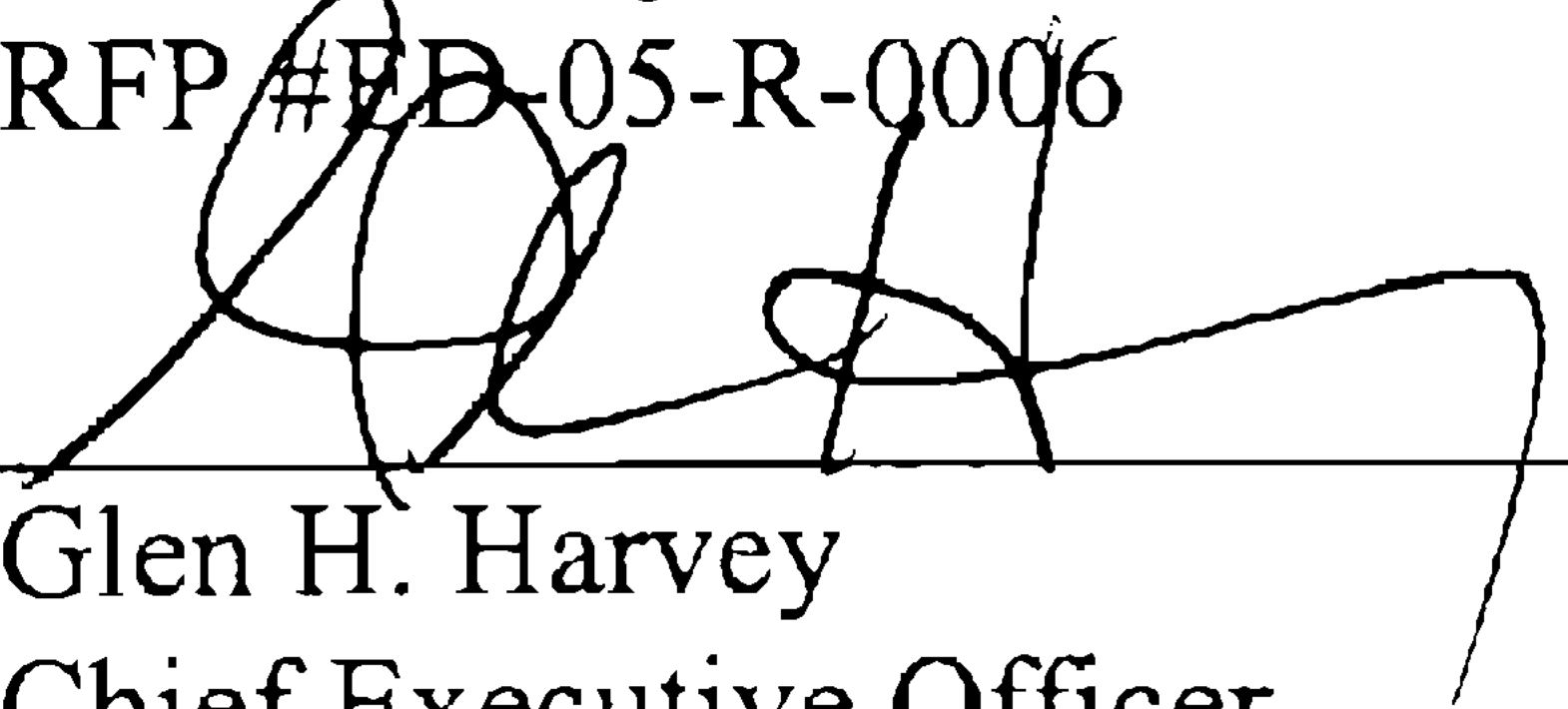


Best and Final
TECHNICAL PROPOSAL

Proposal Title: Western Regional Educational Laboratory
RFP #WB-05-R-0006

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WestEd complies fully with all terms, conditions, and provisions included in the solicitation and agreement to furnish any or all items upon which prices are offered at the price set opposite each item.

