINATION AND TRANSLATION SUPPORT

Important developments within NCEE with respect to dissemination of research and evaluation findings and translation of this work to better meet the needs of policymakers and practitioners center on activity within the *WWC* and the RELs. The *WWC* supports more and better use of evidence in two ways: through its reviews of evidence and through practice guides. The *WWC* now includes evidence reviews on 97 interventions across 10 topic areas, 55 quick reviews, and 14 practice guides. In the last year alone, the *WWC* released about 79 total reviews, which includes 49 intervention reports, 28 quick reviews, and two practice guides. The reviews cover topics ranging from interventions targeted at improving outcomes for students with disabilities to those aimed at preventing students from dropping out of school. These reviews, as well as a number of reviews of individual studies on high-profile initiatives or issues, are available through the *WWC* website, which is currently being modified to include a “Find What Works” tool to aid quick, easy answers to user-supplied questions about the evidence.

The other avenue through which the *WWC* supports more and better use of evidence is through its practice guides. The 14 guides now available offer guidance to practitioners based on the best available evidence on how to achieve particular goals, such as improving instruction in fractions or improving reading comprehension for students in the early primary grades.

A primary mission of the REL Program is to expand the capacity of states, local educational agencies, and schools to systematically use data and analysis to address pertinent issues of policy and practice. To this end, the RELs released 24 Issues and Answers briefs and nine technical briefs designed to respond to pressing issues or questions from policymakers and practitioners with new data analyses and results.

NCEE also established priorities for the new REL contracts, beginning in 2012, that emphasize helping states, districts, and schools in their regions use their data systems effectively; conducting and supporting high-quality research and evaluation on issues of importance to the region; and helping education policymakers and practitioners incorporate data-based inquiry practices into regular decision making.

NATIONAL CENTER FOR SPECIAL EDUCATION RESEARCH (NCSER)

Since its first research grant competition in FY 2006, the National Center for Special Education Research (NCSER) has awarded 200 research and research training grants. The funded projects cover a broad range of research studies that focus on infants, toddlers, and students from preschool to grade 12 with or at risk for disabilities, including visual and hearing impairments, autism spectrum disorders, intellectual disabilities, behavioral disorders, and learning disabilities. NCSER is beginning to build substantial research portfolios in its research programs on Early Intervention and Early Learning in Special Education; Reading, Writing, and Language Development; and Social and Behavioral Outcomes to Support Learning. For instance, NCSER has invested over \$72 million in research to improve outcomes for infants, toddlers, and young children with or at risk for developing disabilities. With over 30 individual grants and one research and development center, these projects cover a wide range of topics, including early literacy, the development of mathematical skills, and socio-emotional development—all of which are aimed at improving developmental outcomes and school readiness. Children targeted in this research include those with or at risk for high and low incidence disabilities.

With 31 grants and one research and development center totaling over \$82 million, NCSER has made a considerable investment in research to improve social and behavioral outcomes for students with or at risk for developing disabilities. NCSER researchers have found that early intervention programs can improve students' behavior in the classroom, their social skills, and academic engaged time.⁹ NCSER is also advancing the behavioral assessment field through grants that support the development of measures for screening and progress monitoring for behavioral or emotional problems.¹⁰

NCSER is also investing nearly \$85 million in over 40 grants to improve language and literacy outcomes for elementary and secondary school students with or at risk for developing disabilities. This research includes exploring basic measurement issues surrounding universal screening

procedures in early elementary school to accurately and efficiently identify students most at risk for reading disabilities. NCSER is also investing in the development and evaluation of intensive reading interventions focusing on both decoding and comprehension for improving reading and other academic outcomes for secondary students with disabilities.

MAKING PROGRESS IN SPECIAL EDUCATION

Some of the earliest funded researchers have completed the development and/or evaluation of their interventions or assessments. The projects described below provide examples of how the work funded through NCSER has the potential to transform instruction that is provided to students with disabilities and improve important academic, developmental, and life outcomes.

⁹ Walker, H., Seeley, J., Small, J., Golly, A., Severson, H., & Feil, E. (2008). The First Step to Success Program for Preventing Antisocial Behavior in Young Children: Update on Past, Current, and Planned Research. *Report on Emotional & Behavioral Disorders in Youth*, 17–23.

¹⁰ Chafouleas, S.M., Riley-Tillman, T.C., & Christ, T.J. (2009). Direct Behavior Rating (DBR): An emerging method for assessing social behavior within a tiered intervention system. *Assessment for Effective Intervention*, 34, 195–200.

Reading Instruction for Students with Intellectual Disabilities

Traditionally, if students with intellectual disabilities received any literacy instruction, it was limited to teaching specific sight words deemed important for daily living. A common attitude was that such students did not have the basic capacities to learn to read. Researchers at Southern Methodist University have found that with a comprehensive early literacy intervention over three years, students with mild intellectual disabilities can develop basic word recognition skills (e.g., phonemic awareness and alphabetic decoding) and their improvements on vocabulary and word recognition surpass those of control students receiving traditional special education services.¹¹

A team of researchers at the University of North Carolina-Charlotte took on the challenge of developing an instructional approach for teaching reading to students with moderate to severe intellectual disabilities. In a small random assignment study, they found that relative to control students, elementary students with intelligence quotient scores of 55 or less who received their comprehensive reading curriculum made significantly greater gains in phonological awareness, standardized measures of vocabulary, and two researcher-developed measures of early literacy. A key finding is that students with moderate to severe intellectual disabilities can acquire phonological awareness and phonics skills, which are strong predictors of learning to read.¹² These studies are critical first steps toward increasing educational and post-school opportunities for students with intellectual disabilities.

The Value of Special Education Teacher Training

Although a number of studies have examined the relations between teacher preparation and student outcomes for typically developing students, very little research has examined the relation between teacher preparation and outcomes for students with disabilities. One important question addressed by NCSEF-funded researchers at Florida State University is whether special education pre-service or in-service training is associated with better outcomes for students with disabilities. According to the analysis using Florida's K-20 Education Data Warehouse, participation in in-service professional development on special education issues does not appear to improve outcomes for students with disabilities.¹³ Of note, however, is that pre-service training does seem to make a difference; students with disabilities in general education classes who have teachers who were certified in special education do better in math and reading compared to students with disabilities whose teachers were not certified in special education.

Identification of Children with Learning Difficulties in Mathematics

Using Early Childhood Longitudinal Study-Kindergarten Cohort (ECLS-K) data, Morgan, Farkas, and Wu mapped out the learning trajectories of four groups of children: (1) those who did not exhibit mathematics difficulties in the fall or spring of kindergarten,¹⁴ (2) those with mathematics difficulties in the fall of kindergarten but not the spring, (3) those with mathematics difficulties in the spring but not the fall of kindergarten, and (4) those with mathematics difficulties in both the fall and spring of kindergarten.¹⁵ Although students with mathematics difficulties at any time during kindergarten do show growth in math performance

¹¹ Allor, J., Mathes, P., Roberts, K., Jones, F., & Champlin, T. (2010). Teaching students with moderate intellectual disabilities to read: An experimental examination of a comprehensive reading intervention. *Education and Training in Developmental Disabilities, 45*(1), 3-22; Allor, J.H., Mathes, P.G., Roberts, J.K., Cheatham, J.P. & Champlin, T.M. (2010). Comprehensive reading instruction for students with intellectual disabilities: Findings from the first three years of a longitudinal study. *Psychology in the Schools, 47*(5), 445-466.

¹² Browder, D.M., Ahlgrim-Dezell, L., Courtade, G., Gibbs, S.L. & Flowers, C. (2008). Evaluation of the effectiveness of an early literacy program for students with significant developmental disabilities. *Exceptional Children, 75*(1), 33-52.

¹³ Feng, L., & Sass, T.R. (March 2009). *Special education teacher quality and student achievement*. Presented at American Education Finance Association meetings.

¹⁴ Children exhibiting mathematics difficulties were defined as those scoring in the bottom 10% on a standardized mathematics assessment.

¹⁵ Morgan, P.L., Farkas, G., & Wu, Q. (2009). Five-year growth trajectories of kindergarten children with learning difficulties in mathematics. *Journal of Learning Disabilities, 42*(4), 306-321.

through the elementary school years, their math scores throughout elementary school remain substantially below their peers who never had math difficulty in kindergarten. The growth trajectories of the four groups provide insight into the magnitude and severity of mathematics learning difficulties and suggest that early identification and more intensive intervention than what is typically provided by schools is needed if these students are to become proficient in mathematics.

Instruction for Students Who are Deaf or Hard of Hearing

Students who are deaf or hard of hearing are at serious risk for academic difficulties. A team of NCSER-funded researchers at Georgia State University and colleagues developed an early literacy curriculum based on the premise that the research on effective literacy instruction for hearing children would apply to deaf or hard of hearing children so long as there were adaptations made to support their hearing loss. Their research suggests that children who are deaf or hard of hearing—even those who have delays in language—are able to learn the foundation for the alphabetic principle during prekindergarten.¹⁶ Another team of NCSER-funded researchers at the Georgia Tech Research Corporation is developing online programs that provide video delivery of signing on mobile phones to help teach hearing parents sign language to improve communication and language development with their children who are deaf or hard of hearing.

SPECIAL EDUCATION RESEARCH AND DEVELOPMENT (R&D) CENTERS

NCSER's special education R&D centers are intended to find solutions to intractable problems in special education. For example, high schools play a critical role in preparing students for postsecondary education and meaningful employment, yet high schools are not currently serving students with emotional and behavior disorders well. Students with emotional and behavior disorders drop out of school at a rate five times that of their peers without disabilities and have the highest dropout rate of all disability categories. Moreover, students with emotional and

behavior disorders are disproportionately represented in the juvenile justice system, rarely participate in postsecondary education, and often fail to find meaningful employment as adults. Thus, there is a critical and longstanding need for a coherent program of rigorous research to identify effective interventions, programs, and strategies that address the significant behavioral and academic needs of students with emotional and behavior disorders in secondary school settings. *The National R&D Center on Serious Behavior Disorders at the Secondary Level* continued its work on developing and evaluating a package of interventions designed to reduce the significant behavioral and academic challenges experienced by high school students with serious emotional and behavior disorders.

Reading development depends on language development and pre-literacy experiences prior to formal schooling. Children who have not had many language or early literacy experiences prior to kindergarten face significant challenges learning to read. These children often continue to experience poor reading skills throughout school. With continued failure, many of them may become eligible for special education which may involve services that are “too little too late” and are often very costly for children, their families, and education systems. Given the importance of reading, systems of prevention and intervention in early education settings are needed. *The Center for Response to Intervention in Early Childhood* continued to conduct a focused program of research to develop and evaluate intensive interventions for preschool language and early literacy skills and to develop and validate an assessment system linked to these interventions. 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.

In the last 10 years, there has been a substantial increase in knowledge on the cognitive underpinnings of learning difficulties in mathematics,^{17,18} but relatively little work has been done to capitalize on this research to develop innovative strategies for improving mathematics instruction for students who struggle to learn mathematics—in particular,

¹⁶ Bergeron, J.P., Lederberg, A.R., Easterbrooks, S.R., Miller, E.M., & Connor, C.M. (2009). Building the alphabetic principle in young children who are deaf and hard of hearing. *The Volta Review*, 109(2-3), 87-119.

¹⁷ Berch, D.B., & Mazzocco, M. M.M. (Eds.) (2007). *Why is Math So Hard for Some Children: The Nature and Origins of Mathematical Learning Difficulties and Disabilities*. Baltimore, MD: Paul H. Brookes.

¹⁸ Geary, D.C. (2004). Mathematics and learning disabilities. *Journal of Learning Disabilities*, 37(1), 4-15.

for students with or at risk for learning disabilities in mathematics. Through the *National Center on Improving Mathematics Instruction for Students with Mathematics Difficulties*, NCSER is working to increase understanding of the cognitive processes that underlie mathematics difficulties in order to identify new approaches for intervening and providing more effective instruction for students with learning difficulties. The Center aims to increase knowledge of how children acquire or fail to acquire an understanding of rational numbers (i.e., fractions) and how children with math difficulties can be taught to understand and operate fluently with rational numbers. This knowledge is foundational for higher level mathematical skills such as algebra. In 2010, this new Center began conducting exploratory research, including both experimental and longitudinal studies, to examine the cognitive processes that impede understanding and operating with fractions, such as working memory and inhibition. Findings from these studies will be used to inform the design of an intervention package intended to improve fraction skills in students with math difficulties.

BUILDING CAPACITY IN SPECIAL EDUCATION RESEARCH

Although there is little disagreement about the place for single-case experimental research in education—particularly in research with low incidence disability populations—there has been recent discussion as to whether researchers can and should use statistical analyses for this design to support evidence-based practice. Traditionally, researchers who utilized single-case designs have relied on visual analysis to establish an empirical basis for interventions and techniques intended to improve student outcomes. IES has funded methodological research projects to develop statistical methods for analyzing single-case experimental data and to study approaches for strengthening the design of single-case

experimental studies. In January 2010, NCSER convened a technical work group to provide an overview of the state of the field in the analysis of single-case designs, discuss the challenges that statistical analyses pose, discuss a range of approaches to these challenges that have been or are likely to be successful, and identify the necessary tools or resources that will be needed to overcome these challenges. Researchers discussed methods for improving the scientific credibility of single-case designs by incorporating various randomization schemes¹⁹ and by utilizing quantitative data analysis such as multilevel modeling approaches.²⁰ In addition to supporting research on methods to improve single-case experimental research, NCSER launched a summer research training institute on single-case experimental research. The inaugural summer institute will be held in June 2011.

NCSER's Postdoctoral Research Training Program in Special Education began awarding training grants in FY 2008, with eight grants awarded in the first three years of the program. Taken as a group, these grantees plan to train 30 fellows in special education research, including training in a range of high-quality research designs and advanced statistics. The postdoctoral training programs focus on a variety of topics, including social-emotional and behavioral disabilities, autism spectrum disorders, language and literacy, reading, math, cognitive processes, and measurement.

¹⁹ Kratochwill, T.R., & Levin, J.R. (in press). *Enhancing the scientific credibility of single-case intervention research: Randomization to the rescue*. *Psychological Methods*.

²⁰ Shadish, W. R., & Rindskopf, D. M. (2007). Methods for evidence-based practice: Quantitative synthesis of single-subject designs. *New Directions for Evaluation*, 113, 95-109.

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NATIONAL CENTER FOR EDUCATION RESEARCH (NCER)

NCER carries out education research activities primarily through grants.

Cognition and Student Learning

CARNEGIE MELLON UNIVERSITY

Principal Investigator: John Anderson

Amount: \$1,542,658

Period of Performance: 3/1/10–2/28/14

Description: *A Theory-Driven Search for the Optimal Conditions of Instructional Guidance in Algebra Tutor.* The purpose of this research is to use efficient and thorough methods to better understand the cognitive processes occurring in individual students as they work algebra problems in the context of the Carnegie Learning Algebra Tutor software. The researchers will use computer-generated, simulated students to find the optimal conditions of instructional guidance, such as how much direct instruction or guided discovery learning and feedback is needed for optimal learning to occur. The simulated students will interact with computer-based tutoring systems to predict the learning outcomes of various instructional conditions. The outcome of this exploration study will position the researchers to develop and test an intervention in the future on the basis of the predictions of the synthetic student model.

UNIVERSITY OF COLORADO, DENVER

Principal Investigator: Maria Ruiz-Primo

Amount: \$1,453,958

Period of Performance: 7/1/10–6/30/14

Description: *Developing and Evaluating Measures of Formative Assessment Practices.* There is a substantial and growing body of evidence of a significant impact on student learning when teachers and students use assessment results formatively to shape instruction. Most of the research on formative assessment focuses on its effects on student learning rather than on how good formative assessments are constructed and utilized. This project focuses on the development and

technical evaluation of instruments to measure the quality of formative assessment practices in place in middle-school science classrooms.

UNIVERSITY OF GEORGIA RESEARCH FOUNDATION, INC.

Principal Investigator: Scott Ardoin

Amount: \$1,513,518

Period of Performance: 08/01/10–07/31/14

Description: *Exploring Reading Fluency and Its Underlying Behavior.* Extensive evidence exists demonstrating the benefit of repeated reading for increasing the oral reading rates of elementary students. As a result of the research base and an increased interest in promoting students' reading rate with accuracy, schools are increasingly using repeated reading instructional procedures as a means of increasing students' reading fluency. The purpose of this study is to explore the relationship between malleable instructional practices aimed at improving fluency, changes in fluency, and changes in underlying reading behavior (e.g., reading for meaning) as measured through eye-tracking.

UNIVERSITY OF PITTSBURGH

Principal Investigator: Sandra Katz

Amount: \$1,318,110

Period of Performance: 6/1/10–5/31/13

Description: *Improving a Natural-Language Tutoring System that Engages Students in Deep Reasoning Dialogues about Physics.* Recent studies show that U.S. students lag behind students in other developed countries in math and science. Because one-on-one tutoring has been shown to be a highly effective form of instruction, many educators and education

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policymakers have looked to intelligent tutoring systems (ITSs) as a means of providing cost-effective, individualized instruction to students that can improve their conceptual understanding and problem-solving skills in math and science. However, even though many ITSs have been shown to be effective, they are still not as effective as human tutors. The goal of this project is to build an enhanced version of a natural-language dialogue system that engages students in deep reasoning and reflective dialogues after they solve quantitative problems in Andes, an intelligent web-based tutoring system for physics.

TEMPLE UNIVERSITY OF THE COMMONWEALTH SYSTEM OF HIGHER EDUCATION

Principal Investigator: Julie Booth

Amount: \$1,044,326

Period of Performance: 7/1/10–6/30/13

Description: *Improving Students' Skill at Solving Equations Through Better Encoding of Algebraic Concepts*. Students and teachers have considerable trouble overcoming misconceptions in algebra. These misconceptions, if not addressed, will have long-term negative consequences for students' mathematics achievement. There is a growing body of research showing that students benefit from instruction that includes incorrect examples. The proposed study will develop a computer program designed to overcome misconceptions through the use of incorrect examples, which will be compared to the use of correct examples.

UNIVERSITY OF CALIFORNIA, SAN DIEGO

Principal Investigator: Garrison Cottrell

Amount: \$2,372,289

Period of Performance: 3/1/10–2/28/14

Description: *Interactions Between Visual and Auditory Interventions for Reading*. The problems in reading are pervasive and deficiencies in auditory and visual timing impair reading ability. Given the large number of students who have reading problems, including those with dyslexia, efforts to create interventions to reduce these problems can have substantial benefits on the education system. In this project, the researchers will use a randomized controlled trial to evaluate two interventions for dyslexia: FastForWord, which targets the temporal dynamics of the auditory pathway to improve speech perception, and hence

phonological representations; and Path to Reading, which targets the temporal dynamics of the visual pathway to improve visual perception. The researchers' main interest is whether the two programs, which attempt to improve temporal processing in completely separate modalities, can be combined into one two-pronged intervention that results in even greater benefit. Secondary purposes include further validating FastForWord and Path to Reading using a Response to Intervention (RTI) approach, and trying to determine what subsets of students would benefit most from training with FastForWord alone, Path to Reading alone, or a combination of the two.

CARNEGIE MELLON UNIVERSITY

Principal Investigator: David Klahr

Amount: \$1,502,231

Period of Performance: 8/1/10–7/31/13

Description: *Promoting Transfer of the Control of Variables Strategy in Elementary and Middle School Children via Contextual Framing and Abstraction*. Students from third to seventh grade have a surprisingly poor understanding of the basic procedural and conceptual aspects of experimental design (simply labeled here as "CVS," for the Control of Variables Strategy). Although students' understanding of CVS does improve as a result of direct instruction, students' performance is typically low, even when a repeated tutoring cycle of instruction is used. The purpose of this project is to determine which elements are critical to support the teaching and learning of CVS. Throughout the proposed studies, the researchers will use direct instruction coupled with student-constructed responses, but plan to vary the framing and context in which instruction and assessment occur. All instruction will be delivered by variants of a computer tutor ("TED1" for "Training in Experimental Design") developed and evaluated under the researchers' previous 2006 Cognition and Student Learning grant.

NEW YORK UNIVERSITY

Principal Investigator: Clancy Blair

Amount: \$3,521,227

Period of Performance: 5/1/10–4/30/14

Description: *Tools of the Mind: Promoting Self-Regulation and Academic Ability in Kindergarten*. Appreciable numbers of children are entering school without the necessary

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self-regulation needed to support learning and academic achievement in the early grades of schooling. The purpose of this project is to experimentally evaluate the efficacy of an early childhood curriculum, Tools of the Mind, in improving the self-regulation abilities, academic achievement, and social-emotional development of young children. The team seeks to determine if improvements in academic achievement can be accounted for (or mediated by) changes in students' executive functions, self-regulation, and social-emotional development. Unlike other self-regulation development programs, Tools of the Mind integrates activities intended to promote self-regulation with instructional activities intended to develop skills in literacy, mathematics, and social competence.

TUFTS MEDICAL CENTER

Principal Investigator: Naomi Steiner

Amount: \$2,088,256

Period of Performance: 3/1/09–2/28/13

Description: *An Efficacy Study of Two Computer-Based Attention Training Systems in Schools.* Clinically significant attention problems in children can present a considerable obstacle to learning in school. Because of concerns over medication, many parents and school systems are increasingly turning to alternative forms of treatment for attention deficit hyperactivity disorder (ADHD), including computer-based attention training systems. The aim of this project is to evaluate the efficacy of two computer-based attention training systems in schools. One program uses EEG biofeedback to train children with ADHD to focus on a task, and the other uses a standard computer format for cognitive retraining.

NEW YORK UNIVERSITY

Principal Investigator: Joshua Aronson

Amount: \$1,358,111

Period of Performance: 6/1/09–5/31/12

Description: *Creating Scalable Interventions for Enhancing Student Learning and Performance.* Intensive interventions that lead students to adopt the “theory of intelligence” that people get smarter in response to intellectual effort produce large improvements in student learning, engagement, test scores, and grades. Yet scalable versions of the interventions are needed that any teacher can employ, and the process of

how the interventions work needs to be better understood. This project will develop and refine two unique intervention narrative approaches for eighth and ninth grade students: engaging fiction and interactive media. Past research suggests that these will be powerful and convenient means of shaping or modifying student attitudes about their intelligence, and students will find them engaging and enjoyable means of learning. Both approaches will leverage research findings from the science of neuroplasticity that will be woven into the narratives.

GEORGE MASON UNIVERSITY

Principal Investigator: Robert Pasnak

Amount: \$1,577,827

Period of Performance: 7/1/09–6/30/12

Description: *Focusing on the Efficacy of Teaching Advanced Forms of Patterning on First Graders' Improvements in Reading, Mathematics, and Reasoning Ability.* “Patterning” is the ability to recognize an ordering of numbers, letters, shapes, symbols, objects, or events according to some rule of progression. Understanding the place of an item in a pattern depends on understanding how it is related to items just preceding or following it. By first grade, children are expected to be developing the ability to understand patterns involving orientation or rotation, temporal and causal patterns of activities or events, and repetitive arbitrary patterns of colors or shapes (for example, red, blue, green, red, blue, green). This project builds on two previous IES projects carried out with preschool and kindergarten children, and is designed to test the efficacy of a fully developed patterning intervention on first-grade children's reading, mathematics, and reasoning performance. Findings from these earlier studies indicate that helping children develop the age-appropriate abstract thinking involved in recognizing patterns produces significant academic progress in numeracy and knowledge of letter sounds when implemented with kindergarten children. However, the level of patterning practice that was needed to produce such progress is much higher than what is currently seen in typical instruction.

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UNIVERSITY OF OREGON

Principal Investigator: Helen Neville

Amount: \$1,980,305

Period of Performance: 7/1/07–6/30/11

Description: *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.

Early Learning Programs and Policies

UNIVERSITY OF VIRGINIA

Principal Investigator: Bridget Hamre

Amount: \$1,475,574

Period of Performance: 6/1/10–5/31/13

Description: *Development of an Online Course to Improve Teachers' Use of Effective Teacher-Child Interactions During Delivery of Early Literacy and Language Instruction.* Research has shown that the quality of preschool teachers' interactions with their students contributes to children's school readiness. Teacher professional development interventions that support teachers' use of effective instructional practices may be one way to promote children's development of pre-academic skills that are related to later school success. Few studies have systematically tested the effects of coursework on teacher-child interactions or child outcomes. The purpose of this study is to develop and document the feasibility of an online course designed to build teachers' content knowledge about and use of effective teacher-child interactions, particularly those interactions known to support early literacy and language development.

need for the development, implementation, and evaluation of preschool science curricula that will promote young children's understanding of basic science concepts. The purpose of this project is to conduct an efficacy study of a comprehensive early childhood science curriculum and professional development program.

UNIVERSITY OF MIAMI

Principal Investigator: Rebecca Shearer

Amount: \$1,424,795

Period of Performance: 7/1/10–6/30/14

Description: *Extending the Cultural and Linguistic Validity of the Adjustment Scales for Preschool Intervention (ASPI) for Low-Income, Latino Children.* Latino children, many of whom are Spanish-speaking English language learners, are a growing segment of the preschool population. It is important for preschool educators and researchers to have access to valid and reliable measures of the school readiness skills of Latino preschool children. This includes measures of academic skills and assessments of emotional and behavioral adjustment. Although there are some available measures of children's early academic skills, few reliable and valid assessments of emotional and behavioral adjustment are available for use with low-income Latino preschoolers. The purpose of this study is to adapt the English version and develop a Spanish version of the ASPI for use with diverse bilingual Spanish-speaking populations. The ASPI is a teacher report measure of children's emotional and behavioral (e.g., aggression, inattention/hyperactivity, withdrawn/low energy) adjustment in the preschool classroom.

MIAMI MUSEUM OF SCIENCE

Principal Investigator: Judy Brown

Amount: \$2,999,904

Period of Performance: 7/1/10–6/30/14

Description: *ECHOS: Early Childhood Hands on Science.* In recent years, early childhood education has emphasized children's school readiness in the domains of language, literacy, and mathematics. To date, there has been limited systematic focus on science education in preschool. There is a

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STANFORD UNIVERSITY

Principal Investigator: Susanna Loeb

Amount: \$607,864

Period of Performance: 7/1/10–6/30/12

Description: *The Availability of Early Childhood Education and Care in the United States: Exploring Links Between Policy, Availability, and Effects, 1990–2005.* The purpose of this study is to examine the availability of early childhood education and care, explore the extent to which policies and regulations impact supply, and examine the link between supply and child outcomes. This study will explore childcare regulations across all types of early childhood education and care settings including family daycare homes, private childcare, Head Start, and state-funded preschool programs. The research team will address the policy and practice implications of the study findings.

OREGON STATE UNIVERSITY

Principal Investigator: Megan McClelland

Amount: \$1,600,004

Period of Performance: 7/1/10–6/30/14

Description: *Touch Your Toes! Developing a New Measure of Behavioral Regulation.* Children's social skills at the beginning of kindergarten are related to their academic achievement and the quality of their peer relationships. Educators need tools to help identify potential problems and support children's behavior during the early school years. There are few direct assessments of young children's social and emotional skills available for researchers and practitioners to use. The goal of this project is to develop a reliable and valid screening measure of children's behavioral regulation skills that can be easily administered in school-based settings and is predictive of children's school outcomes.

EDUCATION DEVELOPMENT CENTER, INC.

Principal Investigator: Nancy Clark-Chiarelli

Amount: \$2,999,841

Period of Performance: 3/1/09–2/28/13

Description: *Assessing the Efficacy of a Comprehensive Intervention in Physical Science on Head Start Teachers and Children.* The purpose of this project is to test the efficacy of the Foundations of Science Literacy (FSL) intervention, a professional development program that was developed for use with Head Start teachers. By focusing on the Head

Start community, FSL directly addresses the achievement gap in early science education by providing a framework for teachers to learn and implement preschool science instructional practices in classrooms serving children from low-income backgrounds. This study will examine the impact of the FSL professional development program on teachers' attitudes toward and knowledge of physical science content, teachers' classroom instructional practices, and children's understanding of physical science content.

FLORIDA STATE UNIVERSITY

Principal Investigator: Christopher Lonigan

Amount: \$1,773,387

Period of Performance: 4/1/09–3/31/13

Description: *Development of a Comprehensive Assessment System for Spanish-Speaking English Language Learner's Early Literacy Skills.* In the United States, Spanish-speaking children both constitute the largest English language learner (ELL) subgroup and are the fastest growing school-age population. Findings from the National Assessment of Educational Progress (NAEP 2007) suggest that English language learners are at risk for academic failure throughout their school experience. One impediment to improving instruction for ELL students is the lack of validated measures for use with Spanish-speaking ELL preschoolers. The purpose of this study is to develop and validate both a comprehensive assessment instrument and a screening measure for Spanish-speaking ELL preschool children's early literacy skills for use by early childhood educators and other professionals.

VANDERBILT UNIVERSITY

Principal Investigator: Dale Farran

Amount: \$3,413,233

Period of Performance: 7/1/09–6/30/13

Description: *Experimental Validation of the Tools of the Mind Prekindergarten Curriculum.* The purpose of this efficacy study is to conduct an experimental evaluation of the Tools of the Mind prekindergarten curriculum. This curriculum focuses on developing learning skills that enable children to engage in and benefit from all kinds of learning tasks and activities that occur in the classroom. The Tools of the Mind curriculum is intended to promote the basic academic and social skills that will prepare children for school success in kindergarten and beyond.

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UNIVERSITY OF TEXAS HEALTH SCIENCE CENTER AT HOUSTON

Principal Investigator: Susan H. Landry

Amount: \$2,653,503

Period of Performance: 3/1/09–2/28/13

Description: *Improving School Readiness of High Risk Preschoolers: Combining High Quality Instructional Strategies with Responsive Training for Teachers and Parent.* The purpose of this study is to determine if the combination of two proven interventions—one delivered in the classroom (The Early Education Model-TEEM) and one delivered in the home (Play & Learning Strategies-PALS—results in a synergistic versus additive effect on children’s school readiness skills (i.e., social, language, early literacy) and early kindergarten reading and social competence. This study bridges the gap between the school and home environments for prekindergarten children from low socioeconomic homes, an area that has received little attention. It is expected that the combined interventions will result in greater child self-regulation that will mediate, along with gains in teacher and parent behaviors, the impact of both interventions on children’s school readiness skills.

VANDERBILT UNIVERSITY

Principal Investigator: Mark W. Lipsey

Amount: \$1,503,059

Period of Performance: 4/1/09–3/31/13

Description: *Learning-Related Cognitive Self-Regulation School Readiness Measures for Preschool Children: Optimizing Predictive Validity for Achievement.* The purpose of this study is to construct and cross-validate a teacher rating measure and a parallel direct child assessment measure of learning-related cognitive self-regulation (LRCSR) for preschool children. LRCSR skills are conceptualized as cognitive skills that fall into five major categories: (1) attention focus and concentration (e.g., being able to pay attention to a teacher’s instruction and focus on an in-class assignment); (2) inhibitory control (e.g., being able to suppress inappropriate off-task responses to distractions in the classroom setting); (3) patience (e.g., being able to wait when you are asked to do so and not respond impulsively or prematurely); (4) attention shifting (e.g., being able to shift your focus within a given classroom assignment and from one task to another

as needed); and (5) organizing skills (e.g., being able to follow directions, engage in planning activities, and organize sequences of behavior to move from one activity to another). Such skills have emerged as an important facet of school readiness for preschool children.

UNIVERSITY OF MIAMI

Principal Investigator: Daryl Greenfield

Amount: \$1,570,265

Period of Performance: 7/1/09–6/30/13

Description: *Lens on Science: Development and Validation of a Computer-Administered, Adaptive, IRT-Based Science Assessment for Preschool Children.* Recent emphasis has been placed on science as a school readiness domain. However, an obstacle to conducting research and evaluation on early childhood science programs is the lack of appropriate, reliable, and valid direct assessments of children’s science knowledge and process skills. This measurement project will develop a computer adaptive test of science, Lens on Science, *primarily* for use with low-income preschool children.

PRESIDENT AND FELLOWS OF HARVARD COLLEGE, GRADUATE SCHOOL OF EDUCATION

Principal Investigator: Hirokazu Yoshikawa

Amount: \$1,126,997

Period of Performance: 3/1/09–2/28/11

Description: *Preparing to Succeed: An Efficacy Trial of Two Early Childhood Curricula.* Given the current interest in national and state initiatives to expand early childhood programming, identifying under what conditions educational impacts can be sustained, and for whom, are of great practical importance. The effects of a uniform curriculum across a large-scale program and how such impacts vary depending on the specific curricula utilized have not yet been studied. The proposed regression discontinuity study addresses this gap in the literature by examining the impacts of a year of exposure to two commonly used preschool curricula in a public prekindergarten program. The purpose of the study is to examine the impact of one year in a prekindergarten program on children’s literacy, mathematics, executive functioning, and socio-emotional outcomes.

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UNIVERSITY OF ILLINOIS AT CHICAGO

Principal Investigator: George Farkas

Amount: \$847,968

Period of Performance: 7/1/09–6/30/11

Description: *Preschool Program Impacts on School Readiness; Variation by Prior Child Language and Attention Skills, and the Quality of Infant/Toddler Care.* The purpose of the study is to learn whether the achievement gap separating children of low-income and higher income families can be substantially reduced by high-quality preschool care alone, or whether preschool participation must be combined with high-quality infant/toddler care to reduce the gap. This research project will examine whether the advantages of preschool for school readiness differ depending on children's initial language and attention skills, and whether infant care followed by preschool has a greater effect on the well-documented socioeconomic achievement gap than either process alone.

UNIVERSITY OF ILLINOIS AT CHICAGO

Principal Investigator: Rachel Gordon

Amount: \$602,792

Period of Performance: 5/16/09–5/15/11

Description: *Specific Aspects of Quality that Support Children's School Readiness in Community-Based and School-Based Early Childhood Programs.* This research study will examine the association between aspects of preschool quality and child health, behavioral and cognitive outcomes in community-based and school-based early care and education programs. The purpose of the study is to identify, construct, and examine measures of preschool quality that can be used to inform the development of specific preschool-based interventions and policies that support school readiness outcomes.

UNIVERSITY OF CALIFORNIA, BERKELEY

Principal Investigator: Anne Cunningham

Amount: \$1,339,403

Period of Performance: 7/1/09–6/30/12

Description: *Teacher Quality: The Role of Teacher Study Groups as a Model of Professional Development in Early Literacy for Preschool Teachers.* The purpose of this study is to develop a professional development intervention for preschool teachers

using the Teacher Study Group (TSG) approach as the basis for enhancing teacher knowledge, beliefs, and practices in the areas known to be most critical to children's early literacy success. At the end of this study, the research team will have prototypes of the following: (1) comprehensive curriculum guides that are designed to scaffold teachers' and literacy leaders' implementation of the TSG intervention, including the model and content guidelines, an expanded video library which can be used to demonstrate exemplary teaching practices, lesson planning materials, a reading library of materials, and suggestions for possible adaptations to the program; (2) a professional development manual; and (3) final versions of the measures that are needed for pre/post assessment of teachers' knowledge, beliefs, and practices.

UNIVERSITY OF MICHIGAN

Principal Investigator: Susan Neuman

Amount: \$1,511,155

Period of Performance: 3/1/09–2/28/12

Description: *The World of Words: An Embedded Multimedia Vocabulary Intervention for Economically Disadvantaged Pre-K Children.* The purpose of this project is to develop an intervention that teaches word meanings in categorically related concepts essential for reading comprehension and content learning. The intervention is designed to address the gap in vocabulary knowledge between children from economically disadvantaged backgrounds and their middle-class peers. The World of Words (WOW) intervention will be designed for use with high-risk preschoolers. The WOW curriculum is intended to increase vocabulary and conceptual knowledge, accelerate word learning, and develop early reading comprehension skills for children in prekindergarten. WOW uses an embedded multimedia (e.g., video, pictures, books) framework to "bootstrap" children's content learning and early literacy skills in vocabulary.

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Education Leadership

BOARD OF TRUSTEES OF THE LELAND STANFORD JUNIOR UNIVERSITY

Principal Investigator: Susanna Loeb

Amount: \$1,050,000

Period of Performance: 7/1/10–6/30/13

Description: *Assessing School Leaders' Development of Management Skills and Leadership: A Longitudinal Mixed-Methods Study.* This project will identify the specific attributes, skills, orientations, and behaviors of school leaders that are associated with positive school outcomes. The study describes differences in these principal management and leadership characteristics across schools and over time, focusing on malleable factors that can be taught, coached, and selected for in the identification of school leaders. In addition, the study seeks to describe career pathways that lead to the principalship, as well as the factors that influence educators' choices to pursue and remain in a school leadership position.

NORTHWESTERN UNIVERSITY

Principal Investigator: James Spillane

Amount: \$3,345,497

Period of Performance: 3/1/10–2/28/14

Description: *Learning Leadership: Kernel Routines for Instructional Improvement.* The purpose of the proposed research is to assess the efficacy of The Learning Walk routine as a strategy for developing school leaders. The Learning Walk routine, developed by the Institute for Learning at the University of Pittsburgh, is a form of “walkthrough” practice in which school leaders conduct brief classroom visits on a regular basis for the purpose of observing classroom instruction and providing feedback to teachers.

UNIVERSITY OF WISCONSIN

Principal Investigator: Richard Halverson

Amount: \$1,600,000

Period of Performance: 9/1/09–8/31/13

Description: *Developing and Validating the Next Generation of Leadership Evaluation Tools: Formative Assessment for High Stakes Accountability.* This project will develop and validate the Comprehensive Assessment of Leadership for Learning

(CALL), a rubric-based online formative assessment system that can be used by middle and high schools to self-evaluate and to guide the development of critical leadership practices. CALL provides an online rubric that will allow teams of school leaders and teachers to assess themselves in terms of core leadership tasks and to receive feedback that will scaffold efforts to improve local practices. The resulting reports can then be used as planning documents to help schools determine which tasks will be necessary to improve leadership for learning and to assign who will be responsible for conducting these tasks.

SYRACUSE UNIVERSITY

Principal Investigator: Benjamin Dotger

Amount: \$498,848

Period of Performance: 6/1/09–5/31/12

Description: *School Leader Communication Model.* This project aims to adapt the Standardized Parent Conferencing Model, an existing professional development intervention to train teachers in the use of interpersonal communication skills, for use with school leaders. The resulting new intervention, called the School Leader Communication Model, is intended to train principals and assistant principals to better communicate with teachers, students, and parents.

UNIVERSITY OF WISCONSIN

Principal Investigator: Eric Camburn

Amount: \$1,600,000

Period of Performance: 8/1/09–7/31/13

Description: *School Leadership for Student Achievement: A Survey and Quasi-Experimental Analysis of Leadership in Florida.* This project will estimate the effects of school leadership on student achievement in a large sample of schools in the state of Florida. This project will identify avenues through which school leadership influences student achievement, and will also provide data on mediating factors that influence the efficacy of leadership.

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TEXAS A&M UNIVERSITY

Principal Investigator: Roger Goddard

Amount: \$3,094,612

Period of Performance: 7/1/08–6/30/12

Description: *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 over 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 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.

VANDERBILT UNIVERSITY

Principal Investigator: Leonard Bickman

Amount: \$2,203,469

Period of Performance: 3/1/07–2/28/11

Description: *Improving Principal Leadership through Feedback and Coaching.* Principal leadership has been posited 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

MICHIGAN STATE UNIVERSITY

Principal Investigator: Gary Troia

Amount: \$1,632,437

Period of Performance: 8/15/10–8/15/14

Description: *Alignment Across K–12 Writing Standards, Assessments, Achievement, and Postsecondary Expectations: A State-by-State Analysis.* This project will analyze all 50 states’ writing content standards and large-scale assessments and aims to improve understanding of (1) the specificity and cognitive demands of their K–12 standards; (2) the extent to which those standards are aligned with state assessments; (3) the extent to which the content standards reflect evidence-based instructional practices and state writing assessments reflect research-informed assessment practices; (4) the degree of alignment between the state’s K–12 writing standards and assessments and postsecondary writing expectations; and (5) the relationship between the states’ standards and assessments and NAEP writing scores.

NATIONAL OPINION RESEARCH CENTER (NORC)

Principal Investigator: Jonathan Guryan

Amount: \$3,177,638

Period of Performance: 7/1/10–6/30/14

Description: *Preventing Truancy in Urban Schools Through Provision of School Services by Truancy Officers.* This project will evaluate interventions for truant ninth-graders involving services from truancy officers. Sixty Chicago Public Schools (CPS) high schools with high truancy rates will be randomly assigned to receive (1) the status quo truancy interventions that include parental notification and potentially a referral to outside social service agencies for assistance; (2) truancy officers who provide assessments, service referrals and monitoring to address the underlying factors that contribute to truancy; or (3) truancy officers providing the same services along with the threat of CPS disciplinary hearings for non-compliance.

APPENDIX – GRANT AND CONTRACT AWARDS

AMERICAN INSTITUTES FOR RESEARCH

Principal Investigator: Jay Chambers

Amount: \$1,660,938

Period of Performance: 7/1/10–6/30/13

Description: *Strategic School Funding for Results, Phase I.* The project will develop and refine a student needs-based budget process accompanied by an increased level of school autonomy in the use of those funds and an increased accountability for results. This work will be done in partnership with three urban school districts with the intention that they then implement the process with adjustments as needed.

TURNAROUND FOR CHILDREN, INC.

Principal Investigator: Joan Stamler

Amount: \$1,398,923

Period of Performance: 7/1/10–8/14/13

Description: *Turnaround Intervention for Transformation of High-Need Schools.* The project will refine a two-tiered school-level turnaround model for use in low-performing middle schools in high poverty areas. The strategy is based on the premise that disruptive destabilizing behavioral issues need to be addressed (in tier 1) before programs focused on training and classroom instruction can be introduced (in tier 2).

UNIVERSITY OF WISCONSIN

Principal Investigator: Carolyn Heinrich

Amount: \$2,996,753

Period of Performance: 7/1/09–6/30/13

Description: *A Multisite Evaluation of the Implementation and Impact of Supplemental Educational Services.* The project will evaluate the efficacy of supplemental education services provided to low-income students as required under the No Child Left Behind Act of 2001. As part of this work, the project will: (1) estimate the net impacts of supplemental education services on student achievement; (2) identify the particular design elements and curricular and instructional components of programs that contribute to these impacts; (3) investigate whether those students who are most in need of extra academic assistance are enrolling in and attending these services; (4) investigate which factors influence parent and student choices in selecting and staying with service providers; and (5) identify what policy levers are available to state and local educational agencies to increase service program effectiveness.

NATIONAL BUREAU OF ECONOMIC RESEARCH

Principal Investigator: Thomas Dee

Amount: \$512,787

Period of Performance: 7/1/09–6/30/12

Description: *A Randomized Trial of Reducing Stereotype Threat Among Minority and Economically Disadvantaged Students.* This project replicates an earlier experiment that evaluated a short writing intervention designed to minimize stereotype threat among middle school students. This project will replicate this evaluation using a larger sample, extending the intervention to eighth-graders, examining a wider range of student outcomes, measures, and examining the intervention's impact not only in racially integrated schools but also in schools that serve more economically disadvantaged and largely minority communities.

UNIVERSITY OF PITTSBURGH

Principal Investigator: Mary Stein

Amount: \$1,393,584

Period of Performance: 7/1/09–6/30/12

Description: *Collaborative, Technology-Enhanced Lesson Planning as an Organizational Routine for Continuous, School-Wide Instructional Improvement.* The project will develop a school-level organizational routine that focuses on the process of developing and sharing lesson plans that promote known characteristics of high-quality instructional practice. The process will begin with individual teachers creating lesson plans using a template designed to focus on student learning goals and constructive interaction with students. At the next stage, teachers will collaborate by sharing lessons through an online database and working together to construct “landmark lessons,” which address critical content and/or difficult-to-teach content.

APPENDIX – GRANT AND CONTRACT AWARDS

RAND CORPORATION

Principal Investigator: Louis Mariano

Amount: \$244,251

Period of Performance: 3/1/09–2/28/10

Description: *Modeling Longitudinal Effects of New York City's 5th Grade Promotion Policy on Student Achievement through a Regression Discontinuity Design.* This project will evaluate the impact of New York City's grade retention policy on student achievement. By use of a regression discontinuity approach, the researchers will identify the causal impact of three components of the NYC policy: the Saturday Preparatory Academy, the Summer Success Academy, and being retained in the fifth grade.

UNIVERSITY OF CALIFORNIA, LOS ANGELES

Principal Investigator: Joan Herman

Amount: \$391,671

Period of Performance: 6/1/09–6/30/11

Description: *Reclassification of English Language Learners as Fully English Proficient.* This project will examine the validity of existing English language learner (ELL) reclassification systems, the process by which ELL students are reclassified as fully English proficient and ready to function without special services. The project will identify demographic, programmatic, and reclassification factors that relate to subsequent ELL student academic success and thereby contribute to identifying optimal criteria for reclassification decisions.

UNIVERSITY OF OREGON

Principal Investigator: Keith Zvoch

Amount: \$1,176,686

Period of Performance: 6/1/09–6/30/12

Description: *Summer School and Summer Learning: An Examination of Selection, Implementation, and Program Effects in a Multiyear Randomized Trial.* This project will evaluate a multiyear summer school literacy program delivered to kindergarten, first, and second grade students identified as at-risk for future reading difficulty and aimed at closing the performance gap between strong and struggling readers and ensuring that struggling readers gain the skills requisite to meet reading proficiency targets.

UNIVERSITY OF SOUTH FLORIDA

Principal Investigator: Kathryn Borman

Amount: \$2,236,260

Period of Performance: 6/1/09–5/31/13

Description: *Systems Leadership in Middle School: A School Policy Intervention With Random Assignment.* This project will further develop Systems Leadership in Middle School, a distributive leadership model for whole school reform which was developed by the Modern Red Schoolhouse.

COLUMBIA UNIVERSITY

Principal Investigator: Jonah Rockoff

Amount: \$806,587

Period of Performance: 3/1/09–2/28/12

Description: *The Effects of No Child Left Behind on Student Outcomes and School Services.* This project will study whether the incentives built into the current version of NCLB have a net positive impact on students' academic achievement, students' non-academic outcomes, and school resource allocation. Using quasi-experimental methods, the project will evaluate the efficacy of the accountability pressure put on schools that expect to be near the margin for meeting AYP using a nationally representative sample of schools and students.

DUKE UNIVERSITY

Principal Investigator: Jacob Vigdor

Amount: \$850,948

Period of Performance: 3/1/09–2/28/13

Description: *The Impact of School Accountability Sanctions on Student Outcomes: Evidence from North Carolina.* The project will estimate the effects of the sanctions included in No Child Left Behind (NCLB) and in the North Carolina State accountability program on student achievement. Using longitudinal, student-level data on the population of North Carolina students, the researchers will use regression discontinuity designs to identify the causal effect of the positive and negative sanctions embedded in these policies on student achievement.

APPENDIX – GRANT AND CONTRACT AWARDS

Education Technology

EDUCATIONAL TESTING SERVICE

Principal Investigator: Jill Burstein

Amount: \$1,434,760

Period of Performance: 3/1/10–2/28/13

Description: *A Technology-Rich Teacher Professional Development Intervention that Supports Content-Based Curriculum Development for English Language Learners.*

English language learners (ELLs) are taught both by specialists and by regular classroom teachers. Many states acknowledge that all teachers need to know how to support the unique needs of ELLs. The purpose of this project is to develop a teacher professional development curriculum and software package that will improve teachers' ability to instruct their ELL students and prepare materials designed to support students learning English.

UNIVERSITY OF MEMPHIS

Principal Investigator: Vasile Rus

Amount: \$ 1,650,272

Period of Performance: 9/1/10–8/31/13

Description: *DeepTutor: An Intelligent Tutoring System Based on Deep Language and Discourse Processing and Advanced Tutoring Strategies.* Encouraged by the effectiveness of

one-on-one human tutoring, computer tutors that mimic human tutors have been built successfully with the hope that a computer tutor could be provided to every child with access to a computer. The proposed project will develop and test an innovative intelligent tutoring system (ITS) designed to improve the effectiveness of state-of-the-art tutoring systems with natural language dialogue. Researchers focusing on the tutor-tutee relationship have identified a number of illusions (such as the illusion that all feedback is accurate) that occur during the tutoring process and that result in the tutoring process being less efficient. Researchers will develop and evaluate an ITS which will address these illusions, and which will integrate recent advances in instructional and curriculum design. Called DeepTutor, the system is intended to improve student outcomes in science relative to a current state-of-the-art tutoring system, called AutoTutor, and standard classroom instruction.

VANDERBILT UNIVERSITY

Principal Investigator: Ted Hasselbring

Amount: \$1,499,860

Period of Performance: 6/1/10–5/31/13

Description: *Developing and Evaluating a Technology-Based Fractions Intervention Program for Low-Achieving and At-Risk Students.* The purpose of this project is to develop an

intelligent tutoring system intended to promote students' understanding of fractions, an area that many students find difficult to master. The HALF (Helping At-risk and Low-achieving students in Fractions) system will present learning problems in conjunction with virtual manipulatives and videos designed to anchor to-be-learned concepts within already-familiar topics. After students attempt to solve these new problems, the system will diagnose gaps in student understanding and provide feedback to teachers intended to support individualized instruction and practice in basic concepts of fractions.

FLORIDA STATE UNIVERSITY

Principal Investigator: Paul Marty

Amount: \$1,156,500

Period of Performance: 9/1/10–8/31/13

Description: *Habitat Tracker: Learning About Scientific Inquiry Through Digital Journaling at Wildlife Centers.*

National reform efforts in science education emphasize the need for students to participate in scientific inquiries, yet inquiry-based instruction remains a rarely seen practice in most elementary classrooms. Field trips to museums and wildlife centers are a common activity in schools and it is widely believed that they have educational and motivational impacts. Yet research shows field trips frequently have limited educational benefits and lack integration with science curricula. To address these problems, this project will develop an intervention designed to foster fourth and fifth grade student understanding of scientific inquiry and the nature of science during school field trips. This will be accomplished through student-led data collection and analysis, before, during, and after visits to a local wildlife center.

APPENDIX – GRANT AND CONTRACT AWARDS

COLUMBIA UNIVERSITY, TEACHERS COLLEGE

Principal Investigator: Herbert Ginsburg

Amount: \$1,436,344

Period of Performance: 9/1/10–8/31/13

Description: *Mathemantics Preschool 3: Development and Evaluation of Mathematics Software for Children from Preschool to Grade 3.* The purpose of this project is to develop and evaluate the promise of a software system, MathemAntics, designed to deliver a supplementary mathematics curriculum for children ranging from preschool to grade 3. This software system will focus on a number of topics ranging from basic ideas about cardinal numbers to negative integers. A single system that covers such a broad range of topics has the advantage of a consistent look, feel, and use so that students need not become acquainted with a new system each time they advance to a new topic. Graphical tools will allow students to operate virtual objects in ways not possible with physical manipulatives and an avatar will provide instruction, feedback, and support. Additionally, the system will provide assessment data to teachers.

CARNEGIE MELLON UNIVERSITY

Principal Investigator: Bruce McLaren

Amount: \$1,302,928

Period of Performance: 9/1/09–8/31/12

Description: *AdaptErrEx: Exploring the Learning Benefits of Erroneous Examples and Their Dynamic Adaptations Within the Context of Middle School Mathematics.* The purpose of this project is to develop an intelligent tutoring system that helps middle school students learn mathematics. The specific focus is knowledge of decimals, a subdomain of mathematical knowledge about which students often have common and persistent misconceptions. The system, called AdaptErrEx, will present students with worked examples of problems in which each step of a problem solution path is presented for the students, along with feedback and instruction. Additionally, a unique feature of the proposed system is that students will also be presented examples of problems that contain an error, termed *erroneous* examples. This pedagogical method is intended to support the development of critical thinking, adaptive reasoning, and metacognitive strategies for evaluating and justifying solutions.

CARNEGIE MELLON UNIVERSITY

Principal Investigator: Noboru Matsuda

Amount: \$1,413,273

Period of Performance: 6/1/09–5/30/12

Description: *Learning by Teaching Synthetic Student: Using SimStudent to Study the Effect of Tutor Learning.* The purpose of this project is to develop an intelligent tutoring system designed to help students master algebra concepts related to solving linear equations. In this intelligent tutoring system, students teach a computer learner, SimStudent, how to solve linear equations. The students select linear equations for SimStudent to solve and monitor SimStudent's performance, providing hints and feedback. The goal of the tutoring is for students to improve their understanding of algebraic concepts, remediate their own misconceptions, and strengthen their problem-solving ability and procedural knowledge of solving linear equations.

COLUMBIA UNIVERSITY, TEACHERS COLLEGE

Principal Investigator: JoAnne Kleifgen

Amount: \$1,586,146

Period of Performance: 9/3/09–9/2/12

Description: *STEPS to Literacy: An Integrated Digital Writing Space for English Language Learners.* The goal of this project is to develop an intervention program with a curricular approach to support and increase English language learners' (ELLs) academic writing attainment in English. Researchers will develop a multimodal, web-based software based on an anchored instruction/situated model called STEPS to Literacy. The STEPS to Literacy approach guides students in a thoughtful exploration of the world through the lenses of Science, Technology and the social studies (Economic, Political, Social and Geographic), thereby incorporating school-subject content into web-based writing instruction. Supportive writing tools, multimodal resources, and writing activities will be created. Resources will be built around themes in the eighth-grade curriculum. The materials will be compiled and translated to give students access to all resources in Spanish and English.

APPENDIX – GRANT AND CONTRACT AWARDS

UNIVERSITY OF ILLINOIS, URBANA-CHAMPAIGN

Principal Investigator: William Cope

Amount: \$1,500,000

Period of Performance: 9/2/09–9/1/12

Description: *The Assess-as-You-Go Writing Assistant: A Student Work Environment that Brings Together Formative and Summative Assessment*. This research team proposes to create a new educational technology tool intended to improve student writing performance and writing assessments. The Assess-As-You-Go Writing Assistant will

be an online writing environment which, via a combination of tagging, social networking, and natural language processing technologies, will give learners constant feedback on their writing in the form of on-demand, as-you-go formative assessment. The Writing Assistant will also track individual learner progress, the progress of cohorts of students through the system, and the progress of individuals in relation to cohorts—thus providing summative assessment data intended to meet teacher, school, parent, and community accountability requirements.

English Learners

EDUCATION NORTHWEST

Principal Investigator: Theresa Deussen

Amount: \$2,878,385

Period of Performance: 7/1/10–6/30/14

Description: *An Efficacy Study of Project GLAD*. In U.S. schools, English language learners (ELLs) receive most of their instruction in mainstream classrooms. Their teachers need to be able to help them access grade-level content and meet state standards while also developing their English-language proficiency. This study will test the efficacy of Project GLAD (Guided Language Acquisition Design), an instructional model specifically designed to help mainstream classroom teachers integrate the development of academic English with content area instruction for non-native English speakers.

appropriate classroom-based assessments available to inform teaching and learning on an ongoing basis. This project will develop and validate classroom-based, formative assessments of academic reading for ELL students in middle school.

EDUCATIONAL TESTING SERVICE

Principal Investigator: Mikyung Wolf

Amount: \$1,349,291

Period of Performance: 7/1/10–6/30/14

Description: *Developing a Formative Assessment of Academic Reading Comprehension for English Language Learners: A Tool to Improve Teaching and Learning*. ELL students deal with the dual challenges of acquiring English proficiency to handle academic materials and learning curriculum content. As children progress through the grade levels, course materials become increasingly complex. While states annually implement English language proficiency assessments to measure the progress of English language learners (ELLs) English language development, there is a paucity of

UNIVERSITY OF GEORGIA RESEARCH FOUNDATION, INC.

Principal Investigator: Pedro Portes

Amount: \$2,935,846

Period of Performance: 9/1/10–8/30/14

Description: *Improving the Teaching and Learning of English Language Learners: The Instructional Conversational Model*. This study will examine the effects of the Instructional Conversation (IC) model for improving the academic development and achievement of upper elementary English language learners (ELLs) from high poverty schools. In the IC model, the teacher structures small-group instruction to stimulate and guide a conversation with students on a current topic from the curriculum. The teacher listens carefully to student views and judgments and provides guidance through questioning and restating of student comments. Each small-group meeting has a clear instructional goal. The main purpose of this project is to study the efficacy of this model to improve reading comprehension and other areas of academic development for ELLs. In addition, researchers will explore hypotheses surrounding the mechanisms through which affective, cognitive, and English language development influence the impact of the IC model on student achievement.

APPENDIX – GRANT AND CONTRACT AWARDS

UNIVERSITY OF HOUSTON

Principal Investigator: Lee Branum-Martin

Amount: \$218,908

Period of Performance: 3/1/10–2/29/12

Description: *Language and Literacy Abilities in Spanish-Language Speaking Children.* Spanish-speaking students represent the largest and fastest growing language minority group in the United States. Unfortunately, their educational outcomes and future economic prospects lag behind those of their English-speaking peers. While much has been learned about the educational needs of Spanish-speaking students in the United States, much more remains to be learned about the specific nature and development of their language and literacy abilities. The purpose of this project is to apply contemporary measurement models to examine home, student, and instructional factors and implications for the development of more effective interventions for Spanish-speaking students.

UNIVERSITY OF MIAMI

Principal Investigator: Walter Secada

Amount: \$1,510,390

Period of Performance: 7/1/10–6/30/13

Description: *Language in Math.* Many schools lack widespread expertise in how to address the instructional and language learning needs of English language learners (ELLs). In particular, little attention has been devoted to understanding how ELLs learn the conventions and expectations for language use in mathematics in order to master the linguistic complexity of mathematical discourse. To address this need, the researchers will develop an intervention called Language in Math (LiM) that is intended to increase upper elementary and middle-school ELLs' knowledge of academic language used in math (M-AL). An additional goal of this intervention is to enhance elementary teachers' ability to teach mathematics to ELLs.

UNIVERSITY OF MICHIGAN

Principal Investigator: Mary Schleppegrell

Amount: \$1,396,598

Period of Performance: 7/1/10–6/30/13

Description: *The Iterative Development of Modules to Support Teachers' Engagement in Exploring Language and Meaning in Text with English Language Learners.* This study will develop, test, and refine a set of five professional development modules called Exploring Language and Meaning in Text, intended to support reading comprehension and writing development for English language learners (ELLs). The modules will be informed by systemic functional linguistics, a theory of language that links form and meaning, and will be designed to prepare teachers to develop activities that help their students focus on an author's language choices and what they mean. The modules will also incorporate classroom interactional practices shown to support English-language learning and will link reading with writing to encourage students' active use of the language they are learning.

UNIVERSITY OF WISCONSIN, MADISON

Principal Investigator: Craig Albers

Amount: \$1,600,000

Period of Performance: 7/1/10–6/30/14

Description: *Validating Universal Screening and Progress Monitoring Instruments for Use with ELLs in Response-to-Intervention Models.* Current demands for early identification and intervention, coupled with accountability demands, have increased the need for quality measures to identify English language learners (ELLs) at risk for academic difficulties. This project will examine universal screening and progress monitoring literacy procedures necessary for the appropriate use of Response-to-Intervention (RTI) models with ELL students. Researchers will establish the reliability, validity, and predictive accuracy of existing universal screening literacy instruments and progress monitoring procedures. The connection between English language acquisition and literacy skills will be established to define appropriate and scientifically based guidelines for universal screening and progress monitoring for ELLs.

APPENDIX – GRANT AND CONTRACT AWARDS

Interventions for Struggling Adolescent and Adult Readers and Writers

BOSTON UNIVERSITY

Principal Investigator: Gloria Waters

Amount: \$1,597,065

Period of Performance: 4/1/10–3/31/14

Description: *Assessment of Comprehension in Older Struggling Readers*. Too many students fail to develop essential comprehension skills necessary to be successful in school and in their future endeavors. Improving literacy skills relies on the availability of good assessments that can be used to target instruction. The goal of this project is to further develop a comprehensive computerized test battery that assesses the ability of middle and high school students in processing all levels of written and spoken language. Development of the battery for high school students began in a 2005 IES grant.

FLORIDA STATE UNIVERSITY

Principal Investigator: Barbara Foorman

Amount: \$1,499,743

Period of Performance: 3/1/10–2/28/13

Description: *Measuring Reading Progress in Struggling Adolescents*. The purpose of this application is to modify and validate the 3-12 Florida Assessment for Instruction in Reading (FAIR) system, which consists of a computer adaptive assessment for students in grades three through twelve. The current system includes (1) a reading comprehension screen; (2) diagnostic tasks of maze and word analysis; and (3) ongoing progress monitoring tasks of reading comprehension and maze. In this project, the team will revise the current passages used in the FAIR, modify the current maze tasks, and improve the adaptive features of the system. In addition, the team will improve the features of the system for use as a progress monitoring tool with these older readers.

UNIVERSITY OF CONNECTICUT

Principal Investigator: Donald Leu

Amount: \$2,813,127

Period of Performance: 7/1/09–6/30/13

Description: *Assessing Online Reading Comprehension: The ORCA Project*. The Internet has rapidly become the defining medium for information, reading comprehension, and learning in the 21st century, and requires additional reading comprehension skills, beyond those required to comprehend printed text. A key obstacle to effective teaching of online reading skills is that a lack of valid, reliable, and practical assessments of online reading comprehension intended to inform instruction and help students become better online readers. The Online Reading Comprehension Assessment (ORCA) Project seeks to develop a valid, reliable, and practical assessment of online reading comprehension.

UNIVERSITY OF MARYLAND, COLLEGE PARK

Principal Investigator: Susan De La Paz

Amount: \$1,498,632

Period of Performance: 7/1/09–6/30/12

Description: *Disciplinary Writing Instruction for the Social Studies Classroom: A Path to Adolescent Literacy*. As young adolescents prepare for the demands of high school and college classrooms, they must learn to read and write increasingly complex and specialized forms of text. Unfortunately, there is a large population of students who struggle with the demands of academic literacy in writing. The primary goal for this project is to develop and pilot a multi-component discipline based intervention designed to improve the writing of adolescents who are struggling readers. Controversial historical issues will be used to form the basis of the document-based instructional tasks in both reading and writing modules. Literacy skills will be taught as students read and write about authentic historical documents, thus constituting legitimate and powerful instruction in history.

APPENDIX – GRANT AND CONTRACT AWARDS

JOHNS HOPKINS UNIVERSITY

Principal Investigator: James McPartland

Amount: \$1,499,322

Period of Performance: 3/1/09–2/28/12

Description: *Strengthening Content Literacy for Struggling High School Readers: Coordinated Lessons and Support Systems for Subject Matter Teachers.* Many students enter high school as struggling readers without the skills and strategies needed to be successful with a high school standards curriculum. Students' success in learning the core content of high school subjects (e.g., mathematics, science, history, and literature) depends upon their abilities to read the textbooks and other written materials used in these academic courses. Thus, there is a need to address the serious content literacy challenges of struggling high school readers, who now often fail their core academic subjects and drop out. One way to do this is to provide teachers with tools for reading instruction in their own subject and advance school practices intended to support teachers in achieving content literacy goals through teacher teams that help one another design and improve materials. This project will develop interventions specifically designed to strengthen struggling high school readers' skills and strategies for reading textbooks in core academic subjects.

UNIVERSITY OF OREGON

Principal Investigator: Lynn Anderson-Inman

Amount: \$1,499,832

Period of Performance: 4/1/09–3/31/12

Description: *The ESTRELLAS Project: Electronic Supported Text Research for English Language Learner Academic Success.* Struggling adolescent readers must overcome substantial barriers imposed by the printed materials they are asked to read if they are to gain meaningful access to text. Technology can assist students to overcome these challenges. The purpose of the Electronic Supported Text Research for English Language Learner Academic Success (ESTRELLAS) Project is to develop and test a set of "supported e-Text" interventions for Spanish-speaking adolescents who qualify for services as English language learners.

PRESIDENT AND FELLOWS OF HARVARD COLLEGE, GRADUATE SCHOOL OF EDUCATION

Principal Investigator: Catherine Snow

Amount: \$2,853,512

Period of Performance: 7/1/09–6/30/13

Description: *Word Generation: An Efficacy Trial.* Word Generation is a curricular intervention designed to promote adolescents' knowledge and use of academic vocabulary, by providing opportunities for students to read and comprehend brief academic texts on compelling and controversial topics, to discuss those texts, to hear the academic words highlighted in those texts in a variety of settings, and to write brief persuasive essays about the controversial topics focused on. Preliminary findings suggest positive effects on word learning outcomes. The purpose of this project is to test the efficacy of this intervention with middle school students using a randomized clinical trial.

SUCCESS FOR ALL FOUNDATION

Principal Investigator: Nancy Madden

Amount: \$2,150,460

Period of Performance: 7/1/07–6/30/11

Description: *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.

APPENDIX – GRANT AND CONTRACT AWARDS

Mathematics and Science Education

STRATEGIC EDUCATION RESEARCH PARTNERSHIP INSTITUTE

Principal Investigator: Mary Suzanne Donovan

Amount: \$1,491,949

Period of Performance: 6/1/10–5/31/13

Description: *Transforming Algebra Assignments.* Research within the domains of cognitive science and mathematics education suggests that students develop a better understanding of mathematics concepts and learn more quickly when half of their practice problems are replaced with worked-out example solutions. Learning is further enhanced when students are prompted to provide explanations for key steps in the worked examples. Despite an accumulation of evidence, typical Algebra I textbooks contain few worked-out example solutions and few prompts for student explanations. To address this gap, the research team will develop a set of Algebra I assignments that interleave worked examples and prompts for self-explanation with problems that students must solve on their own. In addition, team will develop teacher professional development (PD) materials and assessments to accompany the assignments. The assignments and PD materials will be iteratively developed, tested, and refined.

GEORGIA INSTITUTE OF TECHNOLOGY

Principal Investigator: Susan Embretson

Amount: \$1,854,393

Period of Performance: 6/1/10–5/31/14

Description: *An Adaptive Testing System for Diagnosing Sources of Mathematics Difficulties.* Current standards-based state accountability tests typically find that many students do not meet proficiency standards. However, state accountability tests cannot pinpoint specific sources of students' difficulties so that differentiated instruction may be given to remedy the difficulties. The purpose of this project is to build an online and on-demand adaptive assessment system to diagnose sources of students' mathematics difficulties and deficits that are linked to state standards-based assessments. The researchers will develop an online diagnostic assessment system to diagnose sources of students' mathematics deficits and provide information to teachers to guide instruction.

WESTED

Principal Investigator: Michael Timms

Amount: \$1,498,113

Period of Performance: 3/1/10–2/28/13

Description: *Embedded Assessments Using the ChemCollective Virtual Lab.* Test scores on the most recent National Assessment of Educational Progress (NAEP) indicate that nearly half of 12th grade students fail to reach basic proficiency in science. One contributing factor may be that current high school chemistry curricula do not support the development of deep conceptual understanding of chemical principals or scientific inquiry skills. To address this need, the researchers will develop Virtual Lab-based activities with embedded assessments that allow students to engage in authentic chemistry investigations while getting personalized coaching. These activities are expected to lead to improvements in students' science achievement through a deeper understanding of chemical principles and their ability to plan and conduct laboratory investigations.

SOUTHWEST EDUCATION DEVELOPMENT CORPORATION

Principal Investigator: Michael Vaden-Kiernan

Amount: \$6,145,582

Period of Performance: 7/1/10–6/30/14

Description: *National Randomized Control Trial of Everyday Mathematics.* Given the importance of early mathematics instruction and curricula for preventing mathematics difficulties in later grades, it is necessary to identify effective mathematics curricula and instruction to ensure that children become proficient in early mathematics content and procedures. One widely used elementary mathematics curriculum, Everyday Mathematics is reported to have “potentially positive effects” on students' mathematics achievement. However, most of the studies that have evaluated Everyday Mathematics have used quasi-experimental designs or are small-scale randomized controlled trials. This research team will conduct a scale-up evaluation of this widely used curriculum. The results of this study will contribute to determining whether Everyday Mathematics is effective in promoting mathematic proficiency in the elementary grades.

APPENDIX – GRANT AND CONTRACT AWARDS

UNIVERSITY OF CALIFORNIA, LOS ANGELES

Principal Investigator: Noreen Webb

Amount: \$690,000

Period of Performance: 3/1/10–2/29/12

Description: *Improving Mathematics Achievement through Active Student Participation in Mathematics Classrooms.*

A growing body of research in mathematics education suggests that engaging students as active participants in mathematics classrooms is central to the development of their mathematical skills and understanding. However, research has only begun to uncover details about the kinds of participation that are conducive to learning and the teacher practices that encourage student participation. This project will explore the kinds of student participation that are productive for learning, and the teacher practices that promote high-quality student participation and high levels of student achievement in mathematics. The researchers will conduct secondary data analysis of video- and audio-taped classroom observation data of mathematics lessons focusing on number relations and operations taught in kindergarten to grade 6 classrooms.

EDUCATIONAL TESTING SERVICE

Principal Investigator: Malcolm Bauer

Amount: \$1,572,975

Period of Performance: 7/1/10–6/30/14

Description: *Creating Cross-Grade Assessments of the Development of Core Algebraic Constructs.* There is a large body of research linking the consistent and systematic use of formative assessments to improve student learning. However, many of these programs fall short because they either do not provide specific questions for teachers to ask students, or they do not provide training or support materials to help teachers understand what to do next. The current study seeks to address this gap between the research on formative assessments and what it takes to implement these types of assessments in the classroom by developing and validating a set of formative assessments that middle school mathematics teachers can readily incorporate into their existing curricula in order to guide instructional decisions related to three key concepts in algebra—equality, notion of a variable, and multiplicative reasoning.

SRI INTERNATIONAL

Principal Investigator: Angela DeBarger

Amount: \$1,819,505

Period of Performance: 7/1/10–6/30/14

Description: *Establishing the Validity and Diagnostic Capacity of Facet-Based Science Assessments.* Formative use of diagnostic classroom assessments can be one of the most powerful ways to improve student achievement. These assessments have the potential to provide critical information to students and teachers about whether students understand the targeted concepts, and if not, what problematic or partial understandings are present instead. Facet-based assessments are one innovative approach to help teachers diagnose students' science understanding. A facet is the use of one or more pieces of knowledge and reasoning by the learner in order to solve a problem or explain an event. This study will focus on the development and validation of facet-based assessments focusing on 17 facet clusters related to three key concept strands in Force and Motion at the middle and high school level—Description of Motion; Nature of Forces; and Forces to Explain Motion.

UNIVERSITY OF NORTH CAROLINA, CHARLOTTE

Principal Investigator: Stephanie Moller

Amount: \$480,158

Period of Performance: 7/1/10–6/30/12

Description: *Do Professional Communities Improve K-16 Curricula Mastery and Augment Mathematics Achievement?* To date, there has not been a comprehensive national analysis of students' mathematics achievement between kindergarten and twelfth grade. To address this need, the researchers will examine how mathematics curricula, instruction, and school organizational structure (i.e., professional communities) augment or change students' mathematics achievement from elementary to high school, and on into college using data from the Early Childhood Longitudinal Study, the National Education Longitudinal Study, and the Education Longitudinal Study.

APPENDIX – GRANT AND CONTRACT AWARDS

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

Principal Investigator: Jo Ellen Roseman

Amount: \$2,441,360

Period of Performance: 9/1/10–8/31/13

Description: *Toward High School Biology: Helping Middle School Students Make Sense of Chemical Reactions*. Research on learning indicates that students have difficulties understanding phenomena involving either living or non-living systems at the molecular level. Despite the well-documented difficulties that students have in understanding many science ideas, particularly ideas related to chemical and biochemical change, currently available textbooks do little to help students overcome these difficulties. To address this need, the researchers will develop two instructional units focusing on chemistry and biochemistry and including content focused on chemical and biochemical change that are designed as replacements for, or supplements to, currently used middle school science curricula.

FLORIDA STATE UNIVERSITY

Principal Investigator: Victor Sampson

Amount: \$1,062,214

Period of Performance: 7/1/10–6/30/13

Description: *Argument-Driven Inquiry in the Middle and High School Laboratory—The Refinement and Further Development of a New Instructional Model*. Most laboratory experiences in U.S. science classrooms are isolated from the flow of classroom science instruction and are typically prescriptive in nature. Traditional laboratory experiences also rarely incorporate ongoing reflection and discussion between teachers and students, even though there is evidence that indicate that opportunities to reflect on one's own thinking is essential for students to make meaning out of their laboratory activities. To address this problem, the researchers will develop an instructional model called Argument-Driven Inquiry that can be used by teachers to change the nature of laboratory experiences inside middle or high school science classrooms to better support and promote the development of students' scientific proficiency.

UNIVERSITY OF ILLINOIS, CHICAGO

Principal Investigator: Mike Stieff

Amount: \$1,121,094

Period of Performance: 7/1/10–6/30/13

Description: *The Connected Chemistry Curriculum*. At all levels, chemistry deals with concepts and phenomena that are not directly observable to students. Therefore, instructors often encourage students to engage in visualization of mental images for learning and problem solving in chemistry. Visualization is difficult and complex, and educational software designers have promoted the use of technology to address students' difficulty with visualizations in chemistry. To that end, the researchers will develop a high school chemistry curriculum, Connected Chemistry, which makes central use of computer-based visualization tools.

UNIVERSITY OF CALIFORNIA, BERKELEY

Principal Investigator: Mark Wilson

Amount: \$1,599,931

Period of Performance: 7/1/10–6/30/14

Description: *Learning Progressions in Middle School Science Instruction and Assessment*. State-adopted science standards are designed to describe the level of science proficiency expected of students from kindergarten to grade 12. However, the standards are often organized in discrete grade levels without attention to the developmental continuity across grades. Learning progressions are a new approach to thinking about how to structure science education. Learning progressions outline potential cognitive paths that students might experience as they develop a more sophisticated understanding of a core scientific concept. The purpose of this project is to develop assessments for learning progressions in physical science together with assessments of students' scientific reasoning. The researchers will develop and validate assessments for learning progressions in physical science focusing on the Structure of Matter, along with assessments of students' scientific reasoning at grade 8.

APPENDIX – GRANT AND CONTRACT AWARDS

UNIVERSITY OF MEMPHIS

Principal Investigator: Xiangen Hu

Amount: \$2,364,610

Period of Performance: 7/1/09–6/30/13

Description: *Applications of Intelligent Tutoring Systems (ITS) to Improve the Skill Levels of Students with Deficiencies in Mathematics.* This efficacy study will examine a web-based, artificial intelligent assessment and learning system called the Assessment and Learning in Knowledge Spaces (ALEKS) system, which uses adaptive questions to quickly and accurately determine what a student knows and does not know. The system is being used as a strategic intervention in after-school settings and is intended to improve math skills of struggling sixth grade students. With the goal of ensuring long-term learning, ALEKS periodically reassesses the student and uses the results to adjust the lessons students encounter in the system.