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WESTERN REGIONAL EDUCATIONAL LABORATORY TECHNICAL PROPOSAL

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WREL TECHNICAL PROPOSAL

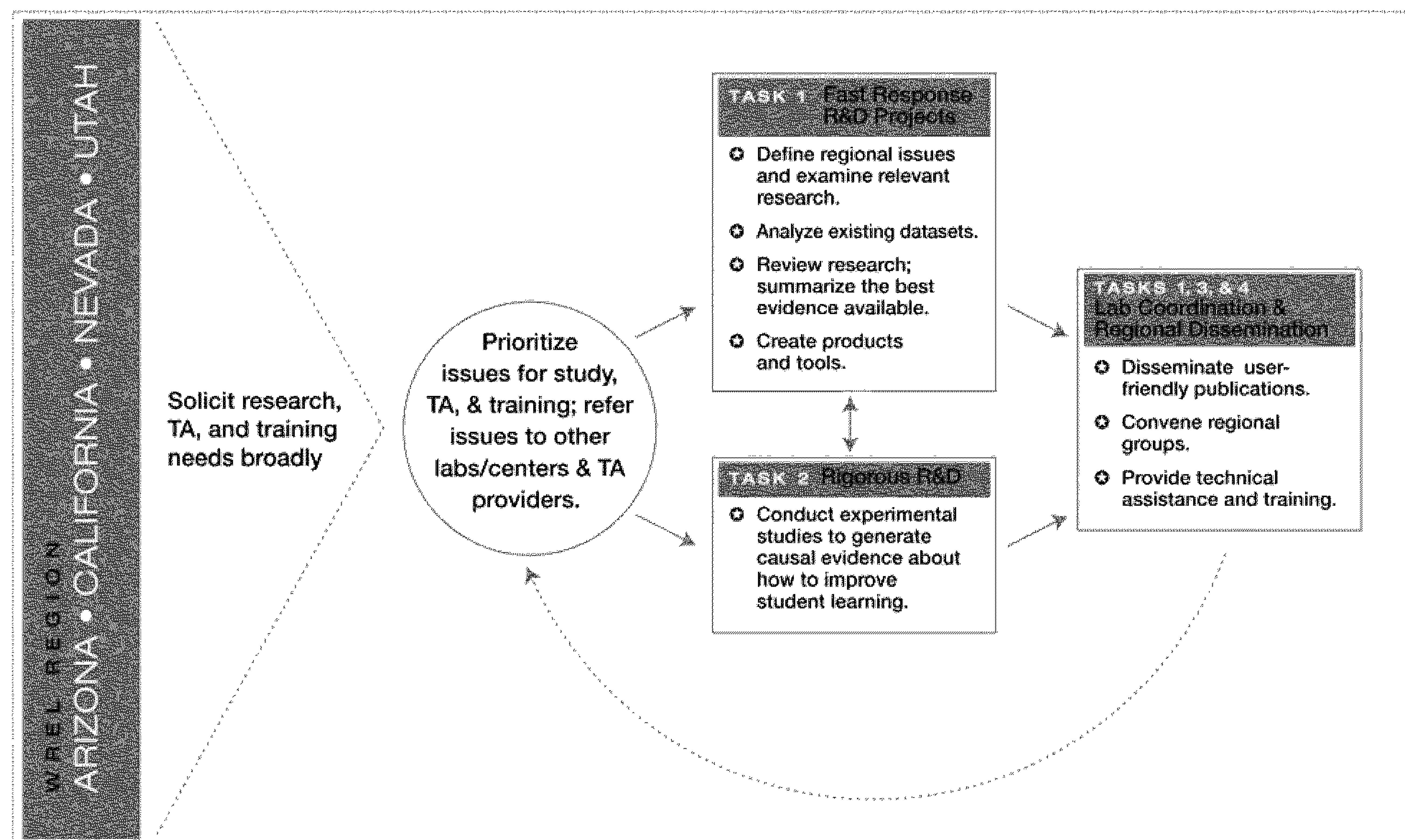
EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

Education in the western region, and nationwide, can be substantially improved through better use of research evidence. This is the fundamental assumption driving the Institute of Education Sciences (IES) in its mission to make education an evidence-based field. As agents of that mission, the Western Regional Educational Laboratory (WREL) and its sister laboratories are the “emissaries of science” for their respective regions.