WORCESTER POLYTECHNIC INSTITUTE

Principal Investigator: Janice Gobert

Amount: \$1,187,434

Period of Performance: 2/1/09–1/31/12

Description: *ASSISTment Meets Science Learning (AMSL).* For the 21st century workplace, students need to understand science more deeply and possess well-honed learning strategies that will allow them to apply their science knowledge in more flexible ways. By providing students with frequent, fine-grained performance assessments of science process skills, teaching and tutoring can be honed to students' individual needs. To support the acquisition of flexible science knowledge, researchers in this project will develop a computer-based intelligent tutoring system designed to tutor middle school students in science inquiry and process skills such as collecting and interpreting data, prediction and hypothesis making, experimenting with interactive models, mathematizing the data, and defending and communicating a scientific argument.

MID-CONTINENT RESEARCH FOR EDUCATION AND LEARNING (MCREL)

Principal Investigator: Dawn Mackety

Amount: \$1,499,854

Period of Performance: 7/1/09–6/30/12

Description: *Cosmic Chemistry: Engaging Summer Learning for High School Students.* Researchers will develop and evaluate a summer science curriculum called Cosmic Chemistry. The curriculum will include three sequential units based on the NASA Genesis Discovery mission: (1) About the Genesis Mission and Elements; (2) Planetary Diversity; and (3) Sun and Solar Wind. The curriculum will address a variety of high school chemistry topics including the structure and properties of matter, physical and chemical reactions, atoms and atomic mass, elements and the periodic table, isotopes, and the chemistry of solar system objects.

UNIVERSITY OF IOWA

Principal Investigator: Brian Hand

Amount: \$4,836,057

Period of Performance: 6/1/09–5/31/13

Description: *Efficacy of the Science Writing Heuristic Approach.* Basic scientific literacy, knowledge, and skills are needed in order to participate effectively in a society increasingly shaped by science and technology. Unfortunately, mastery of rudimentary science knowledge and skills continue to be a challenge for many students. To address this need, the current study will test the efficacy of an inquiry approach that helps build elementary school students' science content knowledge, argumentation skills, and interest. Specifically, the researchers will carry out a randomized field trial in order to evaluate the effects of participating in the Science Writing Heuristic approach on the science achievement of students in grades 4 to 6, as measured by student performance on the Iowa Test of Basic Skills science test.

APPENDIX – GRANT AND CONTRACT AWARDS

UNIVERSITY OF ILLINOIS, CHICAGO

Principal Investigator: James Pellegrino

Amount: \$1,943,388

Period of Performance: 3/1/09–2/28/13

Description: *The Cognitive, Psychometric, and Instructional Validity of Curriculum-Embedded Assessments: In-Depth Analyses of the Resources Available to Teachers Within “Everyday Mathematics.”* Progress toward improving the quality of mathematics teaching and learning has been slow despite the introduction of standards-based curricula, such as Everyday Mathematics, and efforts to support teachers’ implementation of reform-based classroom practices. Embedded assessments are considered to be a key element of reform-based curricula with the goal of supporting more effective instructional practices such as making students’ thinking visible and providing opportunities for feedback. In the current study, the researchers will test the validity of embedded assessments within the Everyday Mathematics curriculum. The focus will be on three content strands within the curriculum at grades 3 and 5: Number and Numeration; Operations and Computation; and Patterns, Functions, and Algebra.

WESTED

Principal Investigator: Steve Schneider

Amount: \$2,698,814

Period of Performance: 3/1/09–2/28/13

Description: *Efficacy Study of AnimalWatch: An Intelligent Tutoring System for Pre-Algebra.* Algebra is considered a critical “gatekeeper” mathematics course for high school graduation and college enrollment, but many students continue to struggle with algebra and failure rates are high. Often, the problem is that students have not yet mastered the prerequisite computation, fractions, and algebra readiness skills necessary to successfully solve algebraic problems. In this study, the researchers are evaluating the efficacy of the AnimalWatch system, a computer-based intelligent tutor developed with prior IES funding that is designed to provide individualized tutoring for students in pre-algebra. The efficacy of the system will be evaluated using a block-randomized design with teachers in grade 6 randomly assigned to the treatment and control condition within schools.

NEW YORK UNIVERSITY

Principal Investigator: Catherine Milne

Amount: \$1,464,692

Period of Performance: 8/1/09–7/31/12

Description: *Molecules & Minds: Developing Bridging Scaffolds to Improve Chemistry Learning.* In high school chemistry classes, the ability to visualize dynamic sub-microscopic particles (atoms and molecules) is especially important because the behavior of such particles is used to explain macroscopic phenomena (e.g., ice melting). In this project, researchers will design, develop, and evaluate instructional supports of visualization that will be embedded into already developed simulations of four high school chemistry topics: kinetic molecular theory, diffusion, the behavior of ideal gases, and phase change.

CARNEGIE MELLON UNIVERSITY

Principal Investigator: Albert Corbett

Amount: \$1,447,525

Period of Performance: 9/1/09–8/31/12

Description: *Promoting Robust Understanding of Genetics with a Cognitive Tutor that Integrates Conceptual Learning with Problem Solving.* The purpose of this project is to lay the foundation for students to acquire robust knowledge of genetics. Researchers propose to expand on an existing genetics cognitive tutor by developing and adding a conceptually grounded problem solving environment to the intelligent tutoring system. The researchers will develop a progression of activities intended to support conceptual understanding of genetic processes and engage students in constructing relationships between observable data and underlying processes. The researchers will develop activities focused on forward modeling, constructing solution methods, and worked example explanations for six topics in genetics.

UNIVERSITY OF CALIFORNIA, IRVINE

Principal Investigator: Michael Martinez

Amount: \$3,000,000

Period of Performance: 7/1/09–6/30/13

Description: *Spatial Temporal Mathematics at Scale: An Innovative and Fully Developed Paradigm to Boost Math Achievement Among All Learners.* Researchers will evaluate the efficacy of Spatial Temporal Math, a software program intended to supplement existing mathematics curricula

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in second to fifth grade. It includes a coordinated series of computer games that build on a key cognitive ability, variously called visualization, spatial ability, or spatial temporal reasoning. Students in grades 2-5 from diverse demographic backgrounds, including economically disadvantaged students and English language learners, will participate in this randomized field trial.

RUTGERS UNIVERSITY

Principal Investigator: Cindy Hmelo-Silver

Amount: \$1,630,450

Period of Performance: 6/1/09–5/31/12

Description: *Systems and Cycles: Using Structure-Behavior-Function Thinking as a Conceptual Tool for Understanding Complex Natural Systems in Middle School Science*. Complex systems are an important part of the world that we live in and, as such, are recognized as a key concept in national and local science standards. One promising approach for promoting student understanding of complex systems is Structure-Behavior-Function thinking. A Structure-Behavior-Function model of a system explicitly represents the configuration of components and connections (structure), the visible output (functions), and the internal causal processes (behaviors) of the system. The main goal of this study is to design and develop three middle school science curriculum units using Structure-Behavior-Function thinking as a conceptual tool for promoting students' understanding of ecosystems. The project team will also test the feasibility and usability of the model.

INDIANA UNIVERSITY

Principal Investigator: Jonathan Plucker

Amount: \$2,019,816

Period of Performance: 3/1/09–2/28/13

Description: *Testing the Effectiveness of CALM for High School Chemistry Students*. To address the poor science achievement of high school students and to help reduce the achievement gap, high school science teachers need interventions that improve student learning in science. This study seeks to assess the efficacy of the Computer Assisted Learning Method (CALM), a fully developed chemistry program widely used in the state of Indiana that has not been evaluated for efficacy.

UNIVERSITY OF MIAMI

Principal Investigator: Okhee Lee

Amount: \$2,999,918

Period of Performance: 7/1/09–6/30/13

Description: *Promoting Science among English Language Learners (P-SELL): Efficacy and Sustainability*. English language learning (ELL) students frequently confront the demands of academic learning through a yet-unmastered language without the instructional support they need. As a result, ELL students often fall behind their English-speaking peers in mastering academic content areas. To address this need, the researchers intend to evaluate the efficacy of the Promoting Science among English language learners (P-SELL) curriculum, an intervention designed to promote academic learning with ELL students in science, using a randomized experimental field trial.

LAKE FOREST COLLEGE

Principal Investigator: Sergio Guglielmi

Amount: \$83,430

Period of Performance: 7/1/09–6/30/11

Description: *Academic Achievement in Limited English Proficient Students: A Multivariate Latent Growth Modeling Analysis of Predictors, Mediators, and Moderators*. The achievement gap between limited-English proficient (LEP) and non-LEP students has been repeatedly documented and is widening. In order to narrow and eliminate this gap, a systematic evaluation of institutional, pedagogical, sociocultural, and intrapersonal factors that interfere with the academic achievement of LEP students is needed. The current study will address this need by identifying the mechanisms through which native language proficiency relates to the mathematics and science achievement growth of LEP students. Data from the National Education Longitudinal Study (NELS:88/2000) will be analyzed to identify the mechanisms through which native language proficiency relates to the achievement growth of LEP students.

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UNIVERSITY OF VIRGINIA

Principal Investigator: Mable Kinzie

Amount: \$1,949,854

Period of Performance: 3/1/07–2/28/11

Description: *Pre-K 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.

VANDERBILT UNIVERSITY

Principal Investigator: Paul Cobb

Amount: \$1,253,837

Period of Performance: 8/1/07–7/31/09

Description: *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.

Middle and High School Reform

INSTITUTE FOR RESEARCH AND REFORM IN EDUCATION

Principal Investigator: James Connell

Amount: \$1,499,517

Period of Performance: 7/1/10–6/30/13

Description: *Bringing Rigor and Relevance to High School Reform Through Thematic Curricula.* The research and development team will develop and pilot two high school-level thematic curricula – in the areas of Health and the Arts—with emphasis on rigorous content/instruction and student engagement. Extensive classroom observations will be used in developing measures of faithful implementation of the curriculum and pedagogical strategies and measures of student engagement in learning activities.

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Postsecondary Education

UNIVERSITY OF MICHIGAN

Principal Investigator: Isaac McFarlin, Jr.

Amount: \$2,573,484

Period of Performance: 7/1/10–6/30/14

Description: *Causes and Consequences of Public Subsidies in Higher Education: Evidence from Community College Districts*. This project will examine the causes and consequences of tax policies and tuition rates of community colleges on student outcomes including postsecondary access, choice, and success (credits, degrees, earnings). The design is provided by a ‘natural’ experiment’ in which differences in policies among community colleges allows for comparison of the effects of tax subsidies on community college attendance and completion.

UNIVERSITY OF SOUTHERN CALIFORNIA

Principal Investigator: Tatiana Melguizo

Amount: \$546,452

Period of Performance: 5/1/10–4/30/12

Description: *Evaluating the Effects of Basic Skills Mathematics Placement on Academic Outcomes of Community College Students*. This project evaluates the effectiveness of basic math skills education on the course-taking patterns of community college students and the subsequent effect on math success, transfer, and graduation using transcript data from nine community colleges.

MDRC

Principal Investigator: Thomas Brock

Amount: \$1,584,722

Period of Performance: 4/1/10–3/31/13

Description: *Evaluating the Long-Term Effects and the Costs of Two Community College Interventions*. This project will evaluate the long-term educational effects of two promising community college programs operated as part of the Opening Doors Demonstration, an efficacy study of programs aimed to help community college students succeed. It will also estimate the costs of operating the programs in comparison to the usual college services.

BOARD OF TRUSTEES OF

THE LELAND STANFORD JUNIOR UNIVERSITY

Principal Investigator: Caroline Hoxby

Amount: \$2,879,635

Period of Performance: 3/1/10–2/28/14

Description: *Evaluation of a Random Assignment Intervention to Improve College Choice Among High Achieving, Low-Income Students*. This study will evaluate the effects of four interventions designed to increase applications to selective colleges by qualified low-income students through providing informational and financial supports. Students will be randomly assigned to a control group or to receive application information, financial aid information, coupons for application fee waivers, information for parents, and/or contact by a peer who has already applied to college. The success of the interventions will be measured in regard to college applications, college offers (including offers of financial aid), and persistence.

UNIVERSITY OF CALIFORNIA, DAVIS

Principal Investigator: Michal Kurlaender

Amount: \$1,831,608

Period of Performance: 7/1/10–6/30/14

Description: *Ready or Not? California’s Early Assessment Program and the Transition to College*. The project will evaluate the impact of California’s Early Assessment Program (EAP) in reducing the need for remediation at California State University. EAP is a program in which students voluntarily agree to participate in additional assessment in the junior year of high school in order to receive feedback on their college readiness. The study will investigate the effect of EAP participation on student course-taking in the senior year of high school and on student applications to the California State University system.

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UNIVERSITY OF MASSACHUSETTS, DARTMOUTH

Principal Investigator: Amy Shapiro

Amount: \$504,246

Period of Performance: 7/1/10–6/30/13

Description: *The Efficacy of Personal Response Systems (Clickers) as Learning Tools: A Multidisciplinary, Large-Scale, Empirical Evaluation.* The project will evaluate the efficacy of personal response systems (also known as “Clickers”) in facilitating learning in introductory college courses in Biology, Physics, and Psychology. The study will provide evidence on whether “Clickers” promote cognitive activity that results in deeper learning, or increase learning by drawing students’ attention and study efforts to important material.

UNIVERSITY OF PENNSYLVANIA

Principal Investigator: Henry May

Amount: \$700,000

Period of Performance: 3/1/09–2/28/11

Description: *A Longitudinal Study of International Baccalaureate Students: Postsecondary Education Access, Performance, and Persistence.* This project will examine the relationship between participation in the International Baccalaureate (IB) Diploma Program and a range of college-related outcomes that occur on the path into and through higher education.

UNIVERSITY OF MINNESOTA

Principal Investigator: David Johnson

Amount: \$727,237

Period of Performance: 3/1/09–2/28/11

Description: *Making the Connection: Engaging and Retaining Young Adults in Postsecondary Education.* The purpose of this project is to develop a set of specific intervention strategies that promote the retention of students, ages 18–30, attending community colleges. The strategies will be based, in part, on Check & Connect (C&C), a secondary dropout prevention and intervention model that has been successfully tested and validated with high school students in multiple studies. The project seeks to determine the feasibility of adapting the secondary C&C to create a postsecondary model to increase students’ engagement and persistence in community college settings.

NATIONAL BUREAU OF ECONOMIC RESEARCH

Principal Investigator: Bridget Terry Long

Amount: \$1,510,238

Period of Performance: 3/1/09–2/28/13

Description: *Simplification and Incentives: A Randomized Experiment for Increasing College Savings.* The project will evaluate the effects of providing different levels of information about 529 College Savings Plans and support in opening college savings plans to individuals. The intent is to determine how best to encourage saving for college, and to ascertain how saving behavior relates to college outcomes.

Reading and Writing

REGENTS OF THE UNIVERSITY OF MICHIGAN

Principal Investigator: Holly Craig

Amount: \$1,546,892

Period of Performance: 4/1/10–3/31/13

Description: *Developing Contrastive Analysis Techniques for Teaching Academic Classroom English to Young African American English-Speaking Students.* Inspired by recent evidence that speakers of African American English (AAE) who learn to

“code-switch” and use Academic Classroom English (ACE) for school tasks have improved reading and writing scores, the researchers will develop an intervention to foster dialect awareness and code-switching skills in kindergarten and first grade students who speak AAE. A grade-appropriate assessment battery will be developed and validated as a second goal of this project to measure dialect change.

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UNIVERSITY OF DELAWARE

Principal Investigator: Charles MacArthur

Amount: \$877,803

Period of Performance: 7/1/10–6/30/13

Description: *Development of a Curriculum to Teach Writing in Postsecondary Developmental English Composition Classes.* Community colleges admit large numbers of students who are often encouraged or required to take developmental or remedial courses, with the most common being remedial writing courses. Yet, despite the prevalence of remedial writing courses at the community college level, few studies have explored the effects of instructional techniques in basic writing courses. This research project will address this need and generate a writing curriculum that can be used in remedial college-level composition courses. This curriculum will be developed and tested iteratively over the course of three years at two different community college campuses in Delaware with the assistance of college administrators and instructors.

UNIVERSITY OF TEXAS HEALTH SCIENCE CENTER AT HOUSTON

Principal Investigator: Dennis Ciancio

Amount: \$1,369,422

Period of Performance: 7/1/10–6/30/13

Description: *Development of Integrated Text Level Curricula for Kindergarten Through Second Grade Students.* In this project, the research team will develop a language arts curriculum for students in kindergarten, first and second grade that integrates explicit comprehension instruction and writing activities into existing vocabulary lessons. The intervention builds on prior IES-funded work in which a vocabulary curriculum was developed for kindergarten and first grade students. Assessments will be developed to evaluate the effectiveness of the developed curricula along with a set of curriculum based measurement assessments for teachers to track students' acquisition of the material. Training manuals for the curriculum and the assessment battery will also be developed.

WASHINGTON RESEARCH INSTITUTE

Principal Investigator: Patricia Vadasy

Amount: \$1,338,371

Period of Performance: 7/1/10–6/30/13

Description: *Efficacy of Rich Vocabulary (RVOC) Instruction for Classrooms.* The ability to understand written text is highly dependent on knowing the meaning of individual words. The well-established positive relation between vocabulary and comprehension suggests that high-quality vocabulary instruction should benefit comprehension. In this efficacy study, the research team will test the efficacy of rich vocabulary (RVOC) instruction compared to typical (i.e., business-as-usual) vocabulary instruction for students in fourth and fifth grade. RVOC instruction is intensive, provides frequent and varied encounters with targeted vocabulary words, and has been found to improve reading comprehension in prior quasi-experimental research conducted with small samples. The current study will attempt to replicate this prior research using more methodological rigor, including the use of random assignment and a larger and more diverse sample.

GEORGE MASON UNIVERSITY

Principal Investigator: Ana Taboada

Amount: \$1,566,603

Period of Performance: 5/25/10–5/24/13

Description: *Fostering Reading Engagement in English-Monolingual Students and English Language Learners Through a History Curriculum.* According to the 2009 National Assessment of Educational Progress, 70 percent of eighth-graders are at or below the basic level in reading, leaving them unable to make inferences or connections within and across texts, explain causal relations, or analyze text features. Further, only 22 percent of eighth-graders agree that reading is their favorite activity and only 13 percent agree that they learn a lot from reading books. In this project, the research team intends to address both the cognitive and motivational aspects of adolescents' reading comprehension through the development of a history-based reading curriculum, United States History for Engaged Reading (USHER). This curriculum will also include specific adaptations for English language learners.

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VANDERBILT UNIVERSITY

Principal Investigator: Donald Compton

Amount: \$1,346,663

Period of Performance: 9/1/10–8/31/14

Description: *Predictors and Subtypes of Reading Disabilities: Implications for Instruction of 'Late Emergers.'* Comprehension of text requires the coordination of a complex set of skills. At a minimum, children need to be able to decode printed words on a page and comprehend spoken language in order to read with understanding. One goal of this exploratory research is to determine whether these two skill sets – word-level skills and linguistic comprehension – are independent of each other. A second goal is to understand how development in these two skill domains may be related to reading problems. The research team will collect additional primary data on a sample of children who have been followed longitudinally in a prior IES-funded study from first through fourth grade. In this project, the research team will identify characteristics of children that may be amenable to intervention in order to guide instruction for all children and particularly for students whose reading difficulties emerge in the upper grades in elementary school.

UNIVERSITY OF PITTSBURGH

Principal Investigator: Margaret McKeown

Amount: \$1,685,982

Period of Performance: 7/1/10–6/30/13

Description: *Robust Instruction of Academic Vocabulary for Middle School Students.* The vocabulary demands of texts that students are assigned to read in middle school are cited as a major contributor to reading problems, yet there is very little explicit vocabulary instruction in middle school. In this project, the research team will develop a vocabulary program to teach academic words to middle school students. The words for the intervention will be selected from Coxhead's Academic Word List (AWL), which includes 570 word families that span 28 content domains. These words are intended to support comprehension of expository, academic texts. The intervention will cover two grade levels of instruction, sixth and seventh grades, incorporating strategies for robust vocabulary instruction shown to be effective for elementary school students.

OHIO STATE UNIVERSITY

Principal Investigator: George Newell

Amount: \$979,493

Period of Performance: 7/1/10–6/30/13

Description: *Teaching and Learning Argumentative Writing in High School English Language Arts Classrooms.* The ability of secondary students to compose written arguments is limited. Only 15 percent of twelfth grade students performing at the proficient level were able to write well-organized essays in which they took clear positions and consistently supported those positions. One way to improve outcomes may be to enhance teachers' pedagogical knowledge and practices regarding argumentative writing at the secondary level. However, the instructional processes that are predictive of high quality argumentative writing are not clear. This research team will address this issue and identify the predictive factors that may, in turn, be used to develop an instructional model for teaching argumentative writing at the secondary school level.

FLORIDA ATLANTIC UNIVERSITY

Principal Investigator: Nancy Romance

Amount: \$1,414,605

Period of Performance: 7/1/09–6/30/12

Description: *A Multi-Part Intervention for Accelerating Vocabulary Acquisition through Inductive Transfer.* Research consistently shows that vocabulary knowledge is an important component of reading comprehension. How to enhance vocabulary knowledge for at-risk children is a challenge because the rate at which children typically learn new words is far too rapid to be explained by either direct vocabulary instruction or by the indirect effects of reading alone. In this study, the research team will further develop and refine an instructional strategy that elementary school teachers can use with basal readers to help students make inferences about the meanings of words as they read texts.

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UNIVERSITY OF VIRGINIA

Principal Investigator: Marcia Invernizzi

Amount: \$1,599,187

Period of Performance: 6/1/09–5/31/13

Description: *Designing Assessment to Enhance English Literacy Development Among Spanish-Speaking Children in Grades K–3.* Reading assessments administered in English can be effective for identifying English language learners at risk for problems with reading in English. However, assessment in the native language is also important for children who speak little or no English to identify literacy skills in the native language that can be leveraged to support the development of literacy skills in English. In this study, the researchers will develop a Spanish version of the widely used *Phonological Awareness Literacy Screening* (PALS) assessment to support the development of English literacy in Spanish-speaking English language learners. *PALS español* will be an assessment tool designed to identify strengths and weaknesses in Spanish-speaking children's native language development that can be leveraged to facilitate their development of English literacy skills.

UNIVERSITY OF WYOMING

Principal Investigator: James Baumann

Amount: \$1,779,368

Period of Performance: 9/1/09–8/31/12

Description: *Development of a Multifaceted, Comprehensive Vocabulary Instructional Program for the Upper Elementary Grades.* The process of implementing effective vocabulary instruction in authentic classroom settings is not well understood. In particular, teachers need a comprehensive, explicit, and practical approach for instructing all of their students, including English language learners, on vocabulary knowledge. In this project, the researchers will develop, refine, and test the feasibility of a comprehensive, multifaceted vocabulary instructional program for students in the fourth and fifth grades. The instructional program will be based on Michael Graves' (2006) four-component vocabulary program, which includes providing rich and varied language experiences, teaching individual words, teaching word-learning strategies, and promoting word consciousness (e.g., by providing instruction to support metalinguistic awareness).

UNIVERSITY OF MARYLAND, COLLEGE PARK

Principal Investigator: Rebecca Silverman

Amount: \$1,400,000

Period of Performance: 6/1/09–5/31/12

Description: *Investigating Vocabulary Breadth and Depth and Comprehension in English Monolingual and Spanish-English Bilingual Elementary School Students.* Vocabulary knowledge is critical to effective reading comprehension. Most research to date has focused on the importance of vocabulary breadth (the *quantity* of known words) and its relationship to reading comprehension. Vocabulary depth (the *quality* of vocabulary knowledge), including morphological, semantic, and syntactical awareness, may be equally important to reading comprehension but there is limited research in this area. In this study, the researchers will investigate the development of vocabulary breadth and depth, their relationship to the development of reading comprehension, and instructional factors related to the development of both vocabulary and comprehension, in a sample of monolingual English and bilingual Spanish-English students in second through fifth grade.

UNIVERSITY OF CALIFORNIA, SANTA CRUZ

Principal Investigator: Judith Scott

Amount: \$2,036,502

Period of Performance: 7/1/09–6/30/13

Description: *Measuring Vocabulary with Testlets: A New Tool for Assessment.* Vocabulary knowledge is recognized by reading and education experts as an influential component of reading comprehension. Traditional assessments of vocabulary yield scores indicating choice of correct versus incorrect answers, but do not provide more nuanced information about the student's level of understanding. The VINE (Vocabulary Innovations in Education) assessments were developed with support from an IES grant in 2006 to assess growth of fourth-graders' vocabulary knowledge. The current project extends this work to develop valid and reliable vocabulary assessments for both fourth and fifth grade students in English language arts, science, math, and social studies.

APPENDIX – GRANT AND CONTRACT AWARDS

SOUTHWEST EDUCATIONAL DEVELOPMENT CORPORATION

Principal Investigator: Michael Vaden-Kiernan

Amount: \$5,302,021

Period of Performance: 7/1/09–6/30/13

Description: *National Randomized Controlled Trial Study of SRA/McGraw-Hill Open-Court Reading Program.* The Open-Court Reading (OCR) program, published by SRA/McGraw-Hill and widely used for almost 40 years, is a phonics-based core-reading program for students in kindergarten to sixth grade that incorporates many of the instructional practices related to phonemic awareness, phonics, fluency, vocabulary, and text comprehension recommended by the National Reading Panel of 2000. In this study, an independent research team will evaluate the effectiveness of the OCR program in a large national sample of elementary schools at scale, across diverse school populations and conditions, and with no more support than schools would have access to if they had selected OCR as their early reading curriculum apart from participation in a research project.

EDUCATION DEVELOPMENT CENTER, INC.

Principal Investigator: Andrea Kotula

Amount: \$2,235,330

Period of Performance: 7/1/09–6/30/13

Description: *Responding to the National Crisis in Writing: An Efficacy Study of an Elementary Grades Writing Program.* The ability to write effectively is critical for success in school, college and the workplace. Yet, results of the most recent National Assessment of Educational Progress to assess writing (NAEP 2007) indicate that only about one-quarter of fourth and twelfth grade students are proficient writers. More research is needed to determine the type of instruction that is needed to support strong writing skills. This efficacy project will address the gap in our understanding of effective writing instruction through a randomized controlled trial of the Writers' Express (WEX), a writing program for students in third through 12th grade, as implemented in fourth and fifth grade classrooms.

FLORIDA STATE UNIVERSITY

Principal Investigator: Carol Connor

Amount: \$3,084,305

Period of Performance: 6/1/07–5/31/11

Description: *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.

MID-CONTINENT RESEARCH FOR EDUCATION AND LEARNING (MCREL)

Principal Investigator: Helen Apthorp

Amount: \$2,442,228

Period of Performance: 7/1/08–6/30/11

Description: *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 (EOR): Vocabulary on vocabulary and reading comprehension in schools serving children from low-income households.

APPENDIX – GRANT AND CONTRACT AWARDS

Social and Behavioral Context for Academic Learning

UNIVERSITY OF ILLINOIS, URBANA-CHAMPAIGN

Principal Investigator: Philip Rodkin

Amount: \$2,164,277

Period of Performance: 5/16/10–5/15/14

Description: *A Longitudinal Study of Teaching Practices, Classroom Peer Ecologies, and Youth Outcomes.* The social atmosphere of the classroom and a teacher's ability to manage it is as critical to student achievement as the specific curricula and content of instruction. In this project, the research team will describe the relationship between teacher practices, classroom peer ecologies (children's social status and social network dynamics), academic achievement, aggression, and school relatedness in elementary school classrooms. The researchers will identify which features of classroom peer ecologies are associated with positive student outcomes, what teacher practices are associated with positive classroom peer ecologies and student outcomes, and whether classroom ecologies are influenced by students' ethnicity and classroom diversity.

NEW YORK UNIVERSITY SCHOOL OF MEDICINE

Principal Investigator: Laurie Brotman

Amount: \$2,127,642

Period of Performance: 7/1/10–6/30/14

Description: *Academic Achievement Outcomes from a Pre-K Family and School Intervention.* Behavior problems in early childhood, especially physical aggression, strongly predict poor academic achievement later. This suggests that prevention of aggression in early childhood will lead to improved academic outcomes. In this study, the research team will follow 1,052 second grade students who participated in an IES-funded randomized controlled trial (RCT) to evaluate the ParentCorps/TeacherCorps program when they were in preschool. Most of the participating students are African American and AfroCaribbean and come from low-income families. The RCT found positive impacts on parent and teacher behavior management practices, parent-teacher communication and child aggression from preschool through kindergarten. This follow-up study will evaluate the long-term intervention effects of this program on academic achievement and parent involvement in education for these students in second and third grade.

UNIVERSITY OF MISSOURI

Principal Investigator: Wendy Reinke

Amount: \$2,915,757

Period of Performance: 8/1/10–7/31/14

Description: *Evaluation of a Video-Based Modeling Program to Promote Effective Teacher Classroom Management Practices.* Although much is known about effective classroom management strategies, many teachers are not adequately trained to deal with behavior problems in the classroom. The Incredible Years teacher training (IY TT) program is an innovative video-based modeling program that incorporates active learning of classroom management skills. In this efficacy study, the research team will examine the effects of IY TT on the academic performance of students in kindergarten through third grade and determine the extent to which classroom behavior mediates the relationship between teacher classroom management skills and students' academic performance in the classroom.

UNIVERSITY OF VIRGINIA

Principal Investigator: Joseph Allen

Amount: \$2,688,440

Period of Performance: 3/1/10–2/28/14

Description: *Increasing Adolescent Engagement, Motivation, and Achievement: Efficacy of a Web-Based, Teacher Professional Development Model.* By the time adolescents enter high school, more than half report that they do not take school or their studies seriously. Many adolescents also report that their interactions with teachers are not satisfying or motivating. My Teaching Partner (MTP) is designed to change the quality of teacher-student interactions in ways that enhance student engagement, reduce problematic behaviors, and increase student achievement. In this efficacy study, the research team will examine the effects of MTP on the academic performance of students in high school and determine the extent to which improved teacher-student interaction increases student behavioral and achievement outcomes via their impact on student engagement and motivation.

APPENDIX – GRANT AND CONTRACT AWARDS

UNIVERSITY OF SOUTH FLORIDA

Principal Investigator: Shannon Suldo

Amount: \$1,018,359

Period of Performance: 7/1/10–6/30/13

Description: *Intrapersonal Factors Associated with Academic Success among High School Students in Advanced Placement and International Baccalaureate (AP-IB) Programs.* The number of high school students enrolled in rigorous college preparatory programs such as Advanced Placement and International Baccalaureate (AP-IB) classes and programs is on the rise. These students are increasingly diverse in terms of ethnic and linguistic background, academic preparation, socioeconomic status, and experience with managing challenging academic coursework. In this study, the researchers will explore how, and for whom, malleable factors such as coping strategies, engagement in learning, and perceptions of school connectedness may act as protective factors for students dealing with the inherent stress of AP-IB programs. This information can inform school-based prevention and intervention efforts to mitigate the impact of stress and increase the likelihood that all students can excel in rigorous academic coursework during high school.

UNIVERSITY OF MINNESOTA

Principal Investigator: Michael Resnick

Amount: \$1,451,480

Period of Performance: 3/1/10–2/28/13

Description: *Minnesota Partnership for School Connectedness.* The middle school years are associated with declines in academic achievement, performance motivation, and self-perceptions, making this a critical time to engage in strategies that build connectedness and engage students in learning. In this project, the research team proposes to develop and field-test a professional development program for middle school teachers. The program will be designed to help teachers engage their students in learning during the middle school years, a time when many students show declines in academic achievement, performance motivation, and self-perceptions related to school performance.

CLEVELAND STATE UNIVERSITY

Principal Investigator: Justin Perry

Amount: \$1,006,155

Period of Performance: 6/1/10–5/31/13

Description: *The Career Passport Program: Development and Refinement.* School dropout affects urban youth of color at disproportionately high rates. In this project, the research team proposes to enhance and expand the existing curriculum and instructional practices of the Career Passport Program, a career education program designed to promote school engagement and high school completion.

UNIVERSITY OF VIRGINIA

Principal Investigator: Jason Downer

Amount: \$1,469,979

Period of Performance: 9/1/10–8/31/13

Description: *Using an Empirically-supported Teacher Consultation Model to Facilitate the Implementation of an Integrated Social-emotional Learning and Literacy Curriculum in Urban Elementary Schools.* Students' success in school relies on both academic and social skills. In this project, the research team proposes to develop enhanced implementation supports for teachers' effective delivery of the 4Rs – Reading, Writing, Respect, and Resolution program, an integrated social-emotional learning and literacy curriculum. The developers of the 4Rs program will partner with the developers of My Teaching Partner, a professional development intervention that provides individualized coaching and feedback to support teachers' implementation of curricula, to develop an integrated 4Rs-MTP program intended to improve implementation fidelity of the 4Rs curriculum, enhance program effects on student social-emotional and academic outcomes, and produce a set of efficient, sustainable, and web-based resources for supporting future scaled-up implementation of the 4Rs curriculum.

APPENDIX – GRANT AND CONTRACT AWARDS

ARIZONA STATE UNIVERSITY

Principal Investigator: Gary Ladd

Amount: \$1,849,577

Period of Performance: 7/1/09–6/30/12

Description: *Development of the “4R-SUCCESS” Program Aimed at Improving Elementary School-aged Children Social and Scholastic Competence.* Peer-mediated learning (PML) activities (e.g., peer collaboration and tutoring) are widely used in U.S. schools to increase student motivation, engagement, and achievement, with nearly 80 percent of elementary school teachers using peer-mediated learning activities on a regular basis. The extent to which children benefit from PML activities depends in part on their ability to relate to and work constructively with classmates, but PML activities do not address student problem behaviors or lack of social competence. In this study, the research team will develop 4R-SUCCESS (4Rs = Reading, ‘Riting, ‘Rithmetic, and Relationships; Students Using Collaborative Curricula to Enhance Social-Scholastic Skills) to improve children’s interpersonal competence and encourage the creation and maintenance of collaborative learning relationships with peers. 4R-SUCCESS is a coaching curriculum intended to be administered by elementary school teachers to all students in the classroom to enhance social competence and academic success.

DUKE UNIVERSITY

Principal Investigator: Desiree Murray

Amount: \$1,456,850

Period of Performance: 7/1/09–6/30/13

Description: *Effects of Classroom Management Training on Early Learning Skills.* Considerable evidence suggests that teacher classroom management practices play a large role in determining the amount of time students engage in academic tasks, but there has been little experimental research on the direct benefits of classroom management training for academic achievement. The Incredible Years teacher training program (IYT) has been shown to be effective in improving classroom management practices in early elementary school and in enhancing children’s social competence, emotion regulation skills, and behavior. However, academic outcomes of this program have not been examined. In this efficacy study, the research team will examine the effects of IYT on the academic performance of students in kindergarten through second grade and determine the extent to which classroom behavior mediates the relationship between teacher classroom management skills and students’ academic performance in the classroom.

UNIVERSITY OF ILLINOIS AT CHICAGO

Principal Investigator: Elisa Shernoff

Amount: \$1,012,701

Period of Performance: 5/1/09–4/30/12

Description: *Enhancing Effectiveness and Connectedness among Early Career Teachers in Urban Schools.* Early career teachers working in low-income communities experience teacher attrition rates of nearly 50 percent. Two of the strongest predictors of attrition are teachers’ classroom management skills and their ability to engage students in learning. In this study, the researchers will develop, refine, and test the feasibility of a professional development (PD) model for early career teachers working in poor urban communities. The PD model will target teachers’ classroom management skills and ability to engage students (for the purpose of this study, called teachers’ *effectiveness*) as well as teachers’ relationships with colleagues and connection to the school (called teachers’ *connectedness*). Early career teachers will be paired with peer-nominated teacher mentors and coaches (retired veteran teachers) to provide knowledge dissemination and intensive classroom support in classroom management and motivating learners. The PD model also includes a professional learning community component designed to promote early career teachers’ connectedness to colleagues.

IRIS MEDIA, INC.

Principal Investigator: Brion Marquez

Amount: \$1,858,462

Period of Performance: 6/1/09–5/31/12

Description: *Establishing Positive Behavior Supports in Elementary School Instructional Settings.* Although it is well established that effective classroom management is critical to reducing disruptive behavior, promoting student engagement, and ultimately enhancing academic achievement, schools struggle to provide adequate training in classroom management for all school staff involved in instruction and supervision. In this study, the researchers will develop and field test an online staff professional development program that teaches all elementary school staff how to apply positive behavior supports (PBS) in a wide variety of elementary school settings. This Instructional Staff PBS program will be available on a media-enhanced Internet platform and will focus on understanding and using PBS principles and practices, implementing preventive behavioral approaches, and responding effectively to misbehavior and correcting minor problem behaviors that interfere with instruction.

APPENDIX – GRANT AND CONTRACT AWARDS

JOHNS HOPKINS UNIVERSITY

Principal Investigator: Catherine Bradshaw

Amount: \$700,000

Period of Performance: 7/1/09–6/30/11

Description: *Examining Variation in the Impact of School-Wide Positive Behavioral Interventions and Supports (PBIS).*

Approximately one out of five children displays disruptive behavior problems. Behavior problems are associated with low rates of attendance, reduced academic achievement, and greater risk for special education placements. Positive Behavioral Interventions and Supports (PBIS) is a universal school-wide system to prevent disruptive problem behavior in schools. In this study, the research team will link existing data from the only longitudinal randomized controlled trial of School-wide PBIS (SWPBIS) with archival data from a state department of education to identify for whom, how, and under what conditions SWPBIS was most effective. This work will inform the future development of screening tools and targeted preventive interventions for children who do not respond adequately to the universal SWPBIS model.

PENNSYLVANIA STATE UNIVERSITY

Principal Investigator: Patricia Jennings

Amount: \$932,424

Period of Performance: 5/1/09–4/30/11

Description: *Improving Classroom Learning Environments by Cultivating Awareness and Resilience in Education (CARE).*

Teachers must provide their students with effective instruction in academic content while simultaneously dealing with the emotions, behaviors, and social exchanges of their students through effective classroom management practices. These types of challenges in the classroom can lead to dissatisfaction and teacher burnout and, in some instances, subsequent departure from the teaching profession. Teachers' social-emotional competence (e.g., self-awareness, responsible decision making) is an important factor in teachers' ability to manage the challenges and stressors of the classroom. In this study, the research team will complete the development of the Cultivating Awareness and Resilience in Education (CARE) professional development program. This teacher professional development focuses on teachers' social and emotional awareness, self-regulation skills, and prosocial responding and is intended to enhance teachers' well-being, reduce their stress, and improve the learning environment for students.

INNOVATION RESEARCH & TRAINING, INC.

Principal Investigator: Alison Parker

Amount: \$744,257

Period of Performance: 3/1/09–2/28/12

Description: *Mindfulness-Based Academic Achievement Program for Middle School.*

Prevention scientists have long recognized the importance of children's social and behavioral skills to support academic success. Mindfulness—defined as being attentive to and aware of what is taking place in the present moment—has recently been considered as one possible social cognitive skill that contributes to academic success. Mindfulness is conceptualized as leading to increased attention, cognitive control, behavior regulation, and social-emotional competence, as well as an overall more effective and enjoyable learning environment. In this study, the research team will develop and assess the feasibility of a developmentally appropriate mindfulness intervention program for use with middle school students.

CHILDREN'S HOSPITAL MEDICAL CENTER

Principal Investigator: Joshua Langberg

Amount: \$621,563

Period of Performance: 7/1/09–6/30/12

Description: *Organizational Skills Interventions for Children with ADHD.*

Attention deficit hyperactivity disorder (ADHD) is one of the most commonly diagnosed childhood disorders. Children with ADHD often have difficulty with school-related tasks and activities such as completing or turning in homework, planning for long-term assignments, studying for tests, and keeping class materials and papers organized. These organizational and temporal difficulties become particularly problematic with the increased demands of middle school, a time when these children are at risk for failing grades, retention, and school dropout. In this study, the research team will adapt and refine an after-school program that targets the organizational difficulties of middle school students with ADHD, with the goal of making the intervention feasible for school counselors or psychologists to implement during the school day.

APPENDIX – GRANT AND CONTRACT AWARDS

AMERICAN INSTITUTES FOR RESEARCH

Principal Investigator: Jeanne Poduska

Amount: \$3,391,254

Period of Performance: 7/1/09–6/30/13

Description: *Professional Development to Support and Sustain a Classroom Behavior Management Strategy.* The Good Behavior Game (GBG), a fully developed classroom behavior management strategy, is one of the few preventive interventions targeting aggressive/disruptive behavior that has shown both short-term and long-term improvements for classroom behavior in randomized field trials. In this study, the research team addresses a fundamental challenge in moving research to practice, the need to understand the level of professional development required for teachers to implement and sustain new program practices so that benefits are seen both for their current students and for students they teach in subsequent years. Using a randomized controlled trial, the research team will test the relative efficacy and sustainability of the GBG under two models of professional development compared to one another and a control condition. In the first professional development (PD) model, GBG Basic provides group-based pre-implementation training to teachers supplemented by a group-based booster session. In the second more intensive PD model, GBG w Coach, the group-based activities are enhanced by a coach who works directly in the classroom with the teacher.

UNIVERSITY OF MICHIGAN

Principal Investigator: Frederick Morrison

Amount: \$1,499,881

Period of Performance: 7/1/09–6/30/12

Description: *SECURe: Developing an Integrated Social, Emotional, and Cognitive Understanding and Regulation Intervention.* Intervention programs that target literacy skills have proven successful in boosting at-risk children's academic achievement. Yet the gains for these children,

while important, are modest and often fall short of closing the achievement gap that emerges early in development. Emerging research evidence suggests that social-emotional understanding and self-regulation skills contribute in important ways to academic success in the early grades. In the present study, the research team will develop an intervention program that combines the Success for All Elementary Reading program (K–3) with a new set of curricular interventions designed to foster students' social, emotional, and cognitive understanding and regulation skills.

PENNSYLVANIA STATE UNIVERSITY

Principal Investigator: James DiPerna

Amount: \$2,412,860

Period of Performance: 7/1/09–6/30/13

Description: *The Social Skills Improvement System Classwide Intervention Program: Social, Behavioral, and Academic Outcomes in the Intermediate Grades.* Helping children to get along with others, care about themselves, and actively participate in learning are critical to success in school. The Social Skills Improvement System (SSIS) is a comprehensive program to improve social skills and reduce problem behaviors from preschool to early adolescence. The Classwide Intervention Program (SSIS-CIP) is the universal component of this program, designed to help students learn the 10 social skills that teachers have identified as most critical to academic success. In this study, the research team will evaluate the effects of the SSIS-CIP program on students' social skills, behaviors, and academic achievement in the elementary grades.

APPENDIX – GRANT AND CONTRACT AWARDS

Teacher Quality-Mathematics and Science Education

CNA CORP.

Principal Investigator: Linda Cavalluzzo

Amount: \$3,386,940

Period of Performance: 7/1/10–6/30/14

Description: *Using Data to Inform Decisions: How Teachers Use Data to Inform Practice and Improve Student Performance in Mathematics.* In a randomized controlled trial, researchers will test whether implementation of a widely used professional development program, *Using Data*, will help teachers make better use of assessment and other data, and will in-turn improve student performance in mathematics.

TEACHER EDUCATION RESEARCH CENTERS, INC.

Principal Investigator: Ann Rosebery

Amount: \$1,500,134

Period of Performance: 3/1/10–2/28/13

Description: *A Practice-Based Approach to Professional Development in Science in Urban Elementary and Middle Schools.* Researchers will develop and iteratively refine a professional development program for urban science teachers that use structured cases as the bases for ongoing, embedded learning that focuses on understanding how students of different cultural backgrounds make sense of their world as a way of generating scientific learning and knowledge.

UNIVERSITY OF HAWAII

Principal Investigator: Kanesa Duncan

Amount: \$1,498,644

Period of Performance: 3/1/10–2/28/13

Description: *Accessible Professional Development for Teaching Aquatic Science Inquiry.* Researchers will develop with teachers four content modules adapted from an existing curriculum, and a combined online and face-to-face professional development program designed to teach aquatic science. The program incorporates an emphasis on different modes of inquiry and principles of ocean literacy. The program involves teachers in a research-based process of collegial learning, extended time on each topic, experiential learning, and reflection on the learning process.

UNIVERSITY OF MICHIGAN

Principal Investigator: Kevin Miller

Amount: \$1,440,585

Period of Performance: 6/1/10–5/31/13

Description: *Making Room for Student Thinking: Using Automated Feedback, Video-Based Professional Development, and Evidence-Based Practice Recommendations to Improve Mathematical Discussion.* Researchers will develop methods to help teachers monitor and improve classroom discussion in mathematics by (1) adapting and validating technology called the Language Environment Analysis (LENA) that automatically records and analyzes classroom discussions; (2) using video-based online professional development to provide teachers strategies for improving mathematics discussions; and (3) developing tests to understand how and why the source of explanations (teacher or students) affects student learning.

UNIVERSITY OF MICHIGAN

Principal Investigator: Pamela Moss

Amount: \$1,638,954

Period of Performance: 7/1/10–6/30/13

Description: *Developing Mathematics Teaching through Focused Collaborative Assessment of Practice.* Researchers will develop and study a professional development program for teachers of mathematics in grades 1-5 that uses focused collaborative assessment as a crucial tool to improve high-leverage practices (e.g., planning instructional sequences, explaining mathematical ideas, leading discussions, and assessing students' understanding within and between lessons) and the content knowledge needed to enact them.

WESTED

Principal Investigator: Shandy Hauk

Amount: \$1,499,234

Period of Performance: 9/1/10–8/31/13

Description: *Making Middle School Mathematics Accessible for All Students.* Researchers will use an iterative design to produce a professional development course and facilitator guide for middle school mathematics teachers, paraprofessionals, and teacher-leaders, with a special emphasis on supporting culturally responsive teaching and the application of cognitive science and research-based practices.

APPENDIX – GRANT AND CONTRACT AWARDS

WESTED

Principal Investigator: Steve Schneider

Amount: \$2,959,275

Period of Performance: 3/1/10–2/28/14

Description: *Linear Functions for Teaching: An Efficacy Study of Learning and Teaching Linear Functions*. In a randomized controlled trial, researchers will evaluate the effects on teacher knowledge and instructional practices and student achievement of a widely used (4,500 teachers) video case-based professional development program in Algebra, Learning and Teaching Linear Functions.

UNIVERSITY OF CINCINNATI

Principal Investigator: Carla Johnson

Amount: \$1,500,000

Period of Performance: 3/1/09–2/28/12

Description: *INSPIRE: Urban Teaching Fellows Program*. The purpose of this study is to develop and implement a whole school, sustained, collaborative, and technology-enhanced science professional development program for elementary school teachers (grades 4–6). The program is adapted from a previously successful professional development program with middle school teachers. A national elementary science needs assessment survey of a representative sample of 7,000 elementary teachers nationwide found that 79 percent of them reported a lack of content knowledge and strategies to teach science as the main reason they choose not to teach it. Most (84 percent) felt they were not prepared adequately by their pre-service education experience to teach science. This project is premised on the notion that building science programs at earlier stages in the educational system will improve the successful outcomes of professional development that the researchers have demonstrated at the middle school level, and will have a more lasting effect on students' preparation for science study in high school and beyond.

WESTED

Principal Investigator: Steve Schneider

Amount: \$2,170,338

Period of Performance: 7/1/07–6/30/11

Description: *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 6-8), and thereby improve the science achievement of middle school students.

LESSONLAB, INC.

Principal Investigator: Nicole Kersting

Co-Principal Investigators: Rosella Santagata, Karen Givvin

Amount: \$1,644,948

Period of Performance: 9/1/06–8/31/10

Description: *Using Video Clips of Classroom Instruction as Item Prompts to Measure Teacher Knowledge of Teaching Mathematics: Instrument Development and Validation*. Over the past two decades researchers have developed teaching standards, detailing what teachers should know and be able to do. However, many of the assessments of teacher knowledge currently available assess low-level or marginally relevant knowledge, and not teachers' deep knowledge of subject matter and actual teaching skills. In addition, many assessments of teacher knowledge have been criticized for technical shortcomings relating to the instruments' reliability, inter-rater reliability, or validity, further underscoring the need for better assessments. To address existing needs, this study will take a novel assessment approach to measure teachers' knowledge of teaching mathematics. Following up on promising pilot data, this project will develop video-analysis assessments for three pre-algebra topic areas: fractions, ratio and proportion, and equations.

APPENDIX – GRANT AND CONTRACT AWARDS

Teacher Quality-Reading and Writing

AMERICAN INSTITUTES FOR RESEARCH

Principal Investigator: Terry Salinger

Amount: \$1,599,799

Period of Performance: 7/1/10–6/30/14

Description: *Validation of an Assessment of Teacher Knowledge of Beginning Reading Instruction.* Researchers will review, revise, and validate against student learning, a pool of assessment items previously developed for the National Center for Education Statistics/Education Statistics Services Institute to measure K-3 early reading teachers' knowledge of content, of pedagogy, and of students. The goal is to produce a pool of approximately 200 validated items in a wide range of formats (e.g., multiple choice, short-answer, and open-ended) that can be recombined into smaller tests of the various components of teacher reading knowledge.

UNIVERSITY OF NORTH CAROLINA, CHAPEL HILL

Principal Investigator: Lynn Vernon-Feagans

Amount: \$3,432,868

Period of Performance: 7/1/10–6/30/14

Description: *The Targeted Reading Intervention: A Web-Based Professional Development Program Targeting K-1 Classroom Teachers and their Struggling Readers.* Researchers will examine the efficacy of the Targeted Reading Intervention (TRI), a professional development program designed to help rural kindergarten and first-grade classroom teachers in low-wealth schools implement individualized reading instruction for struggling readers in their classrooms. The professional development model includes remote-coaching from a TRI consultant, collaborative professional learning teams, and an on-site literacy facilitator.

RG RESEARCH GROUP DBA INSTRUCTIONAL RESEARCH GROUP

Principal Investigator: Russell Gersten

Amount: \$2,713,610

Period of Performance: 7/1/09–12/31/12

Description: *Impact of Teacher Study Groups as Observed Teaching Practice and Student Vocabulary Knowledge: A Multi-Site Randomized Control Trial in First Grade.* The research team proposes to examine the impact of the Teacher Study Group on effective vocabulary instruction, teacher knowledge, observed teaching practice, and student vocabulary achievement when implemented with first grade teachers. This study builds on an earlier IES Development grant and proposes to replicate the *Teacher Study Group* professional development program in eight districts, across three states (California, Ohio, and Texas) and the DC Metro area (Virginia/Maryland), in 60 randomly assigned Title 1 schools.

APPENDIX – GRANT AND CONTRACT AWARDS

Postdoctoral Research Training Program in the Education Sciences _____

CARNEGIE MELLON UNIVERSITY

Principal Investigator: Brian Junker

Amount: \$654,619

Period of Performance: 7/1/10–6/30/13

Description: *Carnegie Mellon and RAND Traineeships (CMART) in Methodology and Interdisciplinary Research.* The Postdoctoral Training in Children’s Mathematics Learning at Carnegie Mellon University provides opportunities for fellows to focus on contemporary theories and methods of cognitive development, and participate in experimental studies to test interventions designed to improve learning. The program is carried out in collaboration with RAND Corporation, whose team adds quantitative and methodological training for scientifically rigorous education research.

UNIVERSITY OF VIRGINIA

Principal Investigator: Sara Rimm-Kaufmann

Amount: \$654,619

Period of Performance: 7/1/10–6/30/13

Description: *Interdisciplinary Postdoctoral Research Training Program in Education Sciences.* The University of Virginia Postdoctoral Interdisciplinary Training Program in the Education Sciences provides training for fellows in multiple projects including ones focused on teacher quality, early childhood, and social and behavioral contexts for academic learning. Through this program, fellows work with faculty on research projects including randomized evaluation trials, quasi-experimental studies of large-scale databases of state and national significance, planned comparison evaluations, and observational studies.

UNIVERSITY OF PENNSYLVANIA

Principal Investigator: Laura Desimone

Amount: \$591,351

Period of Performance: 3/1/10–2/28/15

Description: *Penn GSE in Postdoctoral Training Program in the Education Sciences.* The University of Pennsylvania Graduate School of Education in Postdoctoral Training Program in the Education Sciences is designed to foster fellows as independent scholars. The emphasis of the program is on developing and/or refining fellows’ methodology, design, fieldwork and/or substantive area expertise, providing opportunities for scholarly publication and the development of the fellow’s independent research agenda. The program, broadly focused on the effects of leadership and teaching on student achievement, targets three main areas: theory, research design and methods, and fieldwork. Current projects offer opportunities for developing expertise in qualitative analysis and fieldwork, including the development and analysis of surveys, interviews and classroom observations; the measurement of instruction; multi-level longitudinal modeling; Item Response Theory; psychometrics; design and analysis of randomized experiments; designing customized student assessments; and studying education policy implementation.

NORTHWESTERN UNIVERSITY

Principal Investigator: Larry Hedges

Amount: \$654,480

Period of Performance: 9/1/10–8/31/15

Description: *Post Doctoral Research Training in Education Sciences.* The Postdoctoral Research Training Program in Education Sciences focuses on providing interdisciplinary training in methods for education research, including statistical methods, measurement methods, evaluation methods, and research design, in the research area focus of individual fellows. The program aims to train postdoctoral fellows in applied education research and produce a new generation of education researchers dedicated to solving the pressing challenges facing the American educational system through methodologically rigorous and relevant research.

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VANDERBILT UNIVERSITY

Principal Investigator: Dale Farran

Amount: \$654,721

Period of Performance: 3/1/10–2/28/15

Description: *Postdoctoral Field Based Research Methodology Training.* The Postdoctoral Field Based Research Methodology Training Program at Vanderbilt University provides training for fellows interested in increasing their statistics, measurement, and experimental design skills in the context of field-based randomized controlled trials. Participants in this program work with faculty on research projects focused on: developing a portable, valid measure of self-regulation in young children; developing a measure of science emphasis in classrooms; identifying promising interventions that work through the use of meta-analyses of randomized controlled trials examining the effectiveness of interventions for children and families; and evaluating mathematics instructional practices and pre-K programs being delivered at scale.

UNIVERSITY OF NORTH CAROLINA, CHAPEL HILL

Principal Investigator: Margaret Burchinal

Amount: \$561,584

Period of Performance: 8/1/10–7/31/15

Description: *Postdoctoral Research Training Fellowship in Early Childhood Education Sciences.* The University of North Carolina at Chapel Hill Postdoctoral Research Training Program in the Early Childhood Education Sciences provides training for fellows interested in gaining experience in the design and evaluation of interventions for young children, and research that addresses methods including clinical trial studies and quasi-experimental evaluations. Through this program fellows have the opportunity to work with faculty on one or more early childhood studies currently being conducted.

CARNEGIE MELLON UNIVERSITY

Principal Investigator: Robert Siegler

Amount: \$366,520

Period of Performance: 5/1/10–4/30/15

Description: *Postdoctoral Training in Children's Mathematics Learning.* The Postdoctoral Training in Children's Mathematics Learning at Carnegie Mellon University provides fellows with the opportunity to develop their understanding of contemporary theories and methods of cognitive development, and the opportunity to actively participate in research that focuses on experimental methods for testing interventions to improve learning.

UNIVERSITY OF WISCONSIN, MADISON

Principal Investigator: Mitchell Nathan

Amount: \$655,000

Period of Performance: 8/1/10–7/31/15

Description: *Postdoctoral Training Program in Mathematical Thinking, Learning, and Instruction.* The Postdoctoral Training Program in Mathematical Thinking, Learning, and Instruction focuses on math education and provides opportunities for fellows to learn how to apply a range of scientifically rigorous methods to support inferences about education outcomes, including data analysis techniques that support causal inference within experimental, quasi-experimental, and observational designs. Through this program, fellows work with faculty on current research projects.

UNIVERSITY OF IOWA

Principal Investigator: William Therrien

Amount: \$625,400

Period of Performance: 3/1/10–2/28/15

Description: *The Science Writing Heuristic Postdoctoral Fellowship.* The Science Writing Heuristic Postdoctoral Fellowship focuses on topics in the areas of science and special education, and research focusing on applying skills to experimental design and large scale research projects. Through this program, fellows work with faculty on an efficacy study of the science writing heuristic approach, which embeds science argument in typical inquiry lessons to improve students' understandings of science. Educational and applied experiences ensure that each fellow acquires the skills necessary to conduct rigorous education research.

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UNIVERSITY OF ILLINOIS

Principal Investigator: Sarah Lubienski

Amount: \$655,000

Period of Performance: 3/1/10–2/28/15

Description: *University of Illinois at Urbana-Champaign Postdoctoral Research Training Program in Mathematics Education.* The University of Illinois at Urbana-Champaign

Postdoctoral Research Training Program in Mathematics Education provides training for fellows interested in mathematics learning, mathematical measurement, and in developing expertise in quasi-experimental and experimental design and analysis of large-scale evaluations. Through this program, fellows have the opportunity to work with faculty on funded research studies as their core training experience.

Predocctoral Research Training Program in the Education Sciences

CARNEGIE MELLON UNIVERSITY

Principal Investigator: David Klahr

Amount: \$4,433,486

Period of Performance: 9/1/09–8/31/14

Description: *Carnegie Mellon University Program in Interdisciplinary Education Research (PIER).* The Program in Interdisciplinary Education Research (PIER) at Carnegie Mellon, initially funded by IES in 2004, is designed to train scientists whose rigorous research on learning conditions related to curriculum, instruction, and assessment will improve academic outcomes for diverse Pre-K through postsecondary students. PIER fellows earn an Education Sciences Certificate by fulfilling a set of course and project requirements and conducting a dissertation involving applied research in education, while simultaneously earning a Ph.D. in one of Carnegie Mellon's participating departments (Human Computer Interaction, Economics, Machine Learning, Philosophy, Psychology, Robotics, and Statistics). The Program in Interdisciplinary Education Research training focuses on skills relevant to IES's development and efficacy goals in the areas of Cognition and Student Learning, Math and Science Education, and Educational Technology. Training emphasizes the use of cognitive modeling, process-tracing tools, and advanced statistical techniques for analyzing complex data sets with an emphasis on causal modeling.

UNIVERSITY OF CHICAGO

Principal Investigator: Stephen Raudenbush

Amount: \$4,902,276

Period of Performance: 9/1/09–8/31/14

Description: *Improving the Contribution of Schooling to Skills Required for Labor Market Success.* The Predocctoral Interdisciplinary Research Training Program in the Education Sciences at the University of Chicago, initially funded by IES in 2005, includes students and faculty from Economics, Comparative Human Development, Mathematics, Psychology, Public Policy, Social Services Administration, and Sociology. The training program takes an approach to educational inquiry that focuses on developmental transitions and their implications for success in the labor market. The first transition studied occurs from ages three to eight years and focuses primarily on cognitive skills. The second transition requires that students sustain academic motivation as they move into a new peer environment in secondary schools. Faculty and fellows will synthesize the best research on how school organization and instruction influence these transitions while designing new research to advance this knowledge. The ongoing intensive Education Workshop will supplement a shared set of courses and apprenticeships with a focus on application of the best scientific methods to address these questions.

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MICHIGAN STATE UNIVERSITY

Principal Investigator: Robert Floden

Amount: \$4,942,670

Period of Performance: 8/16/09–8/15/14

Description: *Interdisciplinary Predoctoral Research Training Program.* The Michigan State University Predoctoral Interdisciplinary Research Training Program in the Education Sciences provides a Doctoral Specialization in the Economics of Education. The training program will train scholars in the use of quantitative methods from the field of economics to answer education questions. The Michigan State training program is a joint effort of the university's College of Education, Department of Economics, and School of Industrial and Labor Relations. Fellows in the program will study such topics as the effects of teacher quality and other resources on student achievement, the effects of school finance reform, the effects of school choice policies, the impact of early childhood education, and the development of advanced methodological techniques for identifying promising policies and practices and the evaluation of their effectiveness. All students will complete courses in quantitative methods and economics of education, work with core faculty on research projects using advanced quantitative methods, have a supervised summer research apprenticeship at another organization, participate in an ongoing research seminar to discuss work of core faculty and students, attend colloquia presented by core faculty and leading scholars from outside MSU, and complete a dissertation that includes a study of an educational problem.

UNIVERSITY OF WISCONSIN, MADISON

Principal Investigator: Adam Gamoran

Amount: \$5,000,180

Period of Performance: 8/1/09–7/31/14

Description: *Interdisciplinary Training Program (ITP) for Predoctoral Research in the Education Sciences at the University of Wisconsin–Madison.* The Interdisciplinary Training Program (ITP) for Predoctoral Research in the Education Sciences at the University of Wisconsin–Madison began with an IES grant in 2005. The Interdisciplinary Training Program will continue its focus on training scholars in education policy and systems. The methodological focus is

on randomized controlled trials and on rigorous statistical methods, particularly econometric techniques that provide evidence on potential impacts when randomized trials are not feasible. The Interdisciplinary Training Program is housed at the Wisconsin Center for Education Research and draws fellows from sociology, economics, psychology, political science, and/or social welfare. Fellows complete course work in students' disciplines, in education, and in advanced statistics, including courses in experimental design and measurement; a weekly interdisciplinary seminar; certification in a minor in education sciences; a research practicum on randomized trials in education; an intensive internship in randomized field trials; and ongoing experiences in faculty-led research projects.

UNIVERSITY OF WASHINGTON

Principal Investigator: Robert Abbott

Amount: \$4,773,751

Period of Performance: 7/1/09–6/30/14

Description: *Preparing Scholars for Rigorous Mixed-Method Studies of K-20 Education Policies and Programs: The Collaborative Researchers for Education Sciences Training (CREST) Program.* The Collaborative Researchers for Education Sciences Training (CREST) program at the University of Washington brings together faculty from six schools and departments: Educational Psychology, Educational Leadership and Policy Studies, Evans School of Public Affairs, Sociology, Economics, and Social Work. The CREST program is overseen by Center for the Study of Teaching and Learning within the University of Wisconsin College of Education. The team of faculty and students participating in the CREST program will concentrate on studying and evaluating policies that relate to educational reform across the K–20 continuum, with special emphasis on those that affect struggling learners within and across levels of the system, especially in high school and postsecondary institutions. Through coursework, mentoring, and research apprenticeships, CREST fellows will learn to use sophisticated mixed-methods designs that add to the understanding of policy design, implementation, and effects in the K–20 realm.

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FLORIDA STATE UNIVERSITY

Principal Investigator: Christopher Lonigan

Amount: \$4,998,353

Period of Performance: 9/1/09–8/31/14

Description: *Program to Increase Research Capacity in Educational Science (PIRT).* The Florida Center for Reading Research (FCRR) Predoctoral Interdisciplinary Research Training (PIRT) program at Florida State University was originally funded by IES in 2004. The program focuses on evaluation and measurement in education research, particularly reading research. Faculty are drawn from education and psychology, and have expertise and experience conducting high-quality evaluation research (e.g., large-scale randomized and cluster randomized studies), developing and validating measures (e.g., diagnostic, screening, and progress monitoring assessments for reading), and using advanced statistical methods (e.g., multi-level and hierarchical linear modeling, item response theory analyses, structural equation modeling), as well as significant knowledge and content expertise related to abnormal and normal developmental processes in reading, teacher training and professional development, and special needs populations. The PIRT program will collaborate with a newly founded institute at Florida State University, which has a mandate to develop and evaluate instructional activities to increase the math and science capabilities of Florida's K–12 students.

UNIVERSITY OF CALIFORNIA, BERKELEY

Principal Investigator: Geoffrey Saxe

Amount: \$4,987,170

Performance Period: 7/1/09–6/30/14

Description: *Research in Cognition and Mathematics Education.* The Research in Cognition and Mathematics Education (RCME) predoctoral training program at the University of California (U.C.), Berkeley will provide training in the cognitive sciences, mathematics education, and methodologies essential to research in the social sciences. The focus of the RCME program will be the integration of the cognitive sciences and the use of mixed methods for strategic decision making in investigations of core questions regarding K–12 mathematical learning and teaching. Fellows will complete coursework in cognitive sciences, mathematics education, research design, quantitative analysis, and qualitative techniques, as well as research apprenticeships, specialized workshops, and colloquia. RCME's three partners

at U.C. Berkeley are the Graduate School of Education, U.C.'s Graduate Group in Science and Mathematics Education (SESAME), and the Department of Psychology, with affiliate faculty from the Department of Mathematics.

STANFORD UNIVERSITY

Principal Investigator: Sean Reardon

Amount: \$4,999,828

Performance Period: 8/1/09–7/31/14

Description: *Stanford University Predoctoral Training Program in Quantitative Educational Policy Analysis.* The Stanford University Predoctoral Training Program in Quantitative Educational Policy Analysis is designed to provide doctoral students in social science disciplines (especially economics, sociology, political science, and psychology) and in the School of Education with advanced training in state-of-the-art quantitative methods of discipline-based educational policy analysis. Fellows will participate in an interdisciplinary core curriculum consisting of coursework in education policy, discipline-based theory, and applied quantitative research methods, including a 1-year course in applied statistical analysis, a course in measurement, several elective courses in statistics, and an ongoing interdisciplinary quantitative methods seminar. Fellows will receive additional training through research apprenticeships, a series of annual summer advanced training workshops, an ongoing educational policy analysis speaker series, and a series of annual conferences on educational policy analysis.

PENNSYLVANIA STATE UNIVERSITY

Principal Investigator: Thomas Farmer

Amount: \$4,928,128

Performance Period: 8/1/09–7/31/14

Description: *Training Interdisciplinary Educational Scientists (TIES) Program.* The Pennsylvania State University Training Interdisciplinary Educational Scientists (TIES) Program is designed to train educational scientists with expertise in literacy and social/emotional competence and with proficient skills in statistics and research methods necessary to conduct cluster randomized trials. TIES will bridge resources and capacities of three Colleges (Education, Health and Human Development, Liberal Arts) and six interdisciplinary research centers at Penn State (Children, Youth, and Families Consortium; Center for Human Development and Family Research

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in Diverse Contexts; Child Study Center; Methodology Center; Prevention Research Center; and Center for Applied Educational and Developmental Sciences). TIES fellows will be involved in coursework, seminars, summer institutes, and research apprenticeships that will expose them to cutting-edge work in literacy and social and emotional learning and that will underscore the developmental interplay between these two critical domains of school adjustment. The program's core research training will emphasize cluster randomized trials, management of the research process, grant writing, and applied research experiences.

UNIVERSITY OF PENNSYLVANIA

Principal Investigator: Laura Perna

Amount: \$4,782,163

Performance Period: 7/1/09–6/30/14

Description: *University of Pennsylvania Predoctoral Interdisciplinary Training Program in Education Sciences.* The University of Pennsylvania Predoctoral Training Program in Interdisciplinary Methods for Field-based Research in Education, which began with a 2005 IES grant, is a collaborative initiative among the Graduate School of Education, School of Arts and Sciences, and the Wharton School, as well as two affiliated policy and research centers—the Consortium for Policy Research and Evaluation and the Penn Center for Education Leadership. The program prepares fellows to design and carry out rigorous field-based research to advance and inform education policy on questions of the impacts and cost effectiveness of various educational policy and leadership practices. Graduates of the program will have a strong foundation in an academic discipline (e.g., economics, sociology, psychology) as well as in education. The program offers a coordinated set of instruction and field-based research experiences to prepare students from multiple disciplinary backgrounds in the science and practice of rigorous research in education. Although a focus of the program is randomized controlled trials, fellows also master the skills to apply observational and qualitative research to advance theory, inform study designs, and enrich the utility of impact evaluations.

UNIVERSITY OF VIRGINIA

Principal Investigator: Robert Pianta

Amount: \$4,916,923

Performance Period: 9/1/09–8/31/14

Description: *University of Virginia Predoctoral Training Program in Education Sciences (PTPES).* The University of Virginia Predoctoral Training Program in Education Sciences (PTPES) was established through an IES grant in 2004. Under this new award, the Virginia Education Science Training (VEST) program will provide funding for 15 Four-Year Fellows in the Curry School of Education's doctoral programs in Applied Developmental Science and Education Policy and 15 Two-Year Fellows in the latter years of their doctoral program in their home Department in Arts and Sciences (Psychology, Economics, Sociology). Training in the Predoctoral Training Program in Education Sciences integrates the use of theoretical models of causal inference from various sciences (e.g., psychology, economics, biostatistics) with research designs, analytic techniques and methods that support causal inferences in studies of classroom and program effects. Training applies rigorous methods to three substantive research topics identified by IES: (1) teacher quality; (2) early childhood; and (3) social and behavioral contexts for academic learning.

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National Research and Development Centers

WESTED

Principal Investigator: Steve Schneider

Amount: \$9,998,406

Period of Performance: 7/1/10–6/30/15

Description: *National Research & Development Center on Cognition and Mathematics Instruction.* The National Center for Cognition and Mathematics Instruction has a core goal of redesigning components of a widely used middle school mathematics curriculum, Connected Mathematics Project (CMP), and evaluating the efficacy of the redesigned curriculum materials. Bringing together leading experts in cognition, instruction, assessment, research design and measurement, mathematics education, and teacher professional development, the Center team will apply research-based design principles to revise mathematics curricular materials for the grade span of 6 to 8, when fundamental concepts required for algebra and advanced mathematics are addressed. The Math Center will complete a series of controlled experiments (RCTs) aimed at examining the effects of revised curricular units with 50 participating sixth and eighth grade teachers, and a large-scale, school-level random assignment efficacy study to examine the effects of the redesigned seventh grade CMP in 78 schools.

VANDERBILT UNIVERSITY

Principal Investigator: Thomas Smith

Amount: \$13,573,066

Period of Performance: 8/1/10–7/31/15

Description: *National Research and Development Center on Scaling Up Effective Schools.* The National Center for Scaling Up will identify the programs, practices, and policies that make some urban high schools more effective at improving academic outcomes of low-income, minority, or English language learning (ELL) students. Using a combination of statistical and empirical methods, interviews, surveys, observations, and input from district leaders and participants, the Center will create interventions intended to help less effective schools become more effective. The Center will then evaluate the effects of implementing the interventions on student outcomes, and determine the ability of districts to implement and support the intervention with more and less support from the Center.

HARVARD UNIVERSITY

Principal Investigator: Thomas Kane

Amount: \$9,997,888

Period of Performance: 7/1/09–6/30/14

Description: *National Center for Teacher Effectiveness: Validating Measures of Effective Math Teaching.* The National Center for Teacher Effectiveness: Validating Measures of Effective Math Teaching will identify practices and characteristics that distinguish between more and less effective teachers and will use this information to develop a suite of empirically validated and practical instruments that can be used by school districts to select, deploy, and retain more effective teachers. While focusing on math instruction in grades 4 and 5, the Center will have four primary goals: (1) to unify the disparate strands of research for teacher effectiveness, combining “value-added” measures based on student achievement gains with a close study of the features of effective teachers and teaching; (2) to develop a suite of empirically validated instruments for measuring teacher effectiveness; (3) to operationalize the measures and ensure that they are usable in the field; and (4) to externally validate the measure of teacher effectiveness against student achievement.

UNIVERSITY OF NEBRASKA, LINCOLN

Principal Investigator: Susan Sheridan

Amount: \$9,997,852

Period of Performance: 7/1/09–6/30/14

Description: *The National Center for Research on Rural Education.* The National Center for Research on Rural Education will identify, develop, and validate professional development practices that lead to the delivery of improved instruction in rural schools and improve rural students’ acquisition of knowledge and skills in reading, science, and mathematics. More specifically, it will focus on three primary goals: (1) investigation of variations in existing rural professional development practices, differences in professional development practices between rural and non-rural settings, the potential influence of various characteristics of professional development on rural teachers’ knowledge, perceptions, and instructional practices, and moderating effects of context and teacher variables; (2) evaluation of the impact of two types of coaching (on-site

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versus distance-provided) on teachers' use of RTI-based differentiated reading instruction and their students' acquisition of reading skills through an experiment; and (3) evaluation of the impact of teacher professional development focused on teaching science using explicit instruction with guided inquiry and scaffolding.

UNIVERSITY OF VIRGINIA

Principal Investigator: Robert Pianta

Amount: \$12,814,994

Period of Performance: 7/1/06–6/30/11

Description: *National Research Center on Early Childhood Education*. The National Research Center on Early Childhood Education will conduct research that contributes to the solution of significant problems in early childhood education and will engage in leadership and dissemination activities with the early childhood policy, practitioner, and research communities. The Center's research will include work on in-service and pre-service training of early childhood teachers, early childhood curricula in literacy and language development, and assessment of child outcomes in language and literacy.

THE URBAN INSTITUTE

Principal Investigator: Jane Hannaway

Amount: \$11,996,301

Period of Performance: 7/1/06–6/30/11

Description: *The National Research and Development Center for Analysis of Longitudinal Data in Education Research (CALDER)*. This program will address a variety of education policy issues including teacher policies (e.g., hiring, compensation, and certification), governance policies (e.g., accountability, choice) and the ramifications of changing social and economic community conditions (e.g., changing student demographics, resources) on education. The Center will utilize comprehensive education databases in Florida, Missouri, New York, North Carolina, Texas, and Washington to disentangle the effects of different policies by location. The Center also expects to make significant technical contributions to the field as it engages new, rich databases to help guide policymaking.

Statistical and Research Methodology in Education

ABT ASSOCIATES, INC.

Principal Investigator: Robert Olsen

Amount: \$489,178

Period of Performance: 4/1/10–3/31/12

Description: *Testing Different Methods of Improving the External Validity of Impact Evaluations in Education*. This project will examine the external validity of evaluations that rely on purposive samples in order to answer two questions: (1) how, and under what conditions, can evaluations of federal education programs that select sites purposively produce externally valid impact estimates for the program as a whole; and (2) how, and under what conditions, can evaluations of educational interventions produce externally valid estimates of an intervention's impacts for schools and districts that did not participate in the evaluation.

ARIZONA STATE UNIVERSITY

Principal Investigator: Roy Levy

Amount: \$251,476

Period of Performance: 9/1/10–8/31/12

Description: *Generalized Dimensionality Assessment for Multidimensional Psychometric Models*. This project will create dimensionality analysis tools and procedures necessary to support the application of multidimensional item response theory models. These models should facilitate inferences about students in terms of multiple aspects of proficiency.

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COLUMBIA UNIVERSITY

Principal Investigator: Andrew Gelman

Amount: \$1,125,301

Period of Performance: 8/1/10–7/31/13

Description: *Practical Tools for Multilevel Hierarchical Modeling in Education Research*. The project will address the problems that occur when using multilevel models for a study involving only a small number of classrooms or when specifying random slopes for variables that do not always vary substantially within all groups through the development of Bayes modal estimation of multilevel models with weakly informative priors for routine use in standard software.

MDRC

Principal Investigator: Howard Bloom

Amount: \$884,579

Period of Performance: 4/1/10–12/31/12

Description: *Regression Discontinuity Designs with Assignment Based on Multiple Rating Scores: Statistical Properties and Issues in the Context of Education Evaluation*. The project proposes to provide practical guidance to education researchers on how to estimate program impacts using a regression discontinuity (RD) design with more than one rating variable. The project will compare the four multi-rating RD design approaches used in the literature in terms of their precision, potential threats to their internal validity (e.g., functional form misspecification), and the severity of the trade-off between bias and precision.