Taken collectively, the regional laboratory tasks specified in this contract establish a regionally responsive R&D system to improve education, as shown in Figure 1 below. The WREL will reach out broadly to policymakers and educators across our four states to analyze their needs, solicit their questions, and build their interest in and reliance on evidence (Subtask 1.1). We will carry out Fast Response R&D projects and provide technical assistance to help regional constituents understand the best evidence available and assist them in designing local evaluations (Task 1). We will conduct rigorous experimental studies of promising interventions in critical areas so that the region and the nation have more evidence-based education solutions from which to choose (Task 2). We will communicate research-based information to the region and the nation in ways that are understandable and tailored to the needs of the audience (Tasks 3 and 4).

Figure 1. Western Regional Educational Laboratory Approach



In sum, we will advance evidence-based education and student outcomes by:

- Producing causal evidence about what works, and
- Supporting the use of the highest quality evidence available to inform regional decision-making and practice.

Regional Needs and Priority Issues

The WREL scope of work will only be useful if it addresses important regional needs for which educators are prepared to take action. The job of the Fast Response Unit, described in Task 1, is to conduct ongoing outreach and needs analysis to inform applied R&D projects and technical assistance. In this initial proposal, the needs assessment challenge is even greater, because it must inform not only the initial Fast Response Projects, to be completed quickly, but also the experimental studies proposed for Task 2, which span the full five-year contract.

WestEd is well positioned to gauge regional needs and set priorities because of our longstanding and deep connections to the western states as a research, development, and service agency supported by a range of contracts and grants. For this proposal, we synthesized information from state initiatives, interviews with key stakeholders, meetings across a range of role groups, and analyses of demographic and achievement data, along with data from the Regional Advisory Committee (RAC) convened by the U.S. Department of Education to inform both the Comprehensive Centers and the Regional Educational Laboratories.

The proposed scope of work coalesces to address some broad priority issues that emerged from this regional needs assessment. We believe that by recognizing thematic connections among projects within and across Tasks 1 and 2, we can accomplish several things. Regional educators will receive more substantial assistance in tackling key issues. They will come to better understand the power of using evidence, as they take action and ask more targeted questions over time in successive cycles of inquiry. Our work will benefit from the efficiency of leveraging across projects, and knowledge building for education as a whole will be enhanced.

The underlying goal across the region and across the scope of work is to close the achievement gap. NCLB has focused more attention than ever before on disparities in achievement. State policymakers, education leaders, teachers, community members, and parents are all looking for ways to increase achievement, especially in the most challenging circumstances. Their efforts span the needs of students from early childhood to postsecondary settings.

English Learners. The foremost specific need in the western region is to increase achievement for English learners. This was the top priority identified by the RAC, driven by alarming statistics as well as the concerns expressed frequently by parents and educators. Children who speak a language other than English at home make up 31% of all school-age children in the West, compared with 19% in the Northeast, 16% in the Midwest, and 10% in the south (NCES, 2003), and the percentages are rising. The achievement and attainment of English learners is generally lower than for native English speakers. Nationwide, the average score of English learners on the 2003 NAEP 8th-grade reading assessment was 41 points lower than other students. While 70 percent of English learners scored below basic in reading on this assessment, 70 percent of native English speakers scored above basic (NCES, 2003). This gap persists into

high school and is reflected in passing rates on high school exit exams nationally and in our region (Center on Education Policy, 2005). The work WestEd proposes for the Western Regional Educational Laboratory will focus significant efforts on closing this gap.

The needs of English learners can't be addressed in isolation. The region's four states have identified a number of priority areas for education improvement for all students. Under both Tasks 1 and 2 our proposed scope of work includes R&D projects in these priority areas, with English learners as either a direct or a cross-cutting theme.

Curriculum and Teaching. Most central to improved learning is the instructional program and the quality of teaching. As low-performing schools develop improvement plans, they need to focus on research-based instructional strategies and they need to help teachers build the knowledge and skills to ensure students succeed. This need is especially acute at the secondary level, where proportionally fewer schools are making adequate progress.

One priority area is mathematics instruction. While math scores have improved, math continues to be a stumbling block at the high school level, causing more students to fail high school exit exams or head to college unprepared than any other content area. Even in Utah, which exceeds the national average on ACT scores, students do not on average meet ACT's "college-ready" level in mathematics, and the number of students needing remedial math courses in college has raised concern. Science is joining mathematics as a disciplinary area focus. With NCLB requiring states to test science in 2007–08, NAEP science scores about to be released, and a TIMSS trend study in 2007, attention to science is likely to increase.