MICHIGAN STATE UNIVERSITY

Principal Investigator: Cassandra Guarino

Amount: \$1,194,064

Period of Performance: 5/16/10–5/15/13

Description: *Constructing Value-Added Indicators of Teacher and School Effectiveness that We Can Trust*. The project will address the use of value-added models by (1) developing statistical methods that can be used to test for violations of assumptions that threaten the validity of VAM-based inferences; (2) developing methods to improve the statistical characteristics of estimates obtained from valued-added models; and (3) investigating how conditions threatening the validity of inference using value-added models vary across different subpopulations of students.

NORTHWESTERN UNIVERSITY

Principal Investigator: Thomas Cook

Amount: \$1,162,032

Period of Performance: 3/1/10–2/28/13

Description: *Better Warranted Quasi-Experimental Practice for Evidence Based Practical Research*. This project will improve four quasi-experimental methods that have potential for providing unbiased or minimally biased causal inference when random assignment is not possible: regression discontinuity, interrupted time-series, certain case matching methods, and falsificationist pattern matching.

UNIVERSITY OF CALIFORNIA, LOS ANGELES

Principal Investigator: Li Cai

Amount: \$994,000

Period of Performance: 3/1/10–2/28/13

Description: *Non-Linear Multilevel Latent Variable Modeling with a Metropolis-Hastings Robbins-Monro Algorithm*. The goal of this project is to bring together the benefits of multilevel modeling and latent variable modeling. To do so, the project proposes a flexible nonlinear multilevel latent variable modeling framework under which: (1) random effects and latent variables are treated synonymously because both represent unobserved heterogeneity; (2) a nonlinear random effect regression model permits the specification and testing of important structural relations (e.g. mediation or moderation effects) in latent variables; and (3) both the outcome variable and the predictors (at any level) can be latent variables measured with fallible indicators.

UNIVERSITY OF CALIFORNIA, MERCED

Principal Investigator: William Shadish

Amount: \$974,524

Period of Performance: 5/1/10–4/30/13

Description: *A d-Estimator for Single-Case Designs*. Although a number of methods exist for analyzing data from single-case designs, none yields an effect size estimator that is comparable to the commonly used effect size statistics in between-groups designs like the standardized mean difference statistic. This project will develop such a d-statistic (represented as *d*) for single-case designs that are comparable to and in the same metric as the d-statistic from a between-groups experiment. This statistic will allow researchers to assess effects from both single-case and between-groups designs on comparable metrics in systematic reviews of effective educational interventions.

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UNIVERSITY OF WISCONSIN, MADISON

Principal Investigator: Robert Meyer

Amount: \$1,200,000

Period of Performance: 3/1/10–2/28/13

Description: *Value-Added Models and Accountability: Next Steps*. This project will further develop value-added models with a focus on a new value-added model that combines the best features of models with random and fixed individual effects to provide high precision and low selection bias.

COLUMBIA UNIVERSITY

Principal Investigator: Andrew Gelman

Amount: \$904,972

Period of Performance: 3/1/09–2/29/12

Description: *Practical Solutions for Missing Data and Imputation*. The project will develop and extend methods of multiple imputation to address missing data. This work will include: investigating the properties of imputation models, developing diagnostics to identify problems in imputations, developing software for multiple imputation that is reliable and useful for both non-statisticians and sophisticated modelers, testing the methods and software in applied research including comparisons with simpler missing data strategies, and providing workshops and educational materials demonstrating how to apply the newly developed methods.

MDRC

Principal Investigator: Howard Bloom

Amount: \$446,205

Period of Performance: 4/1/09–12/31/11

Description: *Statistical Properties of Regression Discontinuity Analysis and Comparative Interrupted Time Series Analysis for Estimating Impacts*. The project will examine statistical properties of two important quasi-experimental designs: regression discontinuity designs (RDD) and comparative interrupted time series (CITS). Specifically for RDD it proposes to examine the trade-off between validity and generalizability of RDD, by gradually including larger samples around the cutoff of the assignment variable. For CITS, it aims to examine whether CITS can produce unbiased effect of treatment by comparing the estimates from schools around the cutoff point to RDD results.

MDRC

Principal Investigator: Howard Bloom

Amount: \$426,224

Period of Performance: 4/1/09–6/30/11

Description: *Using Instrumental Variables Analysis Coupled with Rigorous Multi-Site Impact Studies to Study the Causal Paths by which Educational Interventions Affect Student Outcomes*. The project will examine the use of instrumental variable (IV) methodology to explore patterns of mediation in randomized multi-site impact studies. The project seeks to provide a methodology for evaluating the specific mechanism through which the treatment effect acted. Several data sets will be explored using IV analyses, estimated with both two-stage least-squares and limited information maximum likelihood, and comparisons will be made to traditional ordinal least squares.

NORC

Principal Investigator: Stephen Raudenbush

Amount: \$1,184,993

Period of Performance: 3/1/09–2/28/12

Description: *Development of Accessible Methodologies and Software in Hierarchical Models with Missing Data*. The project will develop methodologies and software to impute missing data at any level in two-level and three-level hierarchical models and cross-classified hierarchical models.

RAND CORPORATION

Principal Investigator: John Lockwood

Amount: \$939,937

Period of Performance: 3/1/09–2/28/12

Description: *Reducing Bias and Improving Efficiency of Estimated Teacher Effects from Value-Added Models*. The project will improve value-added models using longitudinal student test scores to estimate the effects of individual teachers on student learning. This work is to include addressing potential sources of bias in econometric and statistical value-added estimates, exploring the use of propensity scores to compensate for pre-existing differences among students that create bias in value-added estimates, and adapting methods of small-area and shrinkage estimation to develop methods that use observable teacher characteristics to improve the precision of value-added teacher effects.

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RAND CORPORATION

Principal Investigator: John Engberg

Amount: \$963,626

Period of Performance: 4/1/09–3/31/12

Description: *Estimation and Inference in Education Research when Actions by Participants Impact Validity and Availability of Data*. The project will examine the threats to internal validity of two quasi-experimental designs. First, they will examine threats caused by differential attrition in studies using a lottery design. A key objective of this study is to explore estimation and inference where there are differential attrition rates among the treatment and control groups. Second, they are to examine the impact from the manipulation of the assignment variable in regression discontinuity designs. A key objective of this work is to develop new estimators that can be used to recover the relevant treatment effects in the presence of some types of manipulation of the assignment variable.

SOUTHERN METHODIST UNIVERSITY

Principal Investigator: Lynne Stokes

Amount: \$431,823

Period of Performance: 6/1/09–5/31/11

Description: *Using Imperfect Fidelity Measures to Improve Statistical Inferences about Educational Interventions*. The project will investigate problems that arise when the fidelity of implementation measure is subject to errors of measurement. They plan to develop regression calibration estimators of regression coefficients for “noisy” measures of fidelity in multilevel linear and logistic models for four measurement models.

STATE UNIVERSITY OF NEW YORK, BUFFALO

Principal Investigator: Jaekyung Lee

Amount: \$307,940

Period of Performance: 6/1/09–5/31/11

Description: *Developing Time-Indexed Effect Size Metrics in K–12 Reading and Math*. The project will develop a context for interpreting effect sizes in reading and math. To do so, the project will (1) develop academic growth references for K–12 reading and math achievement based on national representative longitudinal datasets; and from these (2) develop time-referenced effect size metrics that can estimate how long, in months of schooling, it would take for an “untreated” control group to reach the outcome of the treatment group.

UNIVERSITY OF CALIFORNIA, RIVERSIDE

Principal Investigator: Jun Li

Amount: \$171,742

Period of Performance: 7/1/09–6/28/11

Description: *Hierarchical Linear Modeling Under Multilevel Non-Ignorable Non-Responses with Applications to NAEP Data*. The project will develop a modeling procedure for incorporating non-responses from students and schools that may be related to the outcome variable (as a result these non-responses provide information and are not ignorable). This work would include developing hierarchical linear models to incorporate multilevel non-ignorable non-response mechanisms using NAEP data that could provide estimators for the population mean and other parameters of interest.

UNIVERSITY OF HOUSTON

Principal Investigator: Paras Mehta

Amount: \$702,393

Period of Performance: 3/1/09–2/28/12

Description: *Cross-Classified Structural Equations Model: Development of an OpenMX Module and its Application to Multiyear Assessment and Intervention Data in Literacy Research*. The project will develop a software library for fitting cross-classified structural equation models (CC-SEM) integrated into the R statistical modeling language. These models can be used in multi-level modeling when the data are not completely hierarchical, for example, when longitudinal data are collected on students who have more than one teacher during a school year or when students have different teachers over multiple years. They will demonstrate the use of CC-SEM in educational research through the secondary analysis of several data sets.

WESTERN MICHIGAN UNIVERSITY

Principal Investigator: Jessaca Spybrook

Amount: \$300,841

Period of Performance: 3/1/09–2/28/12

Description: *Examining the Changes in Methodology that Occur Between the Design and Implementation of Field Trials in Education*. The project will describe the changes in methodology that occur between the design and implementation of randomized trials (RCT) in education. They will investigate changes that occur in (1) research design, (2) sample sizes, (3) outcome measures, (4) the

APPENDIX – GRANT AND CONTRACT AWARDS

intervention itself, and (5) expected rates of attrition. They will examine a group of RCTs funded between 2002 and 2006 by two divisions of the Institute of Education Sciences,

the National Center for Education Research and the National Center for Education Evaluation and Regional Assistance.

Evaluation of State and Local Education Programs and Policies

OHIO STATE UNIVERSITY RESEARCH FOUNDATION

Principal Investigator: Shayne Piasta

Amount: \$5,998,358

Period of Performance: 7/1/10–6/30/15

Description: *Evaluation of the Effectiveness of the Ohio Department of Education's Literacy Core Curriculum for Early Childhood Educators.* This project will evaluate the impact of the Ohio Department of Education's professional development course for preschool teachers. The course, known as the Preschool Literacy Core, is focused on improving teachers' literacy instruction. The project will compare teachers randomly assigned to take the literacy course versus those assigned to take a course offered in another subject. The comparison will be made on both teacher outcomes (e.g., literacy-related knowledge, beliefs, and instructional skills) and student literacy skills at the end of preschool and kindergarten.

PRESIDENT AND FELLOWS OF HARVARD COLLEGE, GRADUATE SCHOOL OF EDUCATION

Principal Investigator: Richard Murnane

Amount: \$450,000

Period of Performance: 3/1/10–2/28/13

Description: *Intended and Unintended Consequences of State High-Stakes Testing: Evidence from Standards-Based Reform in Massachusetts.* This project will evaluate the impact of Massachusetts' exit examinations in math and English language arts that students must pass in order to graduate from high school. The project will examine whether the exams: (1) lead students to substitute a GED for a high school diploma, and (2) affect students' educational aspirations. In addition, the project will also examine whether the proficiency labels (Basic, Needs Improvement, Proficient, or Advanced) given to students based on their eighth grade tests (these do not have high stakes for students) affect their future achievement, grade retention, absenteeism, and educational attainment.

UNIVERSITY OF MICHIGAN

Principal Investigator: Brian Jacob

Amount: \$5,999,850

Period of Performance: 3/1/10–2/28/15

Description: *The Impact of the Michigan Merit Curriculum and Michigan Promise Scholarship on Student Outcomes.*

The project will evaluate the impact of two Michigan high school programs that seek to increase the rigor of high school academics through requiring more advanced coursework for high school graduation (the Michigan Merit Curriculum) and provide financial assistance for postsecondary education (the Michigan Promise Scholarship). The project will examine (1) the impact of the curriculum policy on student course-taking, achievement on a eleventh grade state examination, high school graduation, and college enrollment; and (2) the impact of the scholarship program on college entry, college choice, and college completion.

UNIVERSITY OF OREGON

Principal Investigator: Scott Baker

Amount: \$7,164,350

Period of Performance: 7/1/10–6/30/15

Description: *Middle School Intervention Project (MSIP).* This project will evaluate a middle school intervention (grades 6 to 8) for students with significant reading difficulties being used in five districts in Oregon. The intervention provides an additional reading class, activities to increase both psychological and behavioral engagement with school, and the use of data to monitor each student and adjust the intervention. Using a regression discontinuity design, the project will examine the impacts of the intervention on students' reading achievement, science and math achievement, and a set of engagement outcomes (including attendance, involvement in school activities, homework completion, office referrals, and student ratings).

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LEARNING POINT ASSOCIATES

Principal Investigator: Shazia Miller

Amount: \$3,332,675

Period of Performance: 7/1/09–6/30/13

Description: *A Proposal to Measure the Impact of Indiana's System of Diagnostic Assessments on Student Achievement Outcomes.* This project will evaluate the impact of Indiana's interim diagnostic assessment system through which K-8 students take three formative assessments a year on student achievement (in reading and math for students in grades K-2, and reading, math, science, and social studies for students in grades 3-8). In addition, the study will examine the impact of the system on teacher instructional practices.

MDRC

Principal Investigator: Alison Black

Amount: \$4,827,957

Period of Performance: 7/1/09–6/30/14

Description: *Evaluation of Ninth Grade Academies in Broward County Public Schools.* The project will evaluate the Ninth Grade Academies specifically used in the Broward County School District of Florida and a sample of similar academies throughout the state to determine their impact on student engagement and academic performance (grades, test scores, credits earned, promotion rates, and graduation rates) throughout high school.

MATHEMATICA POLICY RESEARCH

Principal Investigator: Christine Ross

Amount: \$5,847,135 (less than \$20,000 expended)

Period of Performance: 7/1/09–9/20/10

Description: *Evaluation of the New Jersey Preschool Expansion (NJPE) Program.* This project was to evaluate the effectiveness of the New Jersey Preschool Expansion (NJPE) Program in attaining its primary objectives of enhancing the school readiness of economically disadvantaged children. Because New Jersey did not implement the NJPE as planned the project was ended.

UNIVERSITY OF VIRGINIA

Principal Investigator: David Grissmer

Amount: \$4,891,945

Period of Performance: 7/1/09–6/30/14

Description: *Evaluation of Core Knowledge Charter Schools in Colorado.* This project will evaluate the impact of Core Knowledge (CK) charter elementary schools in Colorado on student achievement primarily in kindergarten through third grade. It will also examine whether there are differential impacts by student and school characteristics, whether the level of implementation of the Core Knowledge program is associated with the impacts on student achievement, as well as the cost-effectiveness of the CK charter schools.

VANDERBILT UNIVERSITY

Principal Investigator: Mark Lipsey

Amount: \$5,982,571

Period of Performance: 7/1/09–6/30/14

Description: *Evaluating the Effectiveness of Tennessee's Voluntary Pre-K Program.* This project will evaluate the effectiveness of the Tennessee Voluntary Pre-k Program (TN-VPK) in attaining its primary objectives of enhancing the school readiness of economically disadvantaged children and improving their academic performance. It will also examine the relationship between student outcomes and selected policy-relevant characteristics of teachers, classrooms, and schools to determine which are associated with the largest effects and thus provide guidance for program improvement.

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Reading for Understanding Research Initiative

EDUCATIONAL TESTING SERVICE

Principal Investigator: John Sabatini

Amount: \$14,824,226

Period of Performance: 7/1/10–6/30/15

Description: *Assessing Reading for Understanding: A Theory-based, Developmental Approach*. The research team will develop a new system of assessments that are aligned with current theoretical constructs and empirical findings pertaining to both reading comprehension and potential performance moderators; are sensitive to changes in development in reading comprehension; emphasize strategic reading processes empirically supported in the literature; provide greater information for guiding instruction (especially for students struggling to reach proficiency); and are comprised of texts and tasks that represent a range of purposeful literacy activities in which 21st century students are expected to read texts for understanding. Partners include researchers at Educational Testing Service (ETS), Florida State University/Florida Center for Reading Research, Arizona State University, Northern Illinois University, and Haskins Laboratories. ETS also includes a Technical Advisory Committee composed entirely of school and district personnel.

STRATEGIC EDUCATION RESEARCH PARTNERSHIP INSTITUTE

Principal Investigator: Mary Suzanne Donovan

Amount: \$19,352,384

Period of Performance: 7/1/10–6/30/15

Description: *Catalyzing Comprehension Through Discussion and Debate*. The overall purpose of this project is to better understand the roles of perspective taking, complex reasoning, and academic language skills in reading comprehension for upper elementary and middle school students, and to refine, develop, and test the efficacy of two reading interventions, Word Generation and the Strategic Adolescent Reading Intervention. This team will develop and test three instructional programs, as well as accompanying professional development, that are intended to catalyze the

growth of reading comprehension skills by engaging students in discussion and debate. Partners include researchers at the Strategic Education Research Partnership Institute (SERP), Harvard University, Stanford University, Developmental Testing Service, and Wheelock College. SERP researchers will work closely with school district personnel on a routine basis, particularly those in Boston and San Francisco who are already engaged in long-term SERP partnerships.

FLORIDA STATE UNIVERSITY

Principal Investigator: Christopher Lonigan

Amount: \$20,000,000

Period of Performance: 7/1/10–6/30/15

Description: *Examining Effective Intervention Targets, Longitudinal Intensity, and Scaling Factors for Pre-K to 5th Grade Student Comprehension*. The goals of this project are to investigate the underlying cognitive and linguistic components that contribute to or that prevent the acquisition of well-developed comprehension skills, and to create and evaluate coherent, integrated multi-component instructional interventions intended to build and integrate key component skills that support students' proficient oral and text comprehension and reading for understanding. Researchers will identify, develop, and evaluate interventions that are likely to result in substantial increases in students' reading comprehension across early childhood and elementary school with a focus on students at risk for significant reading comprehension difficulties, particularly among children attending higher poverty schools. A focus of this project is the investigation of the cumulative impact of the use of effective instructional interventions on students' reading comprehension skills. In addition, this team intends to develop and evaluate a professional development support and training system that will allow these multi-component instruction interventions to be taken to scale with sufficient fidelity to have meaningful impacts on the reading comprehension skills of students from prekindergarten to fourth grade.

APPENDIX – GRANT AND CONTRACT AWARDS

BOARD OF TRUSTEES OF THE UNIVERSITY OF ILLINOIS

Principal Investigator: Susan Goldman

Amount: \$19,256,585

Period of Performance: 7/1/10–6/30/15

Description: *Reading for Understanding Across Grades 6 through 12: Evidence-Based Argumentation for Disciplinary Learning.* Project READI (Reading, Evidence, and Argumentation in Disciplinary Instruction) defines reading for understanding in adolescence as the ability to engage in evidence-based argumentation across multiple texts and supports its learning in three disciplines: history, science, and English literature. This work will contribute to expanding extant reading comprehension models and produce a set of fully tested Evidence-Based Argument Instruction Models (E-B AIMS) that exemplify core design principles. Each model will include: (1) exemplar curriculum units for each grade level built on developmental progressions in each content area (history, science, and literature); (2) formative assessments that document student learning and guide instructional planning integral to the units; (3) *SenseMaker*, a software tool for supporting evidence-based argumentation in the disciplines; and (4) “worked examples” of the units (including videotaped instruction, student work samples, and lesson designs) for professional development and dissemination. Partners include researchers at University of Illinois at Chicago, Northern Illinois University, DePaul University, WestEd, Northwestern University, University of Chicago, University of Pennsylvania, American Institutes for Research, Boston College, and Inquirium LLC. A number of school personnel and organizations are serving as key collaborators for the duration of this work.

OHIO STATE UNIVERSITY

Principal Investigator: Laura Justice

Amount: \$19,999,999

Period of Performance: 7/1/10–6/30/15

Description: *The Language Bases of Reading Comprehension.* The primary purpose of this project is to increase fundamental understanding of the role of lower- and higher-level language skills in listening and reading comprehension, and develop effective classroom-based approaches to increase language, general knowledge, and comprehension skills in prekindergarten through grade 3. Researchers will begin by

conducting basic studies to identify promising targets for intervention. Interventions will be developed and refined through an iterative process, and then tested for efficacy. This project explicitly focuses on the role of language skills in reading comprehension—not only how these skills contribute to reading comprehension, but also how these skills can be rigorously developed in students to impact reading comprehension. School-based personnel, including administrators and teachers, will have important roles in all phases of this research, particularly the iterative development of language-focused interventions that can be feasibly and reliably implemented in classroom environments. Partners include researchers at Ohio State University, University of Nebraska-Lincoln, University of Kansas, Arizona State University, and Lancaster University in the UK. A number of school organizations are also serving as key collaborators for the duration of this work.

UNIVERSITY OF TEXAS AT AUSTIN

Principal Investigator: Sharon Vaughn

Amount: \$20,000,000

Period of Performance: 7/1/10–6/30/15

Description: *Understanding Malleable Cognitive Processes and Integrated Comprehension Interventions for Grades 7–12.* The goals of this project are to improve our knowledge of cognitive processes that underlie reading for understanding to identify malleable processes that may be targets of intervention, provide knowledge about the role of engagement and motivation in enhancing reading comprehension outcomes, and integrate and apply the findings from these studies to develop and test the efficacy of interventions for students with reading comprehension difficulties in grades 7 through 12. The research team will examine how the representation of text is constructed in comprehenders of different skill levels, exploring the relations between cognitive and linguistic processes and variance in such relations across text types, grade levels, and sources of students’ reading difficulties, and examine questions related to motivation and engagement in students with and without reading comprehension difficulties.

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Unsolicited and Other Awards

NORTHWESTERN UNIVERSITY

Principal Investigator: Tom Cook

Amount: \$833,228

Period of Performance: 4/1/10–3/31/13

Description: *A Three Year Proposal to Conduct Two Annual Workshops on Better Quasi-Experimental Design and Analysis in Education.* Well-executed randomized experiments provide the strongest evidence about causal effects of educational interventions, products, and services. But randomized experiments may not always be feasible or successful. As a result, quasi-experimental designs are often used in education research for causal purposes. However, the quality of quasi-experimental designs and their application varies widely. In addition, knowledge of the better quasi-experimental designs that provide stronger evidence for making causal connections is not currently widespread among educational researchers. This is in part due to the ongoing advances being made in quasi-experimental methods. The purpose of this project is to build the capacity of the education research community to carry out advanced quasi-experiments. Two one-week summer research training workshops on quasi-experimental design and analysis will be held each year of the grant at Northwestern University for a total of six workshops. Each workshop is to include 60 participants for a total of approximately 360 researchers and they are to be drawn from faculty, postdoctoral students and senior graduate students as well as employees in the federal, state, and local governments and contract research firms.

NORTHWESTERN UNIVERSITY

Principal Investigator: Larry Hedges

Amount: \$2,169,830

Period of Performance: 9/1/10–8/31/14

Description: *Continued Support of SREE.* The Society for Research on Educational Effectiveness (SREE) was established to support rigorous research in education by increasing the field's capacity to design and conduct rigorous investigations, creating a community of rigorous education researchers, and promoting the understanding and use of evidence to improve education decisions and outcomes. IES has supported SREE via two unsolicited grants in the past (in 2005 and in 2008). SREE has made excellent progress as a professional organization, with almost 400 members, a peer reviewed journal (the *Journal of Research on Educational Effectiveness*), and a history of holding well-attended conferences. This grant will support core operations for SREE, much of which involve conference planning and logistics, while it moves toward self-sufficiency.

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Small Business Innovation Research Contracts

FILAMENT GAMES

Principal Investigator: Dan White

Amount: \$850,000

Period of Performance: 9/15/10–2/15/13

Description: *Game-Based Interactive Life Sciences.* Reports indicate that there is a decline in student achievement on science outcomes in middle school. Researchers hypothesize that difficulty comprehending complex expository texts prevents some students from grasping key foundational principles or breaking down common misconceptions. The purpose of this project is to create a suite of high-impact life science games to facilitate deeper conceptual understandings of the science inquiry process among middle school students and, especially among struggling learners. The final product will include six life science computer games on topics including cells, heredity, evolution, bacteria, plants, and the human body.

MINDSET WORKS, LLC

Principal Investigator: Lisa Sorich Blackwell

Amount: \$849,473

Period of Performance: 6/15/10–11/27/12

Description: *Growth Mindset Learning Platform for Educators and Students: Supporting Academic Motivation and Achievement through an Integrated Online Platform.* Although research shows that a “growth mindset”—the belief that intelligence can be developed through effort and learning how to learn—increases student motivation and academic achievement, few classroom or school-wide interventions are available in this area. This project team will develop the *Growth Mindset Learning Platform*, which is designed to support students and educators in developing and sustaining a culture of growth and success in classrooms and schools. The platform will include four 35-minute modules for students; six 20-minute modules for teachers; a toolkit with resources such as animations, videos, and activities; professional development webinars; and a social networking website so educators can share questions, experiences, ideas, tools, and strategies with colleagues and experts in the field. Themes will focus on teaching students about how the brain learns and changes with effort and how to use effective study skills to increase learning.

ONE PLANET EDUCATION NETWORK (OPEN)

Principal Investigator: George Newman

Amount: \$850,000

Period of Performance: 6/15/10–11/27/12

Description: *OPEN's 3D-based Curriculums for Schools, Virtual National Parks 3D Learning Environments, Virtual Machu Picchu National Sanctuary.* Virtual worlds are an emerging form of technology where users can take the form of an avatar and move around within a simulated environment. Such worlds may have potential in the field of education to provide students with new learning opportunities by affording participation in tasks that often would not be possible in the real world due to constraints and restrictions, such as cost, scheduling, or location. This project team is developing a three-dimensional (3D) virtual replica of Machu Picchu National Park and the ancient Incan ruins in Peru. The online environment will be designed for classroom use and is intended to foster engagement in learning and enhance gains in a set of multidisciplinary outcomes.

INSIGHT LEARNING TECHNOLOGY, INC.

Principal Investigator: Philip Kellman

Amount: \$850,000

Period of Performance: 6/15/10–11/27/12

Description: *Perceptual and Adaptive Learning Technologies: Developing Products to Improve Algebra Learning.* Two problems limit student learning in algebra in most instructional settings. The first problem involves a lack of methods to advance students' ability to grasp patterns, process them fluently, and detect them in variable contexts, and the second involves a lack of instructional formats that adapt to the individual learner. Recently developed perceptual learning and adaptive learning technology hold great promise for addressing these problems. This project team will develop perceptual and adaptive learning technologies to enhance middle school student learning pattern recognition and fluency in algebra. The final product will be an integrated series of five web-based learning modules to accelerate, enhance, and consolidate the learning of algebra, as well as to provide rich, continuous, and convenient monitoring and assessment information for teachers. The modules will focus on middle school topics such as fluency in manipulating algebraic expressions and equations, pattern recognition, mapping across multiple representations of function, and linear forms and relations.

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COMMON GROUND PUBLISHING

Principal Investigator: Bill Cope

Amount: \$850,000

Period of Performance: 6/15/10–11/ 27/12

Description: *The u.learn Web2.0 Writing Platform*. In recent years there has been considerable public concern about the state of writing—a threshold skill for academic achievement, employment, and participation in today’s world. This project team will create a new technology tool designed to improve student writing performance and the usefulness of writing assessments. U-learn.net will be an online environment that will combine social networking and semantic tagging technologies to give learners constant feedback in the form of on-demand formative assessment.

COMMON GROUND PUBLISHING

Principal Investigator: Bill Cope

Amount: \$850,000

Period of Performance: 6/15/10–11/27/12

Description: *The ‘Learning Element’: A Lesson Planning and Curriculum Documentation Tool for Teacher*. This project team will draw upon key elements of today’s Web 2.0 social networking technologies to develop the potential for collaborative content design amongst teams of teachers, easy dissemination of instructional content to students, and rapid, responsive formative and summative assessments of student work. The product, the Learning Element 3.0, will be framed to interconnect learning design, learning content delivery, learner activity, and learning assessment. The tool will consist of three closely interconnected online spaces, which users will choose to view separately or juxtapose in side-by-side panes presenting parallel views. These spaces will include a ‘teacher resource’ space in which lesson planning occurs; a ‘learner resource’ space in which this plan is translated into student-accessible text for independent or semi-independent learning; and a ‘learner workbook’ space in which students undertake activities in the ‘learner resource’ space that build on scaffolded reading activities completed in the ‘learner resource’ space.

SCHOLARCENTRIC

Principal Investigator: Jennifer Lytle Begonia

Amount: \$100,000

Period of Performance: 6/18/10–11/18/10

Description: *My Academic Plan*. My Academic Plan will be a web-based social-behavioral formative assessment intervention for eighth grade students. Students will take an initial online resiliency quiz and based on the responses the software will produce a personal plan across a series of dimensions. The intervention will be during class and will provide individualized tutorials. The intervention will include teacher professional development and support. Phase I work will develop a prototype of the intervention.

TRIAD DIGITAL MEDIA

Principal Investigator: Scott Brewster

Amount: \$100,000

Period of Performance: 6/18/10–11/18/10

Description: *Online Socratic Learning for Enhanced Critical Thinking*. The Online Socratic Learning for Enhanced Critical Thinking product will be an online intervention whereby fifth grade social studies students are posed with a hypothetical situation through a case study and then asked to create an argument. The software will automatically pose a counter argument. The goal of the intervention will be to increase students’ critical thinking and argument skills with topics relevant to standards in social studies. The intervention will include teacher professional development and support. Phase I work will develop a prototype of the intervention.

FABLEVISION

Principal Investigator: Gary Goldberger

Amount: \$100,000

Period of Performance: 6/18/10–11/18/10

Description: *FabLab Construction Station: Engaging Teachers and Students in STEM*. The FabLab Construction Station will allow second grade teachers and students to design and fabricate 2D and 3D geometric shapes, bulletin boards, paper airplanes, pop-ups, and other materials. Student outcomes will include improved math and engineering knowledge in topics including shapes, geometry, pre-algebra, and measurement. Curricular materials for teachers will be designed to integrate the product within existing practice to be developed. Phase I work will develop a prototype of the intervention.

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ONE PLANET EDUCATION NETWORK

Principal Investigator: George Newman

Amount: \$100,000

Period of Performance: 6/18/10–11/18/10

Description: *Planet First Energy Worlds*. Planet First Energy Worlds will be a 3D virtual environment focused on energy-related topics that address mathematics and science standards for sixth grade. The curricula embedded within the intervention will focus on inquiry scenarios and will leverage disciplinary content to address different situations using a video game format immersed in 3D technology. The games will take two days of class time to complete. The intervention will include teacher professional development and support. Phase I work will develop a prototype of the intervention.

STUDENT EMPLOYMENT SERVICES

Principal Investigator: Kate Hohorst

Amount: \$100,000

Period of Performance: 6/18/10–11/18/10

Description: *Volunteer, Employment, and Internship Web Solutions*. The Volunteer, Employment, and Internship Web Solutions project will produce web-based services that provide students with employment, volunteer, and internship opportunities to prevent students from dropping out of school. The website will connect students to local businesses and civic organizations. The intervention will include teacher professional development and support. Phase I work will develop a prototype of the intervention.

PRESENCE TELECARE, INC.

Principal Investigator: Jack Lynch

Amount: \$100,000

Period of Performance: 6/18/10–11/18/10

Description: *Presence Telecare*. This project will develop the Presence Telecare intervention, a suite of tools to facilitate “remote telepractice” of speech language services that the company provides. The suite will include video conferencing technology integrated with therapy and management tools to allow the provider to use more than verbal communication. It will provide efficient mechanism for collecting data and communicating with a child’s parents. Phase I work will develop a prototype of the intervention.

VIRTUAL LEARNING TECHNOLOGIES

Principal Investigator: Snehal Patel

Amount: \$100,000

Period of Performance: 6/18/10–11/18/10

Description: *Scaffolding for Math Games*. In 2009, Virtual Learning Technologies received an award to develop *Frachine*, a web-based single player fraction learning game for elementary school students. This project will develop an intelligent tutoring system that will integrate with the existing game to provide the individualized instructional support required to further improve student math outcomes. Phase I will develop a prototype of the scaffolding component.

MTELEGENCE

Principal Investigator: Harriet Isecke

Amount: \$100,000

Period of Performance: 6/18/10–11/18/10

Description: *Readorium Software for Improved Reading Comprehension in Nonfiction Science Text*. Readorium will develop desktop software to support students struggling with reading comprehension in middle school science. The software teaches readers the special features of nonfiction text and strategies for reading comprehension. The games will include an avatar to guide the student, multi-media articles of differing levels of difficulty that are aligned to standards, and embedded assessments to provide feedback. Phase I work will develop a prototype of the intervention.

TEACHING RESEARCH INSTITUTE

Principal Investigator: Lynn Singletary

Amount: \$100,000

Period of Performance: 6/18/10–11/18/10

Description: *The Social Shape Up System*. Through the Social Shape Up System teachers will use a handheld device to manage their classrooms by monitoring and tracking classroom behaviors in pre-K to eighth grade classrooms. The product will include the curriculum consisting of eight research-based strategies for shaping behavior; a web-based, database-driven system to store, manage, and report student behavior; and the mobile/handheld device to facilitate data collection. Phase I work will develop a prototype of the intervention.

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3C INSTITUTE FOR SOCIAL DEVELOPMENT

Principal Investigator: Melissa DeRosier

Amount: \$100,000

Period of Performance: 6/18/10–11/18/11

Description: *An Interactive Social Tutoring System to Improve and Measure Social Goals for Students Related to Academic and Other School-Related Outcomes.* This project will create a computer-based interactive social tutoring system (ISTS) for K-fifth grade students with accompanying online professional development and implementation tools for teachers. The ISTS software will be easily integrated into the classroom environment to not only improve students' social literacy, but also to document progress made towards specific measurable social goals. Phase I work will develop a prototype of the intervention.

QUANTUM SIMULATIONS

Principal Investigator: Benny Johnson

Amount: \$100,000

Period of Performance: 6/18/10–11/18/10

Description: *Math Education for Adult Learners and College Remediation Using Artificial Intelligence.* This project will develop web-based artificial intelligence software to target adult learners and remedial college students with math. To use the product students will enter their own problems and the software will automatically provide assessment and scaffolding. Content will align to standards and also emphasize critical thinking and applied learning. Phase I work will develop a prototype of the intervention.

HANDHOLD ADAPTIVE

Principal Investigator: Robert Tedesco

Amount: \$100,000

Period of Performance: 6/18/10–11/18/10

Description: *iprompt to Improve Teaching of Students with ASD.* This project will develop the *iPrompt* software, for use with iPhones and iPads. Teachers will employ the tool with flexible and unobtrusive strategies to support students with Autism Spectrum Disorder. The main features of the *iPrompt* are the Video Modeling Library and Community Media Library, a teacher's professional development manual, and video modules to support teacher use of the software. Tools include picture schedules, visual countdown timers, and choice prompts to help set expectations, ease transitions between activities, increase attention to tasks, and develop social skills. Phase I work will develop a prototype of the intervention.

CHILDREN'S PROGRESS

Principal Investigator: Eugene Galanter

Amount: \$100,000

Period of Performance: 6/18/10–11/18/10

Description: *Computer Adaptive Triarchic Assessment and Instructional Activities for Early Childhood.* The Computer Adaptive Triarchic Assessment and Instructional Activities for Early Childhood will be used with Children's Progress core product. This software would identify gifted children in pre-K to second grade through computer adaptive methods to measure children's unique ability profiles in the areas of analytic, practical, and creative abilities. The software will enhance the connection between assessment and instruction by generating online reports with individualized educational recommendations based on students' ability profiles. Phase I work will develop a prototype of the intervention.

POLYHEDRON LEARNING MEDIA

Principal Investigator: Jeanne Finstein

Amount: \$100,000

Period of Performance: 6/18/10–11/18/10

Description: *Virtual Physics Laboratory for High School Students.* This project will develop a virtual physics laboratory for high schools students for use when equipment is not available or to supplement at home before/after using real equipment. The product will include 24 virtual labs to overlap with year-long curricular goals and align to standards in physics. The labs will include embedded feedback when student use a process or generate results that are not reasonable. The intervention will include teacher professional development and support. Phase I work will develop a prototype of the intervention.

NIMBLE ASSESSMENTS

Principal Investigator: Thomas Hoffman

Award Amount: \$749,840

Period of Performance: 5/28/09–5/27/11

Description: *Refining and Validating the NimblePad.* A major shortcoming of current computer-based testing systems is the inability to include items that require students to produce complex formulas, drawings, or graphs. Until this challenge is addressed, classroom assessments and large-scale state testing programs will be limited to administering items that are multiple-choice or require only typed responses. The NimblePad is a peripheral device designed to allow K–12 students to enter responses to open-ended test items in a natural manner by hand.

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G8FOUR CONSULTING

Principal Investigator: Robbin Chapman

Amount: \$850,000

Period of Performance: 6/18/09–11/18/11

Description: *Online Application to Support Inquiry-based Science Teaching.* Inquiry-based instruction is an approach used for teaching middle school science. However, a number of important factors—such as prevailing teaching practice or limited professional development resources—have been hypothesized to be obstacles to implementation of inquiry-based practices. This project team is developing the Online Application to Support Inquiry-based Science (OASIS) to facilitate teachers' inquiry-based teaching strategies in their classrooms. Specifically, the OASIS website will support the integration of social networking, media rich videos, activities, materials, and sensors (for example, devices such as probes or motion detectors that measure scientific phenomena) into teaching middle school science concepts.

TRIAD DIGITAL MEDIA, INC.

Principal Investigator: Robert Brown

Amount: \$750,000

Period of Performance: 5/28/09–5/27/11

Description: *Math Monster Mystery: A Formative Assessment in Game Format for Grade 4 Mathematics.* Large-scale assessments such as the National Assessment of Educational Progress and the Trends in International Science and Mathematics Study provide useful data for evaluating progress across states and countries. However, these assessments are not designed to provide teachers information on student performance that will directly impact classroom practice. This project team is developing an online computer game that will serve as a formative assessment tool to measure fourth graders' mathematical understanding and provide immediate feedback on instructional practice.

AGILE MIND, INC.

Principal Investigator: Linda Chaput

Amount: \$750,000

Period of Performance: 5/28/09–5/27/11

Description: *Agile Mind Visualizations to Increase High School Biology Learning.* Integrating innovative forms of technology into classroom practice is one promising strategy for closing the gap between U.S. and international

students in mathematics and science. One emerging form of technology in science education employs visualizations of key concepts to increase student engagement in learning. Visualizations can be designed to encourage exploration and the testing of ideas to facilitate understanding. This project team will develop standards-based, web-delivered, interactive visualizations to be embedded within Agile Minds' existing online high school biology course services.

KNOWLEDGE ATHLETES

Principal Investigator: Dave Miller

Amount: \$750,000

Period of Performance: 5/28/09–5/27/11

Description: *Capitalizing on Social Networking: Social Networking Practices to Increase Adolescent Literacy Engagement and Achievement.* Nearly all middle and high school students use multiple digital technologies like blogs, wikis, and instant messaging in their everyday lives. However, many Web 2.0 technologies are not yet commonplace within traditional classroom practice, and most teachers do not have an efficient method for integrating student-generated content into effective classroom practice. This project team proposes to develop a real-time social media web application to enable teachers to productively orchestrate online classroom dialogs and student engagement through an integrated set of digital technologies.

SEWARD, INC.

Principal Investigator: Greg Sales

Amount: \$850,000

Period of Performance: 6/18/09–11/18/11

Description: *Word-Learning Strategies: A Program for Upper Elementary Readers.* Research indicates that to be proficient readers, high school graduates need to know between 40,000 to 80,000 vocabulary words. Given that teachers and curricular materials cover only a fraction of these words, providing younger students ways to independently learn words is crucial. This project is developing a comprehensive teacher-led program to provide grades 4 and 5 students strategies for inferring the meanings of unknown words encountered while reading. The strategies include using context, word parts (compound words, inflectional suffixes, prefixes, derivational suffixes, and roots), glossaries, and dictionaries effectively.

APPENDIX – GRANT AND CONTRACT AWARDS

FLUIDITY SOFTWARE, INC.

Principal Investigator: Donald Carney

Amount: \$850,000

Period of Performance: 6/18/09–11/18/11

Description: *An Online Professional Development Program for FluidMath*. Research demonstrates that technology-focused interventions to teach math and science require substantive professional development prior to classroom implementation. This project is creating an online professional development platform for training teachers to integrate *FluidMath* into basic algebra practice. *FluidMath* is a software program that recognizes handwritten math formulae and sketches drawn on the screen of a pen-enabled computer. The software then generates solutions, graphs, and dynamic animations. For example, a teacher can write the algebraic equation of a straight line on the screen and prompt the computer to generate an exact plot of the line. Coefficients in the equation can be altered by the teacher to demonstrate the subsequent effect on the line on the graph.

VIRTUAL LEARNING TECHNOLOGIES

Principal Investigator: Snehal Patel

Amount: \$849,960

Period of Performance: 6/18/09–11/18/11

Description: *An Empirical Approach to Developing Web-based Math Learning Games to Improve Elementary School Student Outcomes*. Recent reports assert that the education system of the United States is failing to produce enough mathematically skilled workers necessary for the country to remain globally competitive. A key problem in the current system, as reported by the National Mathematics Advisory Panel, is that students are not learning the foundational math skills they need during the elementary school years. This project will develop a platform with a series of web-based math learning games that incorporate research-based pedagogy, communal learning, and adaptive standards-based content in an engaging environment. Game play will offer guided discovery-based progression using relevant applications of math skills.

Other Contracts

SYNERGY ENTERPRISES, INC.

Amount: \$7,300,385

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

Description: This contract provides logistical and analytic support for IES.

AFYA, INC.

Amount: \$4,030,555

Period of Performance: 9/20/10–9/19/13

Description: This contract provides administrative and logistical support for IES.

AMERICAN INSTITUTES FOR RESEARCH IN THE BEHAVIORAL SCIENCES

Amount: \$1,500,000

Period of Performance: 6/24/09–6/30/12

Description: *Identifying Potentially Successful Approaches to Turning Around Chronically Low-Performing Schools*. This study will identify strategies used by chronically low-performing schools to successfully turn around and exit from low-performing status.

Interagency Agreements

U.S. ARMY MEDICAL RESEARCH ACQUISITION ACTIVITY

Amount: \$9,732,200

Period of Performance: 8/10/09–9/30/11

Description: This interagency agreement is for services to contract for scientific peer review management and administrative support for all IES grant competitions, including NCER, NCSER, and Statewide, Longitudinal Data Systems.

APPENDIX – GRANT AND CONTRACT AWARDS

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: \$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. National assessments use the latest advances in assessment methodology. Each subject is assessed at grades 4, 8, and 12—although not all grades are assessed each time. Trial Urban District Assessment (TUDA) is a multiyear study of the feasibility of a trial district-level NAEP in selected urban districts. The first TUDA took place in conjunction with the 2002 state NAEP reading and writing assessments. TUDA again took place in 2003, 2005, 2007, and 2009 and is scheduled for 2011. Long-term trends assessments (LTT) are given at the national level only, and are administered in a manner that is very different from that used for main NAEP assessments.

LTT reports results in mathematics and reading that present trends since the 1970s and are given every four years.

EDUCATIONAL TESTING SERVICE (ETS)

Contract Name: 2008-12 NAEP Alliance Coordination

Amount: \$11,372,282

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

EDUCATIONAL TESTING SERVICE (ETS)

Contract Name: 2008-12 NAEP Design, Analysis and Reporting

Amount: \$66,586,684

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

EDUCATIONAL TESTING SERVICE (ETS)

Contract Name: 2008-12 NAEP Item Development

Amount: \$36,912,256

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

WESTAT, INC.

Contract Name: 2008-12 NAEP Sampling and Data Collection

Amount: \$191,365,013

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

WESTAT, INC.

Contract Name: 2008-12 NAEP State Service Center

Amount: \$29,395,152

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

NCS PEARSON, INC.

Contract Name: 2008-12 NAEP Materials, Distribution, Processing, and Scoring

Amount: \$75,940,121

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

APPENDIX – GRANT AND CONTRACT AWARDS

FULCRUM IT

Contract Name: 2008–12 NAEP Web Operations/
Technology Management

Amount: \$26,818,248

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

HAGER SHARP

Contract Name: NAEP Publications/Outreach/
Dissemination Support

Amount: \$13,645,423

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

HUMAN RESOURCES RESEARCH ORGANIZATION

Contract Name: NAEP Quality Assurance

Amount: \$5,520,282

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

CRP, INC.

Contract Name: NAEP Logistics

Amount: \$6,907,295

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

AMERICAN INSTITUTES FOR RESEARCH (AIR)

Contract Name: NAEP Validity Studies

Amount: \$2,865,170

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

AMERICAN INSTITUTES FOR RESEARCH (AIR)

Contract Name: NAEP Education Statistics Services
Institute

Amount: \$30,983,802

Period of Performance: 9/30/05–12/31/11

Seminar Training

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

CDS2 SEMINAR (TRAINING)

Amount: \$391,994

Period of Performance: 06/15/09–06/14/10

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: \$45,000,000

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

Early Childhood, International, & 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:2011 began in fall 2010 with

a nationally representative sample of approximately 18,000 kindergartners from about 900 public and private schools. The study will follow children annually through spring 2016.

RESEARCH TRIANGLE INSTITUTE (RTI)

Amount: \$12,365,663

Period of Performance: 7/7/04–11/9/09

WESTAT, INC.

Amount: \$14,533,545

Period of Performance: 4/15/08–4/13/13

APPENDIX – GRANT AND CONTRACT AWARDS

National Household Education Surveys Program (NHES) Redesign

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 program is currently undergoing a redesign to address response rate and coverage issues.

WESTAT, INC.

Amount: \$3,900,000

Period of Performance: 9/26/08–9/25/11

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 decision makers 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: \$550,993

Period of Performance: 1/26/09–9/29/09

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 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 and the Progress in International Reading Literacy Study, both conducted by the International Association for the Evaluation of Educational Achievement; and the Program for International Student Assessment and the Program for the International Assessment of Adult Competencies, both conducted by OECD.

ORGANIZATION FOR ECONOMIC COOPERATION AND DEVELOPMENT (OECD)

Amount: \$141,380

Period of Performance: 10/1/08–9/30/09

ORGANIZATION FOR ECONOMIC COOPERATION AND DEVELOPMENT (OECD)

Amount: \$186,786

Period of Performance: 10/1/09–9/30/10

NUCORE VISION

Amount: \$226,031

Period of Performance: 8/5/09–8/4/10

INTERNATIONAL ASSOCIATION FOR THE EVALUATION OF EDUCATIONAL ACHIEVEMENT (IEA)

Amount: \$5,465,997

Period of Performance: 9/11/08–9/10/13

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

APPENDIX – GRANT AND CONTRACT AWARDS

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. PIRLS 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.

WESTAT, INC.

Amount: \$2,776,860

Period of Performance: 8/1/08–7/31/13

Program for International Student Assessment (PISA)

PISA, which began 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 three years. PISA is coordinated by the Organization for Economic Cooperation and Development, an intergovernmental organization of industrialized countries.

WINDWALKER CORPORATION

Contract Name: PISA 2009 national contract

Amount: \$5,334,309

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

WESTAT, INC.

Contract Name: PISA 2012 national contract

Amount: \$5,991,165

Period of Performance: 8/4/10–8/3/14

ORGANIZATION FOR ECONOMIC COOPERATION AND DEVELOPMENT (OECD)

Amount: \$1,993,411

Period of Performance: 10/1/09–9/30/10

Program for the International Assessment of 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.

WESTAT, INC.

Contract Name: PIAAC 2011 national contract

Amount: \$11,816,149

Period of Performance: 6/30/09–6/29/14

ORGANIZATION FOR ECONOMIC COOPERATION AND DEVELOPMENT (OECD)

Amount: \$869,950

Period of Performance: 10/1/09–9/30/10

Trends in International Mathematics and Science Study (TIMSS)

TIMSS, which began in 1995, provides reliable and timely data on the mathematics and science achievement of U.S. fourth- and eighth-grade students compared to that of students in other countries. TIMSS data are collected every four years.

WESTAT, INC.

Amount: \$9,762,353

Period of Performance: 8/1/08–7/31/13

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 data banks, 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: \$650,000

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

APPENDIX – GRANT AND CONTRACT AWARDS

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.

BUREAU OF THE CENSUS

Amount: \$4,000,000

Period of Performance: 9/1/09–8/31/10

BUREAU OF THE CENSUS

Amount: \$4,000,000

Period of Performance: 9/1/10–8/31/11

Elementary/Secondary & 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 2010, the CCD also conducted a data collection about teacher compensation, experience, education, and work assignment from state administrative records.

also provides technical assistance to states and promotes voluntary data definitions and data standards to improve data quality.

BUREAU OF THE CENSUS

Amount: \$4,305,000

Period of Performance: 3/1/09–2/28/10

BUREAU OF THE CENSUS

Amount: \$4,492,000

Period of Performance: 3/1/10–2/28/11

COUNCIL OF CHIEF STATE SCHOOL OFFICERS (CCSSO)

Amount: \$15,399,023

Period of Performance: 9/29/06–12/20/11

ARKANSAS DEPARTMENT OF EDUCATION

Amount: \$4,967,991

Period of Performance: 5/2/09–4/30/12

CALIFORNIA DEPARTMENT OF EDUCATION

Amount: \$6,000,000

Period of Performance: 7/1/09–6/30/13

CONNECTICUT DEPARTMENT OF EDUCATION

Amount: \$2,937,416

Period of Performance: 8/3/09–8/2/12

FLORIDA DEPARTMENT OF EDUCATION

Amount: \$2,450,000

Period of Performance: 7/1/09–6/30/14

GEORGIA DEPARTMENT OF EDUCATION

Amount: \$8,942,640

Period of Performance: 5/2/09–4/30/14

HAWAII DEPARTMENT OF EDUCATION

Amount: \$3,477,053

Period of Performance: 5/1/09–4/30/12

IDAHO DEPARTMENT OF EDUCATION

Amount: \$5,916,520

Period of Performance: 5/1/09–4/30/12

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

APPENDIX – GRANT AND CONTRACT AWARDS

ILLINOIS STATE BOARD OF EDUCATION

Amount: \$8,999,956

Period of Performance: 7/1/09–6/30/13

IOWA DEPARTMENT OF EDUCATION

Amount: \$8,777,459

Period of Performance: 6/1/09–5/31/14

KANSAS DEPARTMENT OF EDUCATION

Amount: \$3,911,792

Period of Performance: 5/2/09–4/30/12

KENTUCKY DEPARTMENT OF EDUCATION

Amount: \$2,878,373

Period of Performance: 5/2/09–4/30/12

LOUISIANA DEPARTMENT OF EDUCATION

Amount: \$4,056,510

Period of Performance: 5/1/09–4/30/12

MARYLAND DEPARTMENT OF EDUCATION

Amount: \$5,990,186

Period of Performance: 6/1/09–5/31/14

MASSACHUSETTS DEPARTMENT OF ELEMENTARY AND SECONDARY EDUCATION

Amount: \$5,993,464

Period of Performance: 5/2/09–4/30/12

MICHIGAN DEPARTMENT OF EDUCATION

Amount: \$5,517,228

Period of Performance: 6/1/09–5/31/12

MISSISSIPPI DEPARTMENT OF EDUCATION

Amount: \$3,387,308

Period of Performance: 6/1/09–5/31/12

MISSOURI DEPARTMENT OF EDUCATION

Amount: \$8,967,685

Period of Performance: 5/2/09–5/1/13

MONTANA DEPARTMENT OF EDUCATION

Amount: \$5,798,457

Period of Performance: 7/1/09–6/30/13

NEW YORK STATE EDUCATION DEPARTMENT

Amount: \$7,844,313

Period of Performance: 6/1/09–5/31/13

NORTH DAKOTA DEPARTMENT OF EDUCATION

Amount: \$6,723,090

Period of Performance: 7/1/09–6/30/13

OHIO DEPARTMENT OF EDUCATION

Amount: \$2,945,000

Period of Performance: 5/2/09–5/1/13

OREGON DEPARTMENT OF EDUCATION

Amount: \$3,696,615

Period of Performance: 5/2/09–4/30/12

PENNSYLVANIA STATE DEPARTMENT OF EDUCATION

Amount: \$6,103,000

Period of Performance: 7/1/09–6/30/12

RHODE ISLAND DEPARTMENT OF EDUCATION

Amount: \$4,667,933

Period of Performance: 7/1/09–6/30/12

TEXAS EDUCATION AGENCY

Amount: \$7,879,783

Period of Performance: 7/1/09–6/30/14

WASHINGTON STATE OFFICE OF SUPERINTENDENT OF PUBLIC INSTRUCTION

Amount: \$5,941,887

Period of Performance: 6/1/09–5/31/13

WISCONSIN DEPARTMENT OF PUBLIC INSTRUCTION

Amount: \$5,552,270

Period of Performance: 5/2/09–5/1/13

State Longitudinal Data Systems (SLDS)— Funded Through the American Recovery and Reinvestment Act (ARRA) of 2009

Twenty grants were competitively awarded to state education departments for the design and implementation of Statewide, Longitudinal Data Systems. These grants, funded through the American Recovery and Reinvestment Act (ARRA) of 2009, are intended to support states with the development and implementation of systems that promote the linking of data across time and databases, from early childhood into career, including matching teachers to students, while protecting student privacy and confidentiality consistent with applicable privacy protection

APPENDIX – GRANT AND CONTRACT AWARDS

laws. The total value of the three-year grants will range from \$5.1 million to \$19.7 million. All 50 states, the District of Columbia, Puerto Rico, and the U.S. Virgin Islands applied.

Period of Performance for all 20 grants: 7/1/10-6/30/13

Arkansas:	\$9,832,689
Colorado:	\$17,409,117
Florida:	\$9,975,288
Illinois:	\$11,869,819
Kansas:	\$9,060,442
Maine:	\$7,315,000
Massachusetts:	\$12,972,730
Michigan:	\$10,624,964
Minnesota:	\$12,411,777
Mississippi:	\$7,569,716
New York:	\$19,670,975
Ohio:	\$5,135,883
Oregon:	\$10,475,997
Pennsylvania:	\$14,284,020
South Carolina:	\$14,890,261
Texas:	\$18,195,078
Utah:	\$9,617,736
Virginia:	\$17,537,564
West Virginia:	\$17,341,871
Wisconsin:	\$13,809,040

Education Longitudinal Study (ELS)

The Education Longitudinal Study of 2002 (ELS:2002) is a longitudinal survey that monitors the transitions of a national sample of young people as they progress from tenth grade and twelfth 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.

RESEARCH TRIANGLE INSTITUTE (RTI)

Amount: \$13,449,707

Period of Performance: 09/26/09–09/25/14

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 course-taking and plans to attend postsecondary education.

RESEARCH TRIANGLE INSTITUTE (RTI)

Amount: \$17,900,000

Period of Performance: 7/6/07–7/5/12

RESEARCH TRIANGLE INSTITUTE (RTI)

Amount: \$25,500,000

Period of Performance: 7/6/10–7/5/14

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 Common Core of Data (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: \$2,115,000

Period of Performance: 7/1/09–6/30/10

BUREAU OF THE CENSUS

Amount: \$1,460,000

Period of Performance: 7/1/10–6/30/11

APPENDIX – GRANT AND CONTRACT AWARDS

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 one-year attrition rates. The 2007–08 SASS included two new components: the Principal Follow-up Survey (PFS) and the Beginning Teacher Longitudinal Study (BTLS). The PFS was conducted the year after the SASS collection with all principals responding to SASS. Its purpose was to provide one-year attrition rates for principals. The BTLS is following a cohort of first-year public school teachers identified in the 2007–08 SASS. Annual collections are being done to track the career trajectories of those new teachers—as they continue to teach at their schools, move between schools, leave teaching, and return to teaching. Now on a four-year collection cycle, SASS was first done in 1987–88 and most recently done in 2007–08.

BUREAU OF THE CENSUS

Amount: \$4,650,000

Period of Performance: 4/1/09–3/31/10

BUREAU OF THE CENSUS

Amount: \$1,864,842

Period of Performance: 9/15/09–8/31/10

BUREAU OF THE CENSUS

Amount: \$6,800,000

Period of Performance: 9/1/10–8/31/11

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.

BUREAU OF THE CENSUS (FUNDING FROM THE OFFICE OF SAFE AND DRUG-FREE SCHOOLS)

Amount: \$780,000

Period of Performance: 6/1/09–5/31/10

BUREAU OF THE CENSUS (FUNDING FROM THE OFFICE OF SAFE AND DRUG-FREE SCHOOLS)

Amount: \$300,000

Period of Performance: 6/1/10–5/31/11

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, then, are 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 the Office of Safe and Drug-Free Schools.

BUREAU OF THE CENSUS (FUNDING FROM THE OFFICE OF SAFE AND DRUG-FREE SCHOOLS)

Amount: \$138,000

Period of Performance: 7/1/09–6/30/10

BUREAU OF THE CENSUS (FUNDING FROM THE OFFICE OF SAFE AND DRUG-FREE SCHOOLS)

Amount: \$864,000

Period of Performance: 7/1/10–6/30/11

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Library Statistics Program

NCES initiated and funded a nationwide library statistics program in 1989. The Center works collaboratively with the Census Bureau to plan the content of the survey and to collect, process, and disseminate the data. Subjects of the survey are the Academic Libraries serving degree-granting institutions of higher education.

BUREAU OF THE CENSUS

Amount: \$650,000

Period of Performance: 2/28/09–2/27/10

BUREAU OF THE CENSUS

Amount: \$750,000

Period of Performance: 2/28/10–2/27/11

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: \$600,000

Period of Performance: 5/1/09–4/30/10

BUREAU OF THE CENSUS

Amount: \$900,000

Period of Performance: 5/1/10–4/30/11

ESLSD General Programs

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 pre-planning for the annual Management Information Systems and NCES Summer Data Conferences.

COFFEY CONSULTING, LLC

Amount: \$4,743,099

Period of Performance: 10/1/08–9/30/12

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

KFORCE, INC.

Amount: \$14,000,000

Period of Performance: 5/7/04–5/1/12

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. The National Postsecondary Education Cooperative plans research and development work to support IPEDS.

APPENDIX – GRANT AND CONTRACT AWARDS

RESEARCH TRIANGLE INSTITUTE (RTI)

Amount: \$31,383,934

Period of Performance: 4/14/09–4/13/14

Joint NCES/NSF research and dissertation grant program administered by NSF.

NATIONAL SCIENCE FOUNDATION

Amount: \$275,000

Period of Performance: 8/20/08–8/19/09

NATIONAL SCIENCE FOUNDATION

Amount: \$200,000

Period of Performance: 8/20/09–8/19/10

Postsecondary Studies Division General Programs

State Postsecondary Education Coordination Network

This SHEEO/NCES Network provides timely dissemination of NCES projects to state policymakers. The SHEEO (State Higher Education Executive Officers) 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.

STATE HIGHER EDUCATION EXECUTIVE OFFICERS (SHEEO)

Amount: \$3,345,815

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

Survey of Earned Doctorates (SED)

This interagency agreement helps support NCES and gives it access to data from the SED. From 1957–58, SED began 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: \$100,000

Period of Performance: 09/15/09–09/14/10

NATIONAL SCIENCE FOUNDATION

Amount: \$100,000

Period of Performance: 09/15/10–09/14/11

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: \$2,480,872

Period of Performance: 4/17/03–4/16/13

APPENDIX – GRANT AND CONTRACT AWARDS

Office of the Commissioner

Joint Program in Survey Methodology (JPSM)

This contract helps support JPSM, 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.

BUREAU OF THE CENSUS

Amount: \$129,000

Period of Performance: 08/1/10–07/31/11

Education Statistics Services Institute (ESSI) - Statistical Activities

As authorized by Congress, NCES has as its responsibility “to collect and disseminate information on the condition of education in the United States and other countries, to analyze and report on the meaning and significance of these statistics, and to assist states and local education agencies in improving their own education statistics systems.” In carrying out its mission, NCES supports a wide range of activities, carrying out a program of over 100 surveys, maintaining a website used by three-quarters of a million customers monthly, and assisting states and postsecondary institutions in building a solid infrastructure for accurate and timely statistics. To assist in meeting these obligations, NCES created the ESSI to support its analytic, research, and development activities.

AMERICAN INSTITUTES FOR RESEARCH (AIR)

Amount: \$100,045,858

Period of Performance: 9/30/05–12/31/11

NCES Logistics Support and Services

This contract provides logistics support in four areas: meeting coordination, external help, editorial/graphics and NCES publications release activities support, and website support.

SYNERGY ENTERPRISES, INC.

Amount: \$8,717,986

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

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.

SYNERGY ENTERPRISES, INC.

Amount: \$3,850,000

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

APPENDIX – GRANT AND CONTRACT AWARDS

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

AMERICAN INSTITUTES FOR RESEARCH (AIR)

Amount: \$22,337,054

Period of Performance: 8/11/05–5/28/11

Description: *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.

AMERICAN INSTITUTES FOR RESEARCH (AIR)

Amount: \$12,238,767

Period of Performance: 9/17/03–5/30/09

Description: *The Impact of Professional Development Models and Strategies on Teacher Practice and Student Achievement in Early Reading.* This evaluation assesses the impact of providing two professional development interventions that draw on findings from the National Reading Panel and are of significantly longer than average duration.

MATHEMATICA POLICY RESEARCH, INC.

Amount: \$11,682,525

Period of Performance: 9/10/07–7/9/12

Description: *Impact Evaluation of Moving High-Performing Teachers to Low-Performing Schools.* This study assesses the impact of offering a two-year, \$20,000 bonus to teachers

who are identified as being the highest performing teachers within a district according to a value-added achievement measure. The study includes impacts on teacher retention and on academic achievement in reading and mathematics.

MATHEMATICA POLICY RESEARCH, INC.

Amount: \$21,039,437

Period of Performance: 9/30/05–9/29/11

Description: *Evaluation of Math Curricula.* This study will evaluate the impact of different commercially available math curricula on student achievement in early elementary school grades.

WESTAT, INC.

Amount: \$7,998,164

Period of Performance: 9/1/03–1/20/11

Description: *Evaluation of the DC Opportunity Scholarship 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 controlled trial evaluation design, the impact of the program on academic achievement, school safety, student and parent satisfaction, and other outcomes.

APPENDIX – GRANT AND CONTRACT AWARDS

ABT ASSOCIATES

Amount: \$1,679,098

Period of Performance: 8/6/04–8/3/12

Description: *Technical Assistance to Local Impact Evaluations of Striving Readers Projects*. This contract provides technical assistance to the grantees under the Striving Readers Program and their evaluation partners to strengthen their experimental evaluation designs and successfully implement those designs. The contractor will develop annual cross-site tables that summarize the findings for all of the evaluations. This contract funds technical assistance to the eight grantees in the 2006 cohort and part of the technical assistance to the eight grantees in the 2009 cohort.

ABT ASSOCIATES

Amount: \$573,220

Period of Performance: 1/29/10–1/28/14

Description: *Technical Assistance to Local Impact Evaluations of Striving Readers Projects, Part 2*. This contract provides technical assistance to the grantees under the Striving Readers Program and their evaluation partners to strengthen their experimental evaluation designs and successfully implement those designs. The contractor will develop annual cross-site tables that summarize the findings for all of the evaluations. This contract funds part of the technical assistance to eight grantees in the 2009 cohort.

AMERICAN INSTITUTES FOR RESEARCH (AIR)

Amount: \$3,620,128

Period of Performance: 9/18/06–3/31/13

Description: *Evaluation of Conversion Magnet Schools*. This study assesses the relationship between magnet school conversion and student achievement and other outcomes in elementary schools.

MATHEMATICA POLICY RESEARCH, INC.

Amount: \$10,038,073

Period of Performance: 8/26/08–8/23/13

Description: *Impact on Secondary Student Math Achievement of Highly Selective Routes to Alternative Certification*. This evaluation assesses the impact on students' math achievement of secondary math teachers entering teaching through the two largest highly selective alternative routes to certification, Teach for America and the Teaching Fellows Programs under the umbrella of the New Teacher Project.

AMERICAN INSTITUTES FOR RESEARCH (AIR)

Amount: \$3,626,218

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

Description: *School Accountability Status and Outcomes for Students with Disabilities*. This study, part of the congressionally mandated National Assessment of the Individuals with Disabilities Education Act (IDEA), is describing the extent to which schools are accountable for the academic performance of students with disabilities and is evaluating the relationship such accountability has with school practices and outcomes for this subgroup of students.

MDRC

Amount: \$14,543,845

Period of Performance: 3/26/08–3/24/13

Description: *Impact Evaluation of Response to Intervention Strategies*. This study, part of the congressionally mandated National Assessment of the Individuals with Disabilities Education Act (IDEA), is evaluating the implementation and effectiveness of practices 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.

WESTAT, INC.

Amount: \$2,982,765

Period of Performance: 7/16/09–3/12/13

Description: *Evaluation of the Regional Educational Laboratories*. This study, mandated by the Education Sciences Reform Act of 2002, is evaluating the quality and relevance of the technical assistance products of the Regional Educational Laboratories (REL). Through expert reviews of REL documents, interviews with REL staff, and surveys of state and local education officials, the study team will describe each REL's work, measure awareness of REL products and activities, and assess the extent to which these products and activities align with regional needs.

APPENDIX – GRANT AND CONTRACT AWARDS

WESTAT, INC.

Amount: \$2,995,352

Period of Performance: 9/25/09–9/24/14

Description: *National Evaluation of the IDEA Technical Assistance and Dissemination Program*. This study will evaluate the Individuals with Disabilities Education Act (IDEA) Technical Assistance and Dissemination (TA&D) program by gathering information from TA&D grantees, state education agencies (SEAs), and school districts on technical assistance needs, technical assistance activities, program implementation, and child outcomes.

SRI

Amount: \$2,942,781

Period of Performance: 9/17/10–9/16/15

Description: *Design and IDEA-related Analyses for the National Assessment of IDEA*. This contract is supporting analyses of extant data and investigation of options for new data collection. The analyses of extant data will describe early intervention (Individuals with Disabilities Education Act [IDEA] Part C) and special education (IDEA Part B) services and personnel. The design work will identify options for evaluating IDEA services and outcomes for young children with disabilities.

MATHEMATICA POLICY RESEARCH, INC.

Amount: \$13,001,340

Period of Performance: 9/25/09–9/27/14

Description: *National Title I Study of Implementation and Outcomes: Early Childhood Language Development*. This study is examining programs and practices associated with development of children's language and background knowledge and with improved reading achievement in early elementary grades. Identified programs and practices could then be included in an impact evaluation.

WESTAT, INC.

Amount: \$8,440,922

Period of Performance: 8/5/10–8/4/14

Description: *Integrated Evaluation of the American Recovery and Reinvestment Act (ARRA) Funds*. The study will determine how states, districts, and schools are implementing specific reform strategies emphasized by the various ARRA programs. In addition, implementation will be related to specific and overall amounts of ARRA funding.

ABT ASSOCIATES, INC.

Amount: \$9,502,202

Period of Performance: 9/22/10–9/21/14

Description: *Evaluation Investing in Innovation (i3)*. Grantees are required to fund an independent evaluation using experimental or quasi-experimental methods. This contract will provide technical assistance on the conduct of these evaluations for the purpose of ensuring that evaluations are of high quality and have common evaluation approaches when feasible. The contract will also summarize the findings of the evaluations.

MATHEMATICA POLICY RESEARCH, INC.

Amount: \$13,153,052

Period of Performance: 9/24/10–9/23/15

Description: *Impact Evaluation of Race to the Top (RTT) and School Improvement Grants (SIG)*. This study will evaluate the impact of funding for school turnaround models, the implementation of state capacity as defined by RTT, and the implementation of school turnaround models and practices and strategies correlated with improved student outcomes.

MATHEMATICA POLICY RESEARCH, INC.

Amount: \$8,947,166

Period of Performance: 9/27/10–9/26/15

Description: *Study of Teacher Quality Distribution and Measurement*. This study will collect student test score information from 20–30 geographically distributed districts. Based on value added analyses, the study will be able to provide baseline information about the equitability of the distribution of teacher quality within districts. Follow-up analyses will be able to document any shifts in the teacher quality distribution coinciding with enacted teacher reform policies. The study will also involve work in identifying or developing measures of teacher quality that are related to student achievement with an emphasis on math instruction.

DECISION INFORMATION RESOURCES

Amount: \$3,812,604

Period of Performance: 8/23/10–5/22/12

Description: *Design and Conduct of an Evaluation of TRIO Implementation and Outcomes*. This study will develop several design options to examine the association between

APPENDIX – GRANT AND CONTRACT AWARDS

implementation strategies and student outcomes in Upward Bound, and it will also examine the feasibility of applying each of the design options to Upward Bound and other TRIO programs. Depending on the results of the design phase, the U.S. Department of Education may exercise the option for a study of implementation strategies in Upward Bound.

MATHEMATICA POLICY RESEARCH, INC.

Amount: \$5,322,690

Period of Performance: 2/17/10–2/16/15

Description: *Study of Teacher Residency Programs.* This is a study of the effectiveness of teachers who choose to enter teaching through a teacher residency program. Funding will support site recruitment and initial implementation data collection.

AMERICAN INSTITUTES FOR RESEARCH (AIR)

Amount: \$8,001,158

Period of Performance: 9/30/09–9/29/14

Description: *Study of School Turnaround.* This study will examine how School Improvement Grants (SIG) are implemented and what changes they bring about in the targeted schools by following the experiences of case study schools over time. The primary objectives are to document the change process in a set of chronically low-performing schools receiving SIG funds, study leading indicators of school turnaround, and support schools undertaking actions to turn around student performance by sharing knowledge and lessons from study schools.

What Works Clearinghouse

MATHEMATICA POLICY RESEARCH, INC.

Amount: \$50,316,100

Period of Performance: 7/5/07–7/4/12

Description: *What Works Clearinghouse (WWC).* This contract provides educators, policymakers, researchers, and the public with reviews of the scientific evidence of specific interventions—programs, products, practices, and policies—to improve important student outcomes. The Clearinghouse applies systematic review methods and the WWC evidence

MATHEMATICA POLICY RESEARCH, INC.

Amount: \$7,895,327

Period of Performance: 11/30/09–11/29/14

Description: An Impact Evaluation for the Teacher Incentive Fund. This is a study of the effectiveness of differentiated performance-based incentive pay on student achievement and the mobility and retention of teachers and principals. Differentiated performance-based incentive pay is a key feature of all Teacher Incentive Fund grants. This is a congressionally mandated study.

MATHEMATICA POLICY RESEARCH, INC.

Amount: \$14,659,646

Period of Performance: 9/27/10–9/26/15

Description: Study of Transition Outcomes for Youth with Disabilities, Phase I. This longitudinal survey of youth with and without disabilities (ages 13 to 21 in December 2011) will inform policymakers and educators in understanding the extent to which youth make transitions to postsecondary experiences such as college, work, and independent living, and how to make those experiences more successful. It is part of the congressionally mandated National Assessment of the Individuals with Disabilities Education Improvement Act of 2004 (IDEA 2004, P.L. 108-446) and supported with funds authorized under Section 664 of the Act.

standards in its assessment of studies of effectiveness to determine whether or not the studies meet WWC standards. The results of WWC's assessment of the research are reported in Intervention Reports, Quick Review Reports, and Practice Guides that are disseminated on the WWC website. The website also provides search tools to quickly identify educational interventions that work to improve student outcomes, as well as other technical assistance documents such as the WWC Procedures and Standards Handbook.

APPENDIX – GRANT AND CONTRACT AWARDS

Education Resources Information Center (ERIC)

CSC/PROFESSIONAL SERVICES GROUP

Amount: \$42,270,334

Period of Performance: 3/12/04–8/3/09

Description: *Education Resources Information Center (ERIC).*

ERIC is a digital library providing Internet access to current and archival journal and non-journal materials to educators, researchers, and the general public. The electronic collection includes more than 1.2 million bibliographic records from 1966 to 2009. The U.S. Department of Education's Institute of Education Sciences administers ERIC as part of the National Library of Education.

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COMPUTER SCIENCES CORPORATION

Amount: \$30,169,074

Period of Performance: 8/4/09–8/3/14

Description: *Education Resources Information Center (ERIC).*

INFORMATION INTERNATIONAL ASSOCIATES, INC.

Amount: \$868,758

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

Description: *Education Resources Information Center (ERIC), Quality Assurance.* This contract provides support for monitoring and measuring the performance of the online ERIC system.

National Library of Education

SWETS INFORMATION SERVICES, INC.

Amount: \$1,309,322

Period of Performance: 9/22/08–9/21/13

Description: *Journal Subscription Services.* Provides access to and creates and maintains links for electronic journal subscriptions and provides subscriptions to paper journals if electronic journals are unavailable.

PROGRESSIVE TECHNOLOGY FEDERAL SYSTEMS, INC.

Amount: \$4,267,937

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

Description: *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. These contracts provide educators, policymakers, researchers, and the public with both original research on pressing issues in the region and reviews of the best scientific evidence on the effectiveness of specific interventions—programs, products, practices, and policies—to improve important student outcomes.

APPENDIX – GRANT AND CONTRACT AWARDS

WESTED

Amount: \$40,934,394

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

Description: Regional Educational Laboratory, West—States Served: Arizona, California, Nevada, and Utah

NORTHWEST REGIONAL EDUCATIONAL LABORATORY

Amount: \$24,409,512

Period of Performance: 2/1/06–1/31/11

Description: Regional Educational Laboratory, Northwest—States Served: Alaska, Idaho, Montana, Oregon, and Washington

EDVANCE RESEARCH

Amount: \$37,458,873

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

Description: Regional Educational Laboratory, Southwest—States Served: Arkansas, Louisiana, New Mexico, Oklahoma, and Texas

LEARNING POINT ASSOCIATES

Amount: \$38,808,426

Period of Performance: 3/9/06–1/31/11

Description: Regional Educational Laboratory, Midwest—States Served: Illinois, Indiana, Iowa, Michigan, Minnesota, Ohio, and Wisconsin

THE CNA CORPORATION

Amount: \$26,405,252

Period of Performance: 2/6/06–3/16/11

Description: Regional Educational Laboratory, Appalachia—States Served: Kentucky, Tennessee, Virginia, and West Virginia

MID-CONTINENT RESEARCH FOR EDUCATION AND LEARNING

Amount: \$25,760,423

Period of Performance: 1/20/06–1/19/11

Description: Regional Educational Laboratory, Central—States Served: Colorado, Kansas, Missouri, Nebraska, North Dakota, South Dakota, and Wyoming

PACIFIC RESOURCES FOR EDUCATION AND LEARNING

Amount: \$20,522,022

Period of Performance: 3/16/06–3/16/11

Description: 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

EDC

Amount: \$41,043,856

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

Description: Regional Educational Laboratory, Northeast & Islands—States Served: Connecticut, Maine, Massachusetts, New Hampshire, New York, Rhode Island, Vermont, Puerto Rico, and Virgin Islands

SERVE, UNIVERSITY OF NORTH CAROLINA AT GREENSBORO

Amount: \$36,975,158

Period of Performance: 2/24/06–3/15/11

Description: Regional Educational Laboratory, Southeast—States Served: Alabama, Florida, Georgia, Mississippi, North Carolina, and South Carolina

PENNSYLVANIA STATE UNIVERSITY

Amount: \$34,431,122

Period of Performance: 3/23/06–3/22/11

Description: Regional Educational Laboratory, Mid-Atlantic—States Served: Delaware, Maryland, New Jersey, Pennsylvania, and Washington, DC

APPENDIX – GRANT AND CONTRACT AWARDS

Unsolicited Proposals

CARNEGIE FOUNDATION FOR THE ADVANCEMENT OF TEACHING

Principal Investigator: Anthony Bryk

Amount: \$5,925,974

Period of Performance: 10/1/10–09/30/13

Description: *Learning from Emerging Teacher Evaluation Practices to Advance Teacher Quality.* IES and the Carnegie Foundation for the Advancement of Teaching are working

together, through a three-year cooperative agreement involving the use of 90-day research cycles, to address issues related to the technical and implementation components of teacher evaluation systems. The goal of the project is to serve as an integrative force and enhance the capacity of those working in teacher evaluation to design better information systems for this work.

Other Contracts

MATHEMATICA POLICY RESEARCH, INC.

Amount: \$23,136,276

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

Description: *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 – GRANT AND CONTRACT AWARDS

NATIONAL CENTER FOR SPECIAL EDUCATION RESEARCH (NCSEER)

NCSEER carries out special education research activities primarily through grants.

Early Intervention and Early Learning in Special Education

UNIVERSITY OF KANSAS CENTER FOR RESEARCH, INC.

Principal Investigator: Kathleen Baggett

Amount: \$1,389,897

Period of Performance: 3/1/10–2/28/13

Description: *Expanding the Reach of Evidence-Based Interventions for Improving Social-Emotional Outcomes for Infants in Childcare.* The goal of this project is to create and test a professional development program aimed at increasing responsive childcare teacher interactions to promote infant social-emotional development. Specifically, this project will develop and test Infant Net for Childcare Teachers (Infant Net-CCT), which is a program that integrates evidence-based components of the Play and Language Strategies program, a cognitive-behavioral skills based intervention, with a web-based delivery technology that can help address barriers that hinder teacher access to effective evidence-based professional development programs. Infant Net-CCT development will begin with three sets of iterative focus groups consisting of early intervention and early special education administrators, trainers of childcare teachers, as well as childcare teachers and parents of infants with and without disabilities who will provide feedback at all developmental stages. The intervention will then be field tested in a diverse set of childcare settings to assess the intervention's ease of use, feasibility, acceptability, and potential impact on teacher sensitivity and responsiveness and infant social-emotional behavior.

SOUTH CAROLINA RESEARCH FOUNDATION

Principal Investigator: Christine DiStefano

Amount: \$1,372,484

Period of Performance: 7/1/10–6/30/14

Description: *Validation of the Behavioral and Emotional Screening System for Early Identification for Social-Emotional and Behavioral Problems in Preschoolers.* During the last four decades, the number of preschoolers served in center-based programs (e.g., childcare centers, Head Start Programs, publicly funded prekindergarten programs, private preschools) has increased dramatically. Concurrent with the expansion of services to young children has been the fact that many young children who are enrolling in preschools exhibit emerging behavioral and social emotional difficulties that are severe enough to impede their social development and educational progress. The purpose of this study is to validate the Behavioral and Emotional Screening System (BESS) teacher rating form for preschool-aged children to determine the plausibility of the instrument as part of a universal screening system. This project will examine the BESS to determine its (1) psychometric properties, (2) accuracy in predicting children's behavior over time, and (3) implementation feasibility. Data from children will be collected twice yearly over the course of three years to provide information on various aspects of reliability and validity. Data will also be collected from teachers and assistant teachers to assess the feasibility of the BESS.

APPENDIX – GRANT AND CONTRACT AWARDS

NORTHEASTERN UNIVERSITY

Principal Investigator: Karin Liffer

Amount: \$1,579,548

Period of Performance: 5/1/10–4/30/14

Description: *Assessment of Natural Play for Instructional Planning.* Play is a natural activity that young children use to explore and learn about their world. Young children with delays in cognition, language, and social interaction show delays and limitations in their play activities that correspond to their other delays. They, therefore, do not benefit from play in the same way as children without disabilities. The central premise of the Developmental Play Assessment instrument is that instructional goals for infants, toddlers, and young children with disabilities, or at risk for disabilities, should include attention to developments in play as well as to developments in other domains. This project seeks to adapt the research version of the Developmental Play Assessment into a user-friendly version for practitioners and evaluate the psychometric and practical feasibility of this version. The main product will be a fully developed and validated assessment for practitioners to use to assess children's play skills for instructional purposes. Supporting documentation, evidence on the validity and reliability of the revised Developmental Play Assessment, and an online package for training practitioners to use the instrument will also be developed under this grant.

THE RECTOR AND VISITORS OF THE UNIVERSITY OF VIRGINIA

Principal Investigator: Amanda Williford

Amount: \$2,688,025

Period of Performance: 7/1/10–6/30/14

Description: *Examining the Efficacy of Banking Time: A Teacher-Child Early Intervention to Improve Children's Emotional and Behavioral Development.* The purpose of this project is to assess the efficacy of a preschool program called Banking Time with preschoolers most at risk for developing a disruptive behavior disorder and receiving of special

education services due to serious emotional disturbance. The intervention is intended to strengthen teachers' interactions with their students, reduce problem behaviors, and improve the students' behavioral and social-emotional skills. Teachers will be randomly assigned to one of three conditions: the Banking Time experimental condition, a time-control comparison during which teachers meet with individual children for the same frequency and duration as the Banking Time condition, or a business as usual condition. Children's behavioral and social emotional skills will be measured prior to and immediately after intervention as well as at entry into their next academic year. Information on the fidelity of intervention implementation will also be collected.

UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL

Principal Investigator: Linda Watson

Amount: \$2,515,897

Period of Performance: 7/1/10–6/30/14

Description: *Efficacy of a Parent-Mediated Intervention for One-Year-Olds at Risk for Autism.* The purpose of this project is to assess the efficacy of an early intervention program called Adaptive Responsive Teaching with one-year-olds most at risk for autism spectrum disorder. The intervention is intended to improve developmental outcomes and ameliorate symptom severity. A randomized controlled trial design will be used to study the efficacy of Adaptive Responsive Teaching intervention for improving social communication, regulatory functioning, and general development and ameliorating the presence or severity of autism symptoms. Families will be randomly assigned to receive the Adaptive Responsive Teaching or a business as usual control group. Both groups will be assessed pre-intervention and post-intervention.

APPENDIX – GRANT AND CONTRACT AWARDS

UNIVERSITY OF KANSAS CENTER FOR RESEARCH, INC.

Principal Investigator: Eva Horn

Amount: \$1,499,852

Period of Performance: 7/1/10–6/30/13

Description: *Children's School Success Curriculum - Plus: Supporting All Children's Progress in the General Curriculum.* Curricula that incorporate universal design for learning (UDL) features provide educators with instructional goals, methods, and materials to accommodate multiple learner differences and may improve the participation and progress of children with or most at risk for disabilities. The purpose of this project is to modify an existing preschool curriculum, Children's School Success, incorporating the principles of UDL. Children's School Success is a comprehensive curriculum that integrates activities targeting social, literacy, science, and math skills. The researchers will refine the Children's School Success curriculum and test its potential for improving preschoolers' education outcomes. Researchers will implement several iterative cycles to design, field test, and revise Children's School Success. Curriculum modifications will incorporate the principles of UDL and provide specific strategies for individualizing instruction, linking the curriculum to early learning standards, and conducting progress monitoring. Pilot studies will be conducted to evaluate the feasibility of implementing the enhanced curriculum in authentic early education settings and assess the potential for improving child outcomes.

SRI INTERNATIONAL

Principal Investigator: Kathleen Hebbeler

Amount: \$1,698,256

Period of Performance: 7/1/09–6/30/13

Description: *Validating the Child Outcomes Summary Form (COSF) for Use in Accountability Systems for Programs Serving Young Children with Disabilities.* The purpose of this project is to evaluate the reliability and validity of the Child Outcomes Summary Form (COSF), a summary tool used by many states in reporting annual child progress for Individuals with Disabilities Education Act Parts B and C Preschool Programs. The COSF is used by local education teams to synthesize multiple sources of information on how a child receiving special education preschool services

functions across settings and situations. The research team will conduct a series of research studies to examine the reliability and validity of the Child Outcomes Summary Form. Based on the findings from these studies, the research team will then revise the COSF and supporting documents for implementing the revised COSF. The researchers will provide data on the reliability and validity of the COSF.

UNIVERSITY OF KANSAS CENTER FOR RESEARCH, INC.

Principal Investigator: Jean Ann Summers

Amount: \$918,533

Period of Performance: 7/1/09–6/30/12

Description: *Building Foundations for Self-Determination in Young Children with Disabilities: Developing a Curriculum for Families.* In the current early childhood special education literature, there are interventions targeted at specific foundation skills for developing future self-determination, such as engagement, self-control, or executive function. However, there is no evidence-based intervention that provides a coordinated and comprehensive approach to encouraging the development of appropriate precursors of self-determination in young children with disabilities. The purpose of this study is to develop tools to enable families and practitioners to encourage the development of skills for self-determination in children ages three to five with disabilities. The Phase I design work will include an expanded literature review, family and practitioner surveys, and in-depth interviews with a sample of survey respondents. This input will be used to create a draft intervention, related materials, and observational measures. The Phase II development work will begin with a case study of the draft intervention with one family-practitioner dyad in each of the three participating states. Developers will then revise the intervention and repeat this process twice more. The Phase III pilot will involve testing the intervention with family-practitioner dyads in three additional sites in each state. Study products will include a fully developed Foundations intervention, an assessment of the feasibility and usability of the intervention, a fidelity measure to assess implementation, and evidence of the promise of the intervention on child outcomes identified as precursors of self-determination (i.e., choice making, engagement, and self-regulation).

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OREGON RESEARCH INSTITUTE

Principal Investigator: Julie Rusby

Amount: \$2,727,926

Period of Performance: 3/1/09–2/28/13

Description: *Efficacy Trial of Carescapes: Promoting Social Development in Home-Based Childcare.* Social competence is critical to the development and adjustment of preschool-age children and is linked to later school success. Childcare provides an opportunity for young children to develop relationships with other young children and has the potential to facilitate the development of children's social competence. Evidence supports positive relations between the quality in center-based childcare and social outcomes, but much less is known about the relation between quality of care in home-based childcare settings and young children's social competence. This research team will test the efficacy of the Carescapes program called Promoting Children's Social Competence. This video-based training program was developed to improve home-based childcare providers' practices and the quality of the childcare environment and, in turn, to facilitate children's social development and prevent the escalation of behavioral difficulties that interfere with learning. Approximately 120 childcare homes will be randomly assigned to immediate intervention or waitlist control conditions. Approximately 360 preschool-age children within these childcare homes will also be recruited. Assessments of the childcare environment, caregiver practices, and child behavior will occur at baseline, immediately after the intervention, and 24 months after the intervention. Individual children who are at risk for developing conduct problems will be followed into kindergarten.

BOARD OF REGENTS, UNIVERSITY OF NEBRASKA, UNIVERSITY OF NEBRASKA, LINCOLN

Principal Investigator: Susan Sheridan

Amount: \$1,499,511

Period of Performance: 6/1/09–5/31/12

Description: *Development of a Three-tiered Model in Early Intervention to Address Language and Literacy Needs of Children at Risk.* Effective, responsive early intervention is critical to minimize the gap between struggling and

achieving children upon school entry. Three-tiered models featuring universal, targeted, and individualized instruction (e.g., Response to Intervention [RtI]) are increasingly common in elementary school programs due to evidence of their positive impact on students' literacy skills. The purpose of this project is to develop and assess the feasibility and utility of a three-tier prevention model to support language and early literacy skills of preschool children at risk for developing learning disabilities or reading difficulties. Children between the ages of three and five who are determined to be at risk for reading difficulties and their teachers and parents will participate. All classrooms included in the study will serve children from low-income families. The Preschool 3 Tier (Pre-3T) approach to be developed in this study targets oral language, phonological awareness, letter/sound knowledge, and print awareness, which have been identified as critical pre-literacy skills.

VANDERBILT UNIVERSITY

Principal Investigator: Ann Kaiser

Amount: \$2,912,169

Period of Performance: 7/1/09–6/30/13

Description: *An Efficacy Trial of Milieu Teaching Language Intervention in Preschoolers with Language Disorders.* This efficacy trial is designed to examine the effects of therapist-plus parent implemented Enhanced Milieu Teaching (EMT) on young children 24–36 months of age with significant delays in expressive and receptive language. EMT is a conversation-based model of early language intervention that uses child interest and initiation as opportunities to model and prompt language use in everyday contexts. EMT is a well-established intervention for facilitating language and communication skills in young children with cognitive impairment; however, the effects of EMT on language-delayed children who do not have significant global cognitive impairments have not been examined in an efficacy trial. The study will test whether EMT can be effective in remediating language delays and preventing the development of secondary impairments. Approximately 120 children will be recruited and randomly assigned to either EMT or a comparison condition and will be followed longitudinally over 18 months.

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KENT STATE UNIVERSITY

Principal Investigator: Karen Kritzer

Amount: \$794,087

Period of Performance: 7/1/09–9/30/12

Description: *Building Math Readiness in Young Deaf/Hard-of-Hearing Children: Parents as Partners*. Despite a national focus on school readiness and mathematics achievement, deaf and hard-of-hearing students continue to demonstrate low levels of achievement in various areas of mathematics involving both computation and problem solving. The purpose of this project is to develop and document the feasibility of an online program that will help parents of preschool children who are deaf or hard-of-hearing increase their children's readiness for school mathematics. The rationale for using an online program is the low incidence and vast geographical distribution of the deaf population. The intervention will be based on natural, daily activities and increasing parents' awareness of their role in mediating their children's learning. The project will investigate whether involvement in the program influences parent behavior in their interactions with their children to stimulate early mathematics learning in the home, the degree to which this impacts deaf or hard-of-hearing children's understanding of

fundamental mathematics concepts, and the extent to which the presentation of that intervention (in-person vs. online) is related to that change.

ILLINOIS STATE UNIVERSITY

Principal Investigator: Maureen Angell

Amount: \$855,738

Period of Performance: 3/1/09–2/28/12

Description: *Parent-Implemented Social-Pragmatic Communication Intervention for Young Children with Developmental Disabilities*. The purpose of this project is to develop and document the feasibility of an intervention that is implemented by parents and designed to improve the social-pragmatic communication skills of young children with developmental delays. The intervention will be naturalistic, using the social context of naturally occurring interactions within everyday family activities. Parents will be trained in nine strategies designed to engage their children and stimulate communication. Single-case research methodologies will be used to assess the feasibility and promise of the intervention for improving children's communication skills.

Reading, Writing, and Language Development

BOSTON UNIVERSITY

Principal Investigator: Robert Hoffmeister

Amount: \$1,566,200

Period of Performance: 9/1/10–8/31/14

Description: *Assessing ASL Knowledge and its Relationship to Reading English in Deaf Children*. The purpose of this project is to develop a test of sign language, the American Sign Language (ASL) Assessment Instrument, modeled on tests for spoken language development and tests of reading achievement. The American Sign Language Assessment Instrument is intended to measure conversational abilities, academic language knowledge, and metalinguistic skills. New assessments to measure vocabulary knowledge, language comprehension, language generalization processes, and sign imitation abilities will be developed and refined through field testing with deaf adults and deaf students of deaf parents. The assessments will then be pilot tested with

students ages four to 17. Results will be used to study the potential of the assessment for identifying developmental changes in ASL abilities as well as other language and academic skills.

UNIVERSITY OF OREGON

Principal Investigator: Gerald Tindal

Amount: \$1,596,640

Period of Performance: 6/15/10–6/14/14

Description: *Reliability and Validity Evidence for Progress Measures in Reading*. This research is designed to validate easyCBM (Curriculum Based Measures), a free online curriculum-based benchmark and progress monitoring assessment system that documents early literacy acquisition. The easyCBM system provides both universal screening assessments for fall, winter, and spring administration and 17

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alternate forms of a variety of progress monitoring reading measures designed for use in elementary school settings. Six measures are available for monitoring the progress of students in developing reading skills: phoneme segmenting, letter names, letter sounds, word reading fluency, passage reading fluency, and comprehension. Researchers plan to collect evidence related to the reliability of easyCBM as well as its content, criterion, and construct validity. They plan to follow students over time to establish the validity of interpretations made from easyCBM. National norms will also be established so that students' relative performance may be interpreted.

UNIVERSITY OF TEXAS AT AUSTIN

Principal Investigator: Greg Roberts

Amount: \$2,017,289

Period of Performance: 3/1/10–2/28/14

Description: *Preventing School Dropout with Secondary Students: The Implementation of an Individualized Reading Intervention and Dropout Prevention Intervention.* The purpose of this project is to evaluate the effects of an individualized reading intervention and a dropout prevention intervention both separately and in combination for adolescent struggling readers who are at high risk for dropping out of school. A randomized controlled trial design will be used to study the efficacy of the interventions for improving reading achievement and persistence in high school for at risk students. Students will receive dropout prevention intervention, reading intervention, dropout plus reading intervention, or business as usual typical school practice in the first two years of high school. The students will be followed for the next two years to study the success of the interventions for improving reading and preventing students from dropping out.

UTAH STATE UNIVERSITY

Principal Investigator: Sandra Laing Gillam

Amount: \$1,446,527

Period of Performance: 7/1/10–6/30/13

Description: *Developing a Narrative Intervention.* The purpose of this project is to develop a robust program to foster oral language proficiency through instruction in story comprehension and storytelling or narration. The language intervention program is designed to improve vocabulary knowledge, story comprehension, and knowledge of complex sentence structures. The basic teaching tasks of

the intervention are story modeling, story retelling, story generation and comprehension instruction using narrative text, wordless picture books, and self-generated stories. The research team will develop, refine, and pilot the language intervention program for its promise for improving oral language proficiency and spoken narration in elementary school children with language impairments or who are English language learners at risk for language difficulties.

WESTERN MICHIGAN UNIVERSITY

Principal Investigator: Nickola Nelson

Amount: \$1,971,978

Period of Performance: 9/1/10–8/31/14

Description: *Test of Integrated Language and Literacy Skills Validation Research.* This project is designed to complete validation research on the Test of Integrated Language and Literacy Skills. The Test of Integrated Language and Literacy Skills will be used for identifying whether a student has a primary language impairment or language-based learning disability and for developing profiles of students' language and literacy strengths and weaknesses. Approximately 2,000 students 6–18-years-old throughout the United States will participate. Participants will include students with or at risk for language impairments or language-based learning disabilities, typically developing students, and students with autism spectrum disorder, hearing impairments, or intellectual disability. A series of four studies will be implemented to determine the predictive and criterion validity of the Test of Integrated Language and Literacy Skills and whether the measure produces profiles of students with language or learning problems that deviate from those of their typically developing peers.

UNIVERSITY OF TEXAS HEALTH SCIENCES CENTER AT HOUSTON

Principal Investigator: Carolyn Denton

Amount: \$1,611,325

Period of Performance: 8/1/10–7/31/13

Description: *First Grade Super-Readers: Intervention for the Prevention of Reading Comprehension and Decoding Difficulties in Young Children At Risk for Reading Disabilities.* First Grade Super Readers is intended to be an integrated, systematic reading intervention for first grade children who are at risk of serious difficulties and disabilities in word reading and reading

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comprehension. This research team will develop First Grade Super Readers as a Tier 2 intervention within a Response to Intervention model to provide supplemental intervention to students who do not benefit sufficiently from quality classroom reading instruction. The intervention differs from existing first grade Tier 2 interventions in that it (1) builds both word-level processes and listening and reading comprehension through systematic and explicit instruction from easier to more complex skills and strategies, (2) guides application of skills and strategies while reading connected text, and (3) includes daily written response to text. Researchers will design, field test, and revise the intervention based on input from teachers in several iterative cycles. A pilot study will be conducted in the final year to examine the feasibility and potential effectiveness of First Grade Super Readers.

UNIVERSITY OF OREGON

Principal Investigator: Lynne Anderson-Inman

Amount: \$1,347,553

Period of Performance: 7/1/10–6/30/13

Description: *Project SAIL: Strategies for Academic Internet Learning.* The researchers will develop an intervention comprised of specific step-by-step strategies for middle and high school students with disabilities to use when reading and learning online. The strategies will be organized into three sets related to locating and evaluating information online, reading and synthesizing information online, and communicating and sharing information online. A multi-stage, iterative process will be used to develop, test, refine, and pilot test the intervention. The materials for each strategy will be developed and implemented with students, and data will be collected on students' use of each strategy and their levels of engagement and satisfaction. Feasibility tests will be conducted on the full set of strategies to determine satisfaction, use, and engagement. Reading outcomes will be used to assess the promise of the intervention.

OREGON HEALTH AND SCIENCE UNIVERSITY

Principal Investigator: Charity Rowland

Amount: \$1,599,163

Period of Performance: 7/1/09–9/30/13

Description: *Using the International Classification of Function-Children & Youth to Guide Communication Instruction for Augmentative and Alternative Communication Users.* The

purpose of this study is to develop a diagnostic framework that educators can use to accurately assess educational and developmental needs and skills of children who use augmentative and alternative communication, to document appropriate Individualized Education Program goals, and to target interventions to a child's unique profile. The framework will tailor the International Classification of Function—Children & Youth to profile the skills and needs of children who use augmentative and alternative communication. During the first two years, the diagnostic framework will be developed, using items from the International Classification of Function—Children & Youth that are related to children's communication skills and use of assistive devices to support communication. Participants will use the new framework to profile the needs of their students, and the inter-rater reliability of the new profile will be examined. In the second year, the researchers will examine the utility of the framework for developing Individualized Education Program goals. During the last two project years, a final version of the diagnostic framework will be developed and field tested with educators from elementary, middle, and high schools.

REGENTS OF THE UNIVERSITY OF MINNESOTA

Principal Investigator: Theodore Christ

Amount: \$ 1,598,857

Period of Performance: 6/1/09–5/31/13

Description: *Formative Assessment and Instrumentation Procedures for Reading.* The purpose of this study is to develop, evaluate, and finalize a progress monitoring assessment that will be used to measure students' rate of reading and comprehension. Approximately 900–1,500 students in first through fifth grade will participate during each year of the study. A three-phase development process will guide the development and evaluation of the assessment. During the first phase, alternate forms of the assessment will be developed, and the equivalence of the alternate forms will be established. In addition, alternate administration procedures will be examined by asking students to read aloud, to read aloud and respond to questions, or to read aloud and then retell the story. During the second phase, the research team will develop, evaluate, and finalize procedures for collecting progress monitoring data and interpreting progress monitoring outcomes. During the third phase, researchers will develop online tools to guide teachers' interpretation of collected data.

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Mathematics and Science Education

SRI INTERNATIONAL

Principal Investigator: Kavita Seeratan

Amount: \$1,658,705

Period of Performance: 3/1/10–2/28/14

Description: *Learning Progressions: Developing an Embedded Formative and Summative Assessment System to Improve Learning Outcomes for Elementary and Middle School Students with Learning Disabilities in Mathematics.* The purpose of this project is to develop and validate an assessment system for elementary and middle school students with math learning disabilities and develop a series of learning progressions in important early mathematics constructs, such as number sense, operations for whole numbers, and fractions. Participants in the study will be 600 elementary and middle school students and their teachers. Individual assessment items will be field tested and then an assessment will be developed and implemented with a sample of students with and without mathematics learning disabilities. The researchers will assess reliability using test-retest, internal consistency, and inter-rater agreement methods. Validity will be assessed by examining student response processes, the assessment's internal structure, and relations to other measures of similar constructs.

UNIVERSITY OF OREGON

Principal Investigator: Gerald Tindal

Amount: \$1,631,403

Period of Performance: 6/15/10–6/14/14

Description: *Developing Middle School Mathematics Progress Monitoring Measures.* The purpose of this project is to develop and validate a set of online middle school mathematics progress monitoring measures aligned with critical content standards. The research team will make use of an already-existing web-based infrastructure to alleviate the constraints of time and logistics associated with test administration, scoring, and record keeping. Participants include approximately 2,400 students in each grade (K–8) from four different geographic regions in the United States. The research team will conduct a two-year design and development phase followed by a two-year validation phase. The researchers will conduct item response theory analyses to scale the measures both within and between grades.

UNIVERSITY OF OREGON

Principal Investigator: Scott Baker

Amount: \$1,455,851

Period of Performance: 6/1/09–5/31/12

Description: *Foundations of Mathematical Understanding: Developing a Strategic Intervention on Whole Number Concepts.* The purpose of this project is to develop a core mathematics intervention for students in first grade who are at risk for mathematics difficulties and disabilities. The intervention, FUSION, is designed as a program for schools that use a multi-tiered approach to instruction. This Tier II program will be most applicable in schools that rely on a Response to Intervention model for the identification of learning disabilities. There are two major aims of the project: (1) develop a 60-lesson intervention focusing on whole number concepts for students at risk for math learning difficulties and disabilities, and (2) assess the feasibility and potential for efficacy of the intervention. Participants are approximately 100 first grade students and 15 first grade teachers in Title I schools in two school districts. Students identified as at risk on a screening battery will participate in groups with sizes ranging from four to six students. In all phases of the project, observations of teacher practices and a range of teacher and child measures will provide data on the feasibility of the intervention and the potential promise of the intervention for increasing student mathematics achievement.

TEXAS CHRISTIAN UNIVERSITY

Principal Investigator: Lindy Crawford

Amount: \$1,495,898

Period of Performance: 7/1/09–6/30/12

Description: *The Math Learning Companion: An Individualized Intervention for Students with Math Learning Disabilities.* The purpose of this project is to develop and demonstrate the feasibility of the Math Learning Companion, a web-based mathematics intervention for sixth grade students struggling with mathematics. The development of the Math Learning Companion is based on pedagogical principles for students with disabilities including explicit instruction, scaffolds, distributive and massed practice, corrective feedback, and positive

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reinforcement. The participants include sixth grade students, including those identified as having a learning disability in mathematics, and their teachers in two states. The iterative development process involves mapping content, writing instructional content, internal and external expert review, field testing and data collection, modification of content and component functionality, field testing with revision, and final production. When each of the components appears to function as intended, the team will implement the entire intervention in a pilot study and assess the feasibility and promise of the intervention for improving student outcomes.

VANDERBILT UNIVERSITY

Principal Investigator: Lynn Fuchs

Award Amount: \$1,594,341

Project Period: 9/1/09–8/31/13

Description: *Dynamic Assessment to Predict First Graders' Mathematics Development.* The purpose of this project is to develop a dynamic assessment for early mathematics knowledge and determine its usefulness for forecasting students' math performance in first grade. The aim of this dynamic assessment is to more accurately assess students' capacity to learn, rather than assessing what the student presently knows. The researchers will develop the dynamic assessment screening tool first in English and then create a parallel version in Spanish. Participants include 1,000 English and Spanish-speaking first graders across two studies. Students will be included in the study based on performance on a static math screener. The researchers will use item response theory and logistic regression to analyze student response data and establish reliability and validity for the dynamic assessment instrument.

Social and Behavioral Outcomes to Support Learning

UNIVERSITY OF FLORIDA

Principal Investigator: Ann Daunic

Amount: \$1,494,228

Period of Performance: 5/16/10–5/15/13

Description: *Development of a Social-Emotional Learning Curriculum for Children At Risk for Emotional or Behavioral Disorders.* Given increasing demands to demonstrate accountability for academic achievement, educators maximize academic instruction time often at the expense of social-emotional learning. The purpose of this project is to develop and preliminarily evaluate a social-emotional learning curriculum, Social-Emotional Learning Foundations (SELF), to promote emotional and behavioral self-regulation for children in kindergarten and first grade who are at risk for emotional and behavioral disorders. The intervention is designed to be implemented during supplementary, small-group reading instruction. During year one, the

research team will develop kindergarten lessons. In year two, the team will develop first grade lessons and teacher training components. Year three activities will be devoted to implementing the full complement of grade K–1 lessons. During the last year, the research team will also develop professionally produced DVDs with examples of effective instruction and specific teaching strategies that will be part of the teacher training materials for the SELF curriculum. At each stage of development, the research team will monitor and evaluate lesson implementation using observational data and continually adjust curricular components to enhance treatment fidelity, social validity, and potential for improving children's behavioral outcomes. In addition, the team will use ongoing observations and feedback from focus group interviews to construct and revise an accompanying teacher-training component focused on key concepts and instructional strategies.

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BOARD OF REGENTS, UNIVERSITY OF NEBRASKA, UNIVERSITY OF NEBRASKA-LINCOLN

Principal Investigator: Susan Sheridan

Amount: \$2,999,994

Period of Performance: 4/1/10–3/31/14

Description: *A Randomized Trial of Conjoint Behavioral Consultation (CBC) in Rural Educational Settings: Efficacy for Elementary Students With Disruptive Behaviors.* The purpose of this project is to test the efficacy of Conjoint Behavioral Consultation (CBC) in rural Nebraska elementary schools. Students with social-behavioral problems early in their school careers are at high risk of developing long-term pervasive behavioral and academic problems. CBC is an indirect intervention that allows for individuation of parent- and teacher-delivered behavior plans that are grounded in ecological-behavioral theory, supported by empirical evidence, and implemented across multiple setting (e.g., home and school). Evidence for the efficacy of CBC exists, including small-n experimental designs and randomized trials in urban and suburban school settings. However, the CBC intervention has never been tested for efficacy in rural settings, where schools struggle to access specialized services, including consultation and parent involvement programs. Elementary schools in rural Nebraska will be randomly assigned to either the intervention condition or the typical classroom service model. Kindergarten through third-grade students with disruptive, externalizing behaviors will participate in the study. The CBC intervention will be implemented for eight weeks. Multiple rating scale and observational measures will be used to assess student behavioral and academic outcomes, parent/teacher beliefs and practices, and the family-school relationship. Researchers will also examine how fidelity of implementation influences treatment outcomes.

VIRGINIA COMMONWEALTH UNIVERSITY

Principal Investigator: Terri Sullivan

Amount: \$1,500,000

Period of Performance: 3/1/10–2/28/13

Description: *Promoting Social, Emotional, and Behavioral Competence in Adolescents with Disabilities: A School-wide Inclusive Violence Prevention Model.* The purpose of this project is to develop a comprehensive school-based violence prevention program that combines individual-level

skill-building curricula with school-level components to promote social, emotional, and behavioral competence in adolescents with disabilities. The research team will modify existing evidence-based individual and school-level violence prevention programs to meet the needs of adolescents with disabilities. The team will also help bridge the gap between prevention and special education research by incorporating components of effective instructional practices for youth with disabilities into the development of this intervention. Across the three years of the project, teachers and school staff and middle school (sixth, seventh, and eighth grade) students with disabilities will participate. Data from focus group participants (including teachers, school personnel, and parents), student interviews, and surveys including student and teacher reports will be conducted prior to and after intervention implementation to continually review, critique, and revise the intervention model. The research team will also track students' development of skills related to social, emotional, and behavioral competence with a curriculum-based measure, using it to make modifications to the curricula and delivery model as needed. The research team will also collect data to track intervention fidelity including dosage and adherence.

UNIVERSITY OF OREGON

Principal Investigator: Jeffrey Sprague

Amount: \$1,448,782

Period of Performance: 7/1/10–6/30/13

Description: *Implementing Positive Behavior Supports in Juvenile Correction Settings.* The purpose of this project is to adapt and further develop a facility-wide positive behavior support (PBS) program to be implemented in juvenile justice settings, where an estimated 50 percent to 80 percent of incarcerated youth are reported to have educational disabilities or diagnosed mental health conditions. The research team will begin by developing PBS components and training modules and refining them based on feedback from stakeholder (practitioners and youth) focus groups and key informant interviews. The revised components will then be evaluated by key staff members not involved in the focus groups or interviews. Further revisions to the components will occur based on this evaluation. Qualitative and quantitative data will be collected and used to make additional final revisions to the program, as well as explore potential impact of the program on student behavioral outcomes.

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UNIVERSITY OF SOUTH FLORIDA

Principal Investigator: Albert Duchnowski

Amount: \$1,184,233

Period of Performance: 3/1/09–2/28/12

Description: *Parent Connectors: A Parent Support Program to Improve Outcomes for Students Who Have Emotional Disturbances.* The purpose of this project is to develop an intervention, Parent Connectors, aimed at increasing the engagement of families in the educational development of children with an emotional disturbance. Parent Connectors will promote the necessary knowledge, skills, and attitudes of parents to allow them to be effective partners with school personnel to improve their children's outcomes. Researchers will conduct five interrelated studies. The first three studies will identify knowledge, skills, and attitudes that are drivers of parent involvement and guide the development of a training manual. The fourth study, a training validation study, will synthesize the results of the first three studies and conduct a trial of the feasibility of the training module. After analysis and refinement, study five, a pilot study of the proposed intervention, will be conducted in public schools to test intervention feasibility and its potential impact on student outcomes.

LOUISIANA STATE UNIVERSITY AND A&M COLLEGE

Principal Investigator: Frank Gresham

Amount: \$1,415,791

Period of Performance: 5/15/09–5/14/13

Description: *Development and Validation of Progress Monitoring Tools for Social Behavior.* The purpose of this study is to develop a series of change-sensitive progress-monitoring tools called Brief Behavior Rating Scales (BBRS) that are efficient, practical, reliable, and valid. BBRS will be appropriate for classroom educators who need efficient and effective behavior progress-monitoring tools to monitor their elementary school students on a continuous and regular basis. The research team will develop a series of change-sensitive, progress-monitoring tools to measure students' social skills and externalizing behaviors. This project will be conducted in two phases: Assessment Development and Assessment Evaluation. In the Assessment

Development Phase of this project, the researchers will analyze data sets from two efficacy studies to identify and select change-sensitive items from three existing behavior rating scales. In the Assessment Evaluation Phase of this study, the researchers will conduct a series of measurement analyses to determine validity and reliability of the BBRS and evaluation studies to examine the efficiency and ease of use of the BBRS.

UNIVERSITY OF KANSAS CENTER FOR RESEARCH, INC.

Principal Investigator: Earle Knowlton

Amount: \$1,078,881

Period of Performance: 8/1/09–7/31/12

Description: *Social Tele-Coaching in Classroom Settings.* The purpose of this study is to develop Social Tele-Coaching, a remote-delivery social skills coaching intervention, and to assess its feasibility in schools for elementary and secondary school students with disabilities. There are existing social skills programs that have been widely implemented, but research has suggested that although students acquire social skills knowledge and can use those skills in the intervention setting (e.g., small group), their skills fail to transfer or generalize to other environments (e.g., lunchroom). Some programs have used social skills "coaches" in school settings to directly assist students with using the social skills they have learned, but this tends to be obtrusive and disruptive. However, wireless audio technology (e.g., bug in the ear) and interactive video technology has the potential to enable coaches to provide these supports unobtrusively from remote sites. In the first phase of this study, the research team will refine the technology components, which include wireless transmission and reception of audio through cellular phone technology and a Bluetooth/earpiece system. The intervention will be developed and pilot tested with students with Individualized Education Programs that contain social/behavioral goals. Graduate research assistants will serve as behavioral coaches. Data collected during this project will be used to inform the development process, evaluate feasibility and usability of the intervention in schools, and determine whether the intervention shows promise for improving the social skills of students with behavior problems.

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THE CURATORS OF THE UNIVERSITY OF MISSOURI

Principal Investigator: Janine Stichter

Amount: \$1,107,127

Period of Performance: 3/1/09–2/28/12

Description: *Developing a School-based Social Competence Intervention (SCI).* The purpose of this study is to further develop an existing program, a clinic-based Social Competence Intervention (SCI-C) intervention, for school-based settings (SCI-S). Research on existing social skills programs has been somewhat mixed, but in general, concludes that interventions delivered in more natural contexts and environments are associated with stronger maintenance and generalization of social skills. The intervention will be modified and further developed for implementation in school settings and pilot tested in middle school settings. Data collected through focus groups and implementation of the program will be used to inform the development process and to determine whether the intervention shows promise for improving the social competence of students with autism spectrum disorders.

THE CURATORS OF THE UNIVERSITY OF MISSOURI

Principal Investigator: James Laffey

Amount: \$1,491,075

Period of Performance: 7/1/09–6/30/12

Description: *Developing a 3D-based Virtual Learning Environment for Use in Schools to Enhance the Social Competence of Youth with Autism Spectrum Disorder.* The purpose of this study is to adapt an existing clinic-based social skills program, Social Competence Intervention, based on a framework of Cognitive Behavioral Intervention: SCI-CBI, into a cost-effective school-based model, iSocial, which can be delivered via networked, 3D-based virtual learning environments (3D VLE). The goal is to develop and then test the feasibility and promise of using 3D VLE to make the SCI-CBI program available in schools to youth with autism, 11–14-years-old, who have no or limited access

to high-quality face-to-face programs. The research team will develop the software code and visual representation to create a 3D VLE which includes usability testing, usage testing, and field tests to assure a product that accurately delivers the SCI-CBI curriculum. Data collected through focus groups of educators and through field tests with youth in their school settings will be used to inform the development process and to determine whether the intervention shows promise for improving the social competence of students.

OREGON RESEARCH INSTITUTE

Principal Investigator: John Seeley

Amount: \$6,598,994

Period of Performance: 3/1/09–2/28/14

Description: *Ecological Approach to Family Intervention and Treatment (Eco-FIT) Integrated with PBS: An Effectiveness Trial in Middle School.* The purpose of this study is to test the effectiveness of a family and school intervention, the Ecological Approach to Family Intervention and Treatment (EcoFIT), under scaled-up conditions in middle schools. From numerous studies across diverse settings, the EcoFIT intervention has obtained strong evidence of its efficacy for reducing problem behaviors in the school and home environments and increasing academic achievement and attendance. This research team will randomly assign middle schools to either the EcoFIT intervention or control condition. School staff identified to receive training in the EcoFIT interventions will be coached during the first year to become proficient in their work with parents and caregivers. Data will be collected on all teachers, staff, and administrators, two successive cohorts of sixth grade students, a sample of parents, and the schools themselves. Project staff will assess teachers, staff, and schools for four years, and they will follow students for three years, from sixth grade through eighth grade.

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Transition Outcomes for Special Education Secondary Students _____

UNIVERSITY OF GEORGIA RESEARCH FOUNDATION, INC.

Principal Investigator: Kevin Ayres

Award Amount: \$1,195,856

Period of Performance: 8/1/10–7/31/13

Description: *iSkills: The Audio/Video Guidance Repository for Life Skills.* The purpose of this project is to develop iSkills, a video repository of life skills tutorials for students with intellectual disabilities or autism. Designed to be delivered via handheld electronic devices, iSkills is intended to assist with direct instruction and self-instruction across several domains including independent living, employment, leisure, community involvement, and community navigation. The team will develop an initial set of life skill videos for use in the iSkills tutorials. The videos will be reviewed by an advisory board, tested for usability on iPhones, and then used in direct instruction conditions to teach students the target life skills. The researchers will also conduct single-subject experimental research to assess the promise of the tutorials for teaching students with intellectual disabilities or autism under self-instruction conditions. Finally, the researchers will develop and test the web-based podcasting system that will allow efficient downloading of the iSkills videos to portable devices.

VANDERBILT UNIVERSITY

Principal Investigator: Erik Carter

Award Amount: \$2,279,679

Period of Performance: 6/1/10–5/30/14

Description: *Peer Support and Peer Network Interventions to Improve Peer Relationships and School Engagement.* The purpose of this project is to evaluate the efficacy of two peer interaction interventions (peer network and peer support) for improving outcomes for students with severe intellectual disabilities. The researchers will conduct a randomized controlled trial of two interventions targeting students with severe intellectual disabilities. Students in three consecutive cohorts will be randomly assigned to one of the two treatment conditions (peer network or peer support) or a business-as-usual comparison condition. Data collection activities include direct observations of participants, interviews, surveys, and multiple measures of students' skills.

PORTLAND STATE UNIVERSITY

Principal Investigator: Sarah Geenen

Award Amount: \$2,932,504

Period of Performance: 6/1/10–5/31/14

Description: *My Life: Evaluation of Self-Determination Enhancement for Transitioning Students in Special Education and Foster Care.* The purpose of this project is to determine the efficacy of the My Life intervention for improving self-determination, academic achievement, quality of life, employment, and independent living outcomes. The program has been developed to target self-determination among students with disabilities and has shown promise in two randomized studies for improving transition outcomes. Of particular interest in this study is how the My Life program functions for foster students, who often face a difficult transition as they age out of foster care and into adulthood. The researchers will conduct an experimental study to determine the efficacy of the My Life intervention for students who receive special education services and are in foster care. Researchers will collect data on measures of self-determination, educational achievement/engagement, independent living, quality of life/well-being, and employment outcomes for three consecutive cohorts of foster youth randomly assigned to treatment and control conditions.

THE BOARD OF REGENTS OF THE UNIVERSITY OF OKLAHOMA

Principal Investigator: James Martin

Award Amount: \$2,018,249

Period of Performance: 7/1/10–6/30/14

Description: *Transition Success Assessment.* The purpose of this project is to develop and validate the Transition Success Assessment, an instrument with multiple versions to be used by students, parents, and teachers to facilitate the development of annual Individualized Education Program goals. The researchers will use an iterative instrument development process to collect data from students, teachers, and parents using the different versions of the Transition Success Assessment. Using an initial set of pilot data from target users, the assessment will be revised and then piloted with a second set of users. In the third and fourth years, the instrument will be piloted with a much larger sample

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of users to provide sufficient data to establish the internal consistency of scores, the agreement of scores across the three versions, and the utility of the measures for predicting school and post-school outcomes.

UNIVERSITY OF KANSAS CENTER FOR RESEARCH, INC.

Principal Investigator: Mary Morningstar

Award Amount: \$656,195

Period of Performance: 7/1/10–6/30/12

Description: *A Secondary Analysis of the National Longitudinal Transition Study-2: Examining the Relationships between Expectations, Access, and Postsecondary Life Engagement.* The purpose of this project is to use the National Longitudinal Transition Study-2 dataset to explore how program- and student-level variables are related to student and parent expectations and postsecondary outcomes for students with disabilities. The researchers will use a variety of data analysis strategies to answer the research questions, including confirmatory factor analysis to develop a model of adult life engagement and to test the relationship of access to transition programs and post-school expectations. Structural equation modeling will be used to determine the predictive qualities of expectations and access to school programs on adult life engagement.

SRI INTERNATIONAL

Principal Investigator: Lynn Newman

Award Amount: \$779,962

Period of Performance: 3/1/10–2/28/12

Description: *Factors Associated with the High School Preparation and Post-High School Outcomes of Youth with Disabilities: Secondary Analysis of Data from the National Longitudinal Transition Study-2.* The purpose of this project is to use the National Longitudinal Transition Study-2 (NLTS2) dataset focusing on students with disabilities to identify school-based interventions that are associated with academic, social/behavioral, vocational, and functional outcomes experienced by students during and after high school. The researchers will conduct secondary analyses of the NLTS2 dataset to explore relationships between school-based interventions (e.g., inclusion, course-taking, modifications and accommodations, tutoring, technology aids) and outcomes (e.g., achievement, graduation, postsecondary enrollment, employment) for students with disabilities.

UNIVERSITY OF GEORGIA RESEARCH FOUNDATION, INC.

Principal Investigator: Jay Rojewski

Award Amount: \$445,977

Period of Performance: 7/1/10–6/30/12

Description: *Modeling Short-Term and Longitudinal Work and Educational Transition Outcomes for Adolescents with High Incidence Disabilities.* The purpose of this project is to use three national longitudinal datasets to examine the career and postsecondary aspirations of students with high incidence disabilities, identify school-based interventions that are associated with academic, social/behavioral, vocational, and functional outcomes experienced by students during and after high school. The researchers will conduct secondary analyses of the NELS:88, ELS: 2002, and the NLTS2 datasets to explore issues related to employment and postsecondary education for students with high incidence disabilities. One line of inquiry will investigate the longitudinal development of career and educational aspirations and expectations of students before and after high school using curvilinear modeling approach. These results will be compared to students without disabilities. Another research question will examine postsecondary outcomes for students with high incidence disabilities relative to a sample of non-disabled peers. The researchers will also examine the relationships between inclusion and career-technical education and postsecondary outcomes for students with high incidence disabilities.

UNIVERSITY OF NORTHERN COLORADO

Principal Investigator: Kay Ferrell

Amount: \$232,661

Period of Performance: 7/1/09–6/30/10

Description: *The Relationship of the Expanded Core Curriculum to Transition Outcomes for Students with Visual Impairments.* The Expanded Core Curriculum (ECC) is intended to improve the academic and post-school outcomes for students with visual impairments and has been widely adopted across the country. The ECC includes units that cover the following nine topics: compensatory and functional skills, orientation and mobility, social skills, independent living skills, leisure and recreation skills, career and vocational skills, technology, sensory efficiency, and self-determination. However, little research has examined the relation between providing the ECC and post-school outcomes. The purpose of this study is to use an existing

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dataset, the National Longitudinal Transition Study-2 (NLTS2), to examine the relationship of the ECC to transition outcomes for students with visual impairments.

UNIVERSITY OF SOUTH ALABAMA

Principal Investigator: Dennis Campbell

Amount: \$1,300,093

Period of Performance: 8/1/09–7/31/12

Description: *Transition Outcomes for Special Education Secondary Students: Project Choices*. The goal of this project is to develop an online system that will assist in developing valid transition and education plans toward improved adult outcomes for students with disabilities. The research team will develop an interactive, web-based data system,

CHOICES, to help guide students with disabilities and their families through the transition process. This system will include a database of student and family information, community supports and services, and curriculum guides. Students, parents, and teachers will use the system to match personal goals and aspirations with specific adult outcomes and training programs to attain them. Parents and students will be trained to use this system as a tool to effectively advocate for a successful high school transition process. Researchers will build upon an existing system prototype to fully develop the online system. The team will rely on database and website usage data, user observations, and questionnaires to fully refine the database systems based on successive implementations.

Teacher Quality

UNIVERSITY OF CONNECTICUT

Principal Investigator: Lisa Sanetti

Amount: \$1,413,597

Period of Performance: 7/1/10–6/30/13

Description: *Project PRIME: Planning Realistic Intervention Implementation and Maintenance by Educators*. The purpose of this project is to develop an intervention to assist teachers in planning, implementing, and maintaining school-based behavior interventions with a high degree of integrity. More specifically, the project will develop a pre-implementation program, PRIME, to help prevent the decline of school-based practitioners' treatment integrity. The research team will begin by developing PRIME materials and refining them based on feedback from expert and stakeholder (practitioner) panels. The team will then conduct a series of single-case design studies with teachers to inform the continuing process of refining the PRIME materials. In these studies, brief assessments and individualized behavior support plans will be developed for teachers to implement so that they may support students who demonstrate challenging behaviors. The project will evaluate whether there is a relationship between components of the intervention and initial and maintained treatment integrity, whether self-administered or assisted planning results in high levels of treatment integrity, how the implementation of the intervention affects students'

behavioral outcomes, and what level (or "dose") of the intervention is required to achieve a noticeable change in teachers' behavioral intention and treatment integrity.

UNIVERSITY OF FLORIDA

Principal Investigator: Cynthia Griffin

Amount: \$1,457,085

Period of Performance: 8/16/10–8/15/13

Description: *Prime Online: Teacher Pedagogical Content Knowledge and Research-based Practice in Inclusive Elementary Mathematics Classrooms*. The aim of this project is to develop and pilot test an online professional development intervention, PRIME Online, intended to improve the content and pedagogical knowledge of in-service regular and special education teachers of mathematics in grades 3–5. This intervention will be aligned with National Council for Teachers of Mathematics standards, have an emphasis on instructional practices for students struggling in mathematics, and incorporate progress monitoring strategies intended to improve mathematics outcomes for students. The research team will use an iterative design process to develop Prime Online. In phase one, the research team will develop the program using the Moodle E-Learning Course Development software and develop new or adapt existing data collection instruments.

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The next two phases of the research involve two design studies and will include several rounds of focus groups and individual interviews to collect data that will inform the refinement of the intervention. A pilot study will also be conducted to determine the potential impact of the professional development program on teacher and student outcomes.

IOWA STATE UNIVERSITY

Principal Investigator: Anne Foegen

Amount: \$1,483,333

Period of Performance: 8/1/09–7/31/12

Description: *Professional Development for Algebra Progress Monitoring*. The aim of this project is to develop and pilot test an online professional development system that monitors progress in algebra, primarily for students with learning disabilities. The Professional Development for Algebra Progress Monitoring system will provide teachers with training and support for keeping track of students' progress. The intervention will be developed and pilot tested with four cohorts of teachers and two cohorts of administrators in high school settings. Data collected through teacher logs, observations, interviews, focus groups, and user data logs will be used to inform the development process, to determine whether the intervention is functioning as intended, and to assess the promise of the program for improving teacher knowledge and skills in the area of algebra progress monitoring.

UNIVERSITY OF KANSAS CENTER FOR RESEARCH, INC.

Principal Investigator: Maura Linas

Amount: \$1,408,568

Period of Performance: 7/1/09–6/30/12

Description: *Professional Development that is Systemic, Focused on Teacher Growth, Incorporates Coaching, Collaboration, Cohorts, and Increased Knowledge to Create Student Success*. The purpose of this project is to develop a professional development curriculum to improve teacher practice in general instructional and classroom management practices in ways that will promote student success. The research team will develop a professional development curriculum comprised of five components: (1) topical units focusing on practices for inclusive classrooms, (2) a coach's manual and training program, (3) collaborative session activities/materials, (4) a web-based evaluation system, and (5) a professional development needs assessment. The researchers will conduct focus groups with teachers participating in the program to collect feedback on the curriculum components to assess feasibility and usability. The components will be revised based on feedback from the focus groups. The team will then conduct implementation trials to provide pilot data to test the feasibility of the full professional development program and its promise for improving teacher practice and student outcomes.

Related Services

VANDERBILT UNIVERSITY

Principal Investigator: Paul Yoder

Amount: \$2,856,880

Period of Performance: 9/1/09–8/31/14

Description: *Efficacy of Broad Target Speech Recasts on Students with Down Syndrome*. The purpose of this project is to test the efficacy of Broad Target Speech Recasts compared to the Easy Does It for Articulation program for improving speech comprehensibility of elementary school students with Down Syndrome. Broad Target Speech Recasts focuses on the speech context through speech recasts (adult repeats words child is attempting to say, providing a model of correct

pronunciation, pitch, stress, and intonation). The comparison program emphasizes drill and practice of individual sounds and sound combinations, reflecting typical services provided in school settings. A randomized clinical trial will be conducted with approximately 63 children ages 5–12 randomized into one of two treatment groups: Broad Target Speech Recasts or Easy Does It for Articulation. Students in both groups will be offered two one-hour sessions per week for 24 weeks. Treatment will be provided to individual students by speech language therapists. All students will be assessed at five time points to allow for analysis of treatment effects on growth of speech comprehensibility.

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GEORGIA TECH RESEARCH CORPORATION

Principal Investigator: Thad Starner

Amount: \$ 1,499,999

Period of Performance: 3/1/10–2/28/13

Description: *SmartSign: Learning Sign Language via Mobile Phone.* Almost 95 percent of deaf children are born to hearing parents who may not know sign language or who have low levels of proficiency in sign language. The deaf children of hearing parents remain significantly delayed in language development throughout their lives compared to hearing children or deaf children of deaf parents due in part to a lack of language exposure at home. To address this need, researchers are developing and conducting an initial evaluation of SmartSignAlert and SmartSignExpress, interventions designed to help hearing parents of deaf children to conveniently learn sign language through the video delivery of signing on mobile phones. The SmartSignExpress portion of the program will enable parents' quick *in situ* access to signs that they might need to communicate with their children. SmartSignAlert will provide American Sign Language mini-lessons on their cellular phones, available throughout the day. The research team will use an iterative process to develop and refine these interventions. The first year of the project is devoted to rapid prototyping of SmartSignExpress and SmartSignAlert where sign vocabulary, phrases, and sentences will be selected and prototypes will be tested. Next, data will be collected with parents using these prototypes to further develop the interventions. The final year of the project will include integrating SmartSignAlert and SmartSignExpress into a unified SmartSign application and then conducting a pilot study comparing three groups of parents who receive either (1) SmartSign alone, (2) typical in-person sign language class instruction, or (3) in-person sign language class instruction plus SmartSign.

UNIVERSITY OF LOUISVILLE RESEARCH FOUNDATION, INC.

Principal Investigator: Andy Frey

Amount: \$ 1,497,356

Period of Performance: 7/1/09–9/30/12

Description: *Enhanced First Step to Success: Improving School Readiness for School Children with Disruptive Behavior.* The purpose of this project is to develop an enhanced version of the First Step to Success (First Step) program, which

was designed as a collaborative home and school early intervention to assist at-risk school-age children in having a positive beginning in their school careers. The First Step program has been shown to successfully improve the behavior of these students, but on the whole, the program does not sufficiently address the myriad of problems that affect the lives of students with the most severe behavior problems and with multiple risk factors outside of school. To address this need, the research team will develop the Enhanced First Steps to Success intervention, which includes more intensive family intervention and case management processes. The research team will first develop and field-test intervention materials for related services providers and then assess whether intervention improves student social, emotional, and academic functioning.

OHIO STATE UNIVERSITY RESEARCH FOUNDATION

Principal Investigator: Laura Justice

Amount: \$1,814,200

Period of Performance: 3/1/09–2/28/13

Description: *Language Growth and Therapy Characteristics for Early Elementary Students.* The purpose of this project is to identify “what works” in speech-language pathology. This study will identify characteristics of language intervention received by early elementary pupils with primary language impairment within public school programs. Specifically, this research will examine how dosage (e.g., how much and how often intervention is provided), techniques (e.g., what language targets are addressed and steps for doing so), and context (e.g., where intervention is provided and the size of student groupings) are associated with language outcomes, providing guidance for future speech-language pathology intervention development and efficacy studies. This identification study will conduct primary data collection to carefully study dosage, technique, and context for kindergarteners and first graders with language impairment receiving treatment from speech-language pathologists. Participating students will be tested on measures of language and reading in the fall and spring of the academic year. Between these assessments, students will be observed in six therapy sessions, and characteristics of the therapy sessions are recorded. The speech-language pathologists will also maintain a log for each child that specifies dosage, technique, context, and any published intervention programs used.

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OHIO STATE UNIVERSITY RESEARCH FOUNDATION

Principal Investigator: Jane Case-Smith

Amount: \$556,526

Period of Performance: 3/1/09–2/28/12

Description: *Write Start: Development of an Integrated Occupational Therapy Writing Intervention.* The purpose of this project is to develop a handwriting program, Write Start, co-taught by teams of occupational therapists and teachers for first-grade students. This will be a comprehensive handwriting program that enables primary grade students to become proficient in handwriting and is intended to be

a fully inclusive model for delivery of occupational therapy services. Year one will focus on program development and assessment of feasibility. With consultation from an expert panel, the investigators will develop and refine the Write Start activities and procedures and the co-teaching processes. The intervention program will be implemented in one first grade classroom. In years two and three, the Write Start program will be piloted in four additional first grade classrooms to gather and analyze data on usability, feasibility and potential program effects. This information will be used to refine the program and finalize a Write Start manual.

Special Education Policy, Finance, and Systems

EDUCATIONAL TESTING SERVICE

Principal Investigator: Cara Cahalan Laitusis

Amount: \$1,284,995

Period of Performance: 6/1/10–5/31/14

Description: *Feedback-and-Revision on Alternate Assessment Based on Modified Achievement Standards in Mathematics.* The purpose of this project is to develop a new test administration format for alternate assessments based on modified achievement standards in mathematics. The research team will examine whether providing opportunities to revise responses to test items and immediate feedback to students with disabilities will improve the psychometric quality of the assessment. The target population consists of special education students in eighth grade who have persistent learning problems in mathematics. A series of cognitive interview studies will be used to examine how students respond to different feedback-and-revision formats and item types. An experimental design study will follow to examine the impact of using a feedback-and-revision format on the psychometric comparability and accuracy of the assessment scores, improvements in test performance, decreases in test anxiety, and increases in motivation.

OHIO STATE DEPARTMENT OF EDUCATION

Principal Investigator: Wendy Stoica

Amount: \$1,247,994

Period of Performance: 7/1/10–6/30/13

Description: *Methods to Improve Accessibility of Tests for Persistently Low-Performing Students with Disabilities.* The purpose of this project is to identify specific cognitive barriers in grade-level reading and mathematics state assessment items that may impede the performances of persistently low-performing students with disabilities and to develop methods to remove these barriers. Researchers will identify item features hypothesized to present cognitive barriers for persistently low-performing students with disabilities and then revise these items to remove the barriers. Test forms containing both revised and unrevised items will be constructed and administered to both students without disabilities and persistently low-performing students with disabilities. Cognitive traits of both groups of students will also be assessed.

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UNIVERSITY OF OREGON

Principal Investigator: Scott Baker

Amount: \$5,115,878

Period of Performance: 7/1/09–6/30/13

Description: *Project ECRI: Enhancing Core Reading Instruction in First Grade.* The purpose of this project is to test the efficacy of an enhanced Response to Intervention system, called Enhancing Core Reading Instruction in First Grade, for improving reading instruction, increasing reading achievement, and preventing reading problems and the misidentification of students with specific learning disabilities. The Enhancing Core Reading Instruction in First Grade intervention includes highly specified daily instructional protocols within the context of a core reading program. The protocols focus on two areas: (1) implementation of lesson maps and instruction template protocols and (2) implementation of protocols that focus on the use of student progress monitoring data to make ongoing instructional decisions. Teachers receive two years of intense and ongoing professional development on the protocols. Schools will be randomly assigned either to receive the Enhancing Core Reading Instruction in First Grade intervention or to serve as a comparison group. Researchers will follow students into second and third grade to determine the long-term efficacy of the intervention.

VANDERBILT UNIVERSITY

Principal Investigator: Douglas Fuchs

Amount: \$2,983,337

Period of Performance: 9/1/09–8/31/13

Description: *Responsiveness-To-Instruction to Strengthen the Academic Performance of Students with Reading and Math Disabilities.* The purpose of this project is to evaluate whether an intervention that integrates reading and math instruction is more effective than an additive intervention for preventing or mitigating disability among students with or at risk for disabilities in both reading and math. Over 500 first grade students who are at risk for concurrent reading and math disabilities will participate in this study. They will be randomly assigned to an integrated reading and math intervention condition, an additive reading and math intervention condition, or a services-as-usual comparison group. Students in the integrated approach will receive an intervention that combines both reading and math instruction. Activities targeting skills such as decoding, fluency, comprehension, and number combinations will be conducted using stories or word-problem narratives. Students receiving the additive intervention will participate in activities that focus on reading deficits alone or math deficits alone. Students will be assessed at multiple time points during and after receiving the intervention. In addition, researchers will explore how child characteristics may moderate intervention efficacy.

Autism Spectrum Disorders

FLORIDA STATE UNIVERSITY

Principal Investigator: Amy Wetherby

Amount: \$2,999,364

Period of Performance: 3/1/10–2/28/14

Description: *A Randomized Trial of the SCERTS Curriculum for Students with Autism Spectrum Disorders in Early Elementary School Classrooms.* Although the prevalence of children diagnosed with an autism spectrum disorder has risen significantly over the past two decades, few studies to date have evaluated comprehensive interventions in early elementary school for students with autism. Researchers in this study are evaluating the Social Communication, Emotional Regulation, and Transactional Support (SCERTS) Curriculum, a fully developed and comprehensive treatment model that targets individualized intervention goals and objectives for students

with autism in the domains of social communication and emotional regulation. Environmental and interpersonal supports are also provided to optimize learning in the classroom. The purpose of this study is to evaluate the intervention against a typical classroom service model serving students with autism spectrum disorders. Approximately 320 children diagnosed with autism spectrum disorders in 160 kindergarten to second grade classrooms in 40 schools will participate in the study. Schools will be randomly assigned to either the intervention condition or the typical classroom service model. The intervention will be implemented for one academic year. Students' active engagement, social, communication, behavioral, and academic outcomes will be evaluated. Researchers will also examine how child characteristics and fidelity of implementation influence treatment outcomes.

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PORTLAND STATE UNIVERSITY, GRADUATE SCHOOL OF EDUCATION

Principal Investigator: Helen Young

Amount: \$2,561,416

Period of Performance: 4/1/09–3/31/13

Description: *Comprehensive Autism Program Using Strategies for Teaching Based on Autism Research.* With an increasing number of young children with autism spectrum disorders (ASD) in public schools, local and state education agencies must find cost-effective, research-based preschool programs that educators can use. Investigators in this study are evaluating a comprehensive program for preschoolers with ASD intended to improve language, pre-academic skills, social skills, adaptive behavior, and cognitive skills. The intervention, which incorporates multiple recommended strategies and approaches for teaching young children with ASD, will be compared to a typical classroom service model serving young children with ASD. Approximately 300 children with ASD ages two to five years will participate in the study. In year one, the first cohort of classrooms will be randomly assigned to either the Comprehensive Autism Program Using Strategies for Teaching Based on Autism Research or typical classroom service model. In year two, the second cohort of classrooms will be randomly assigned to the intervention or typical service model. Outcomes of interest include children's pre-academic, language, cognitive, and adaptive behavior skills. A cluster-randomized design with repeated measures will be used to evaluate the treatment models after one and two years of participation in the intervention.

UNIVERSITY OF KANSAS CENTER FOR RESEARCH, INC.

Principal Investigator: Debra Kamps

Amount: \$2,969,998

Period of Performance: 3/1/09–2/28/13

Description: *Peer Networks Project: Improving Social-Communication, Literacy, and Adaptive Behaviors for Young Children with ASD.* Many children with autism are not equipped with literacy skills, social communication skills, and the ability to participate in groups, which may potentially limit these children's success in education settings. Researchers in this study are evaluating the Peer Networks Intervention Project, a comprehensive social-communication and literacy intervention program that addresses early social-communication and interaction skills, reading and academic skills, and behavioral and adaptive functional skills for young children with autism spectrum disorder (ASD). The purpose of this study is to evaluate the intervention against a typical classroom service model serving young children with ASD. Approximately 120 children diagnosed with ASD entering kindergarten will be randomly assigned to either the intervention condition or the typical classroom service model. The intervention will be implemented for two years. Researchers will determine the differential effects and rates of growth for academic, social-communication, and behavioral performance outcomes and will examine how child characteristics and fidelity of implementation influence treatment outcomes.

Cognition and Student Learning in Special Education

REGENTS OF THE UNIVERSITY OF CALIFORNIA

Principal Investigator: H. Lee Swanson

Amount: \$1,438,691

Period of Performance: 7/1/09–9/30/13

Description: *Growth in Literacy, Language, and Cognition in Children with Reading Disabilities who are English Language Learners.* For English learner children experiencing learning difficulties, it is unclear whether limited language proficiency in English is interfering with learning, masking a learning disability, or leading to underperformance on assessments used for identification. The purpose of this study is to identify the measures and processes that accurately identify

children with a reading disability who are English learners. The investigators are identifying those cognitive and reading measures that separate children with a reading disability from children who are having difficulty acquiring English as a second language. The relationship between reading instruction and rate of cognitive and language growth on reading outcomes for children at risk for a reading disability will also be explored. Approximately 400 students (in first, second, and third grade) who are English learners will be administered a cognitive, reading, and language test battery. One-half of the children will be at risk for a reading disability. Children will be tested annually over a three-year

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period, individually and in small groups. Classroom observations of each child during reading instruction will be conducted three times each year. Data will be gathered on the instructional format as well as the reading instruction content. Differences in English and Spanish reading, language, and cognitive measures for children at risk and not at risk for a reading disability will be explored. In addition, the relationship between classroom instructional reading/language activities, cognition, oral language, and phonological processing on student outcomes in reading will be examined.

REGENTS OF THE UNIVERSITY OF CALIFORNIA

Principal Investigator: H. Lee Swanson

Amount: \$1,516,050

Period of Performance: 7/1/09–6/30/12

Description: *Strategy Training, Problem Solving, and Working Memory in Children with Math Disabilities.* Many current theories on the development of children's mathematical problem solving postulate that a fundamental component is working memory. Research has shown that children with math disabilities have limitations in working memory. The purpose of this study is to develop and test a series of interventions that include supplemental classroom materials and instructional strategies for children with math disabilities. The interventions are designed to compensate for working memory limitations in order to improve performance on math word problems. Approximately 400 students (240 with a math disability, 160 without a math disability) in 35 third- to fifth-grade classrooms will participate. In Study 1, the effects of two intensive strategy conditions that manipulate the presentation order of problem-solving components (e.g., identify goals, relevant numbers) will be compared with an instruction as usual condition on solution accuracy. Study 2 compares the effects of two strategies—writing out key components of math word problems and summarizing word problems—on solution accuracy. Study 3 assesses the transfer effects of strategy training. Finally, in Study 4, the modified intervention materials based on the results of Studies 1–3 will be assessed. The primary outcome measures across all studies are problem solving accuracy, comprehension, math calculation, and memory.

REGENTS OF THE UNIVERSITY OF MICHIGAN

Principal Investigator: Priti Shah

Amount: \$917,317

Period of Performance: 7/1/09–6/30/12

Description: *Training Working Memory and Executive Control in ADHD Children.* Children with attention deficit hyperactivity disorder (ADHD) often experience difficulties in academic skills and related areas such as working memory, the cognitive system that allows for the maintenance and manipulation of information. Because research has demonstrated an association between working memory tasks and academic skills and learning outcomes, this project will develop and test a series of working memory interventions for school-aged children with ADHD. Approximately 600 students (with and without ADHD) who are 7–13 years of age will participate. In Study 1, the research team will examine different motivational factors within a video game environment and their influence on students' task performance and motivation. Those factors that are determined to have the most effect on task performance and motivation will be incorporated into the working memory and executive control interventions in the next set of studies. In Studies 2 and 3, two working memory interventions will be developed and their effect on working memory performance and academic outcomes will be compared for typically developing children and children with ADHD. Finally, in Study 4, an intervention that targets executive control functions that are considered to underlie the working memory difficulties in children with ADHD will be developed. Outcome measures in all the studies include working memory capacity, general reasoning skills, and reading and math performance.

UNIVERSITY OF KENTUCKY RESEARCH FOUNDATION

Principal Investigator: Brian Bottge

Amount: \$2,330,164

Period of Performance: 7/1/09–6/30/13

Description: *Evaluating the Efficacy of Enhanced Anchored Instruction for Middle School Students with Learning Disabilities in Math.* The research team is evaluating Enhanced Anchored Instruction, a pedagogical approach that allows students additional opportunities to practice their skills as they solve new but analogous math problems in applied and challenging contexts. The research team will utilize a clustered randomized design to evaluate the computational and problem-solving outcomes of middle school students with math learning disabilities. Classrooms will be randomly assigned to either

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the Enhanced Anchored Instruction or typical classroom instructional approach. Approximately 22 middle school teachers (classrooms) with 5–10 students with learning disabilities per classroom will participate in this study. Products

will include published reports and presentations describing the efficacy of Enhanced Anchored Instruction as measured by standardized and non-standardized measures of math skills in middle school students with learning disabilities in math.

National Research and Development Centers

UNIVERSITY OF DELAWARE

Principal Investigator: Nancy Jordan

Amount: \$9,896,532

Period of Performance: 9/1/10–8/31/15

Description: *Improving Understanding of Fractions among Students with Mathematical Learning Difficulties*. The goal of the center is to apply theories, methods, and empirical findings from cognitive science research on the acquisition of mathematical knowledge to better understand the problems that children with mathematics difficulties have with a crucial component of mathematical knowledge, rational numbers (or fractions), and to develop effective interventions to remedy those problems. The center research program involves small-scale experimental studies to enhance understanding

of the cognitive processes that underlie magnitude representations of rational numbers and use of those representations in operations with rational numbers. The center is also conducting short- and long-term longitudinal studies of students with and without mathematics difficulties to examine how numerical magnitude representations, proficiency with whole number operations, working memory for numbers, inhibitory processes, attentive behavior, and strategic behavior contribute to the ability to understand and operate with rational numbers. As results emerge from the experimental and longitudinal studies, they will inform the design and development of an instructional intervention for fourth graders targeting concepts and procedures involved in common fractions and decimal equivalents.

Postdoctoral Research Training Program in the Education Sciences

UNIVERSITY OF KANSAS CENTER FOR RESEARCH, INC.

Principal Investigator: Debra Kamps

Amount: \$654,125

Period of Performance: 3/1/10–2/28/14

Description: *Postdoctoral Special Education Research Training in Urban Communities: A Research to Practice Model*. This program provides postdoctoral fellows with field experience and methodological training in primarily two areas of research: children and adolescents with serious behavior disorders and children with autism spectrum disorders. The program will be housed at the Juniper Gardens Children's Project (a university community-based research facility with a focus on improving academic and social outcomes) and the Kansas Center for Autism Research and Training (a multidisciplinary research center with the goal of improving the lives of persons with autism through intervention research

and training). Research experiences will be designed to build fellows' capacity to conduct high-quality special education intervention research, apply and increase knowledge of experimental design methodology, and use of assessment tools to design learning and behavioral interventions. The focus of the training program will be on intervention research, both development and evaluation. Fellows will receive training in randomized controlled trials and single-subject designs.

UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL

Principal Investigator: Samuel Odom

Amount: \$638,279

Period of Performance: 8/1/09–7/31/13

Description: *Postdoctoral Training in Special Education Research*. This training program provides postdoctoral Fellows

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with methodological training within the context of two areas of research: intervention programs for children and youth with autism spectrum disorders and response to intervention for children with special educational needs. The program will be housed in the Frank Porter Graham Child Development Institute, an interdisciplinary research center with faculty from early childhood education/early intervention, psychology, special education, speech and communication disorders, epidemiology, pediatrics, and public health. The primary focus of the training program will be on intervention research, both development and evaluation. Fellows will receive training in randomized controlled trials as well as strong quasi-experimental and single-subject designs.

FLORIDA INTERNATIONAL UNIVERSITY

Amount: \$445,800

Period of Performance: 7/1/09–6/30/12

Principal Investigator: William Pelham

Description: *Postdoctoral Training in Intervention Research for Children with Disruptive Behavior Disorders (DBD).*

This training program provides postdoctoral fellows with training on contemporary intervention research design and evaluation. Fellows will receive advanced training in randomized controlled trials as well as quasi-experimental and single-subject designs. The fellowship will center on two or more research projects of the faculty, which currently include (1) development and evaluation of interventions for students with disruptive behavior disorders, (2) longitudinal studies, (3) teacher training, and (4) instrument development.

Small Business Innovation Research

FILAMENT GAMES

Principal Investigator: Dan White

Amount: \$838,149

Period of Performance: 9/15/10–3/15/13

Description: *Game-Based Interactive Life Science for Students with Learning Disabilities.* Recent National Assessment of Educational Progress reports indicate that high percentages of students—especially English learners, those with reading deficiencies, and those with learning disabilities—struggle to make adequate progress toward science standards. This problem is particularly manifested in middle school students where these reports indicate that there is a decline in student achievement on science outcomes. Researchers hypothesize that difficulty comprehending complex expository texts prevents some students from grasping key foundational principles or breaking down common misconceptions. The purpose of this project is to create a suite of high-impact life science games to facilitate deeper conceptual understandings of the science inquiry process among middle school students and, especially, among struggling learners. To assess the feasibility, usability, and promise of the games to improve learning after development is complete, researchers will use a mixed-method design to test students in 10 treatment (game) and control (no game) classrooms. Observations of students' game-play and semi-structured interviews with students and teachers will be utilized. Key outcomes include ease of use,

engagement, and scores on chapter tests. The final product will include six life science computer games on topics including cells, heredity, evolution, bacteria, plants, and the human body. The games will supplement PCI Education's standards-based middle school life science print curriculum.

HANDHOLD ADAPTIVE, LLC

Principal Investigator: Robert Tedesco

Amount: \$99,735

Period of Performance: 6/15/10–12/15/10

Description: *Handheld Technology to Assist Students with Autism Spectrum Disorder.* The firm will develop and research, in conjunction with Southern Connecticut State University, software for commercially available handheld devices (i.e., Apple-compatible and Android-compatible devices including the iPhone and iPod Touch), to improve educational outcomes for students with autism spectrum disorders (ASD). Many students with ASD are reliant on visual supports to guide behavior and learning in educational settings. As of the submission of this proposal, the team has brought to market a software application for the iPhone and iPod Touch called iPrompts. iPrompts allows teachers to customize and present to students visual picture schedules, visual countdown timers, and visual choices between objects. These tools help students to stay on

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task, organize, transition between activities, and develop social skills. However, iPrompts can be enhanced in a number of ways to further improve education outcomes for students with ASD. Using awarded funds, the team will develop and research three specific new features for iPrompts: Video Modeling, which will allow teachers to demonstrate appropriate behaviors using videos; a Community Media Library, which will allow teachers to freely exchange the multimedia support tools they create; and Automated Reminders, which will provide multimedia prompts for students who directly control the handheld devices.

NIMBLE ASSESSMENTS

Principal Investigator: Thomas Hoffman

Amount: \$749,840

Period of Performance: 6/1/09–5/31/11

Description: *Refining and Validating the NimblePad.* A major shortcoming of current computer-based testing systems is the inability to include items that require students to produce

complex formulas, drawings, or graphs. Until this challenge is addressed, classroom assessments and large-scale state testing programs will be limited to administering items that are multiple-choice or require only typed responses. The NimblePad is a peripheral device designed to allow K–12 students to enter responses to open-ended test items in a natural manner by hand. Technology development includes full-scale development of all hardware including the pressure-sensitive device on which answers are written and recorded as data and software that captures the responses on a computer. The team will also develop a tactile overlay feature for blind or visually impaired students to access and respond to open-response items that involve graphic elements and/or require students to produce lines, shapes, or other simple “drawings.” Research activities include a series of usability studies, stress testing of the system for when the new features are employed, and a set of studies to test validity of the tool. The NimblePad will be a low-cost device that allows students to produce open-ended responses in a natural manner.

Interagency Contracts

NATIONAL INSTITUTE OF CHILD HEALTH AND HUMAN DEVELOPMENT

Amount: \$500,000

Period of Performance: 8/29/09–8/28/10

Description: This interagency agreement supports research on the development of outcome measures for young children.

NATIONAL INSTITUTE OF MENTAL HEALTH

Amount: \$100,000

Period of Performance: 8/8/09–8/7/10

Description: This interagency agreement supports an evaluation of a family/school intervention for students with attention deficit hyperactivity disorder.

Other Contracts

CDS2

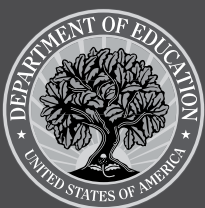
Principal Investigator: Jeff Yoder

Amount: \$2,552,630

Period of Performance: 6/15/09–6/14/12

Description: *Administrative and Logistical Support for the National Center for Special Education Research.* The purpose of this

contract is to provide 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.



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