The current national focus on high schools — including initiatives launched by the Bush administration, the nation's governors, and the Gates Foundation — has been embraced in various ways in the western states. Educators and policymakers want to know how to increase the rigor of classroom instruction in high schools, by which they mean not just adding more courses but strengthening classroom instruction. They want to know how to engage students in deep learning that has long-term payoff in college, work, and national productivity.

This push toward rigor in the content areas places even greater demands on English learners. While learning to speak and read English is a key goal, much more is required than conversational or literary English. Schools must give students the academic language to succeed in math, science, or history classes, and at advanced levels.

Readiness to Learn. Teachers in K–12 classrooms can't succeed unless their students come to school ready to learn. Most often, this phrase brings to mind early childhood education, and the western region is invested in making the most of these early years. In the words of the Utah State Superintendent of Public Instruction, the approach needs to be "birth to Bachelor's." The region has increased funding for full-day kindergarten and early intervention programs; they want to know if this is, in fact, cost effective in the long run. What are appropriate, successful and affordable interventions in the early years?

Readiness to learn also means that children of all ages come to school every day able to focus on academics. Conditions of poverty or homelessness challenge families and schools to have the

resilience and capacity to persevere. Regional educators want to understand these background factors, the role they play in learning, and how to respond effectively.

Systemic Supports. Raising the level of learning across all schools, including those most challenged, requires a concerted effort by many parties. While the classroom is at the core, and the relationship between teacher and student is central, whole school faculties must come together around a shared focus, and with support from districts, intermediaries, local universities, and the larger community. State and district policies must foster coherent, systemic improvement.

State leaders talked to us about wanting to increase the number of schools that engage in continuous improvement, guided by data and fueled by a commitment to do whatever it takes to help students succeed. They want to know not just what helps students learn, but what helps schools and staff learn as well. Accountability policies, staffing policies, assessment practices, and the like, all are seen as potential contributors to this goal.

Cross-sector initiatives are increasingly prevalent at the high school level. With an ambitious goal to keep more students in school through graduation, then get more students to college equipped to succeed, comprehensive strategies are needed. P–16 partnerships appear promising in some cases, to provide accurate information, motivation, and assistance to students who might not succeed otherwise. Counselors in schools and community agencies both have the potential to contribute in vital ways. Educators and policymakers in the western region want to learn more about research in this area and to identify promising local initiatives for further study.

These themes are unpacked and addressed in the scope of work that follows.

Task 1: Regional Needs Analysis, Training and Technical Assistance and Fast Response Applied Research and Development

Several features characterize our approach to Task 1 — Fast Response applied R&D and technical assistance. We will:

- Work directly with regional stakeholders to analyze regional data and define needs and research questions. This will build buy-in and readiness to take action and will enable us to tailor information to more directly address local contexts.
- Host events at which interested stakeholders and researchers explore issues and evidence. This will build greater understanding of standards of evidence and the state of research. It will also foster communication and trust between researchers and practitioners.
- Conduct analyses and review studies using rigorous research methods appropriate to the question being asked. We will communicate clearly the research process and the strength of the evidence.
- Communicate both clear summaries of research and tailored local implications. Develop products and tools that help stakeholders apply evidence and take action.

We recognize that requests from the field will come up during the year in the natural cycle of state and local decision-making and as the region gains a better understanding of the WREL's

rapid-response role. Thus, while we have identified 10 initial projects for Year 1, we have also set aside resources to respond to emerging requests. The projects detailed in this proposal are listed in the table below and then briefly summarized. Six projects are analyses of existing databases, two are summaries of research, and two are events to critique research and practice.

Table 1
Task 1: Fast Response Applied R&D Projects

Issue	Topic	Project Type	Lead	EL	Rural	Urban	Secondary
Curriculum & Teaching	1. Vocabulary development using middle school science	Data analysis	E. Hiebert	X			X
	2. Academic language development	Research in progress symposium	A. Walqui	X			X
	3. Alternative approaches to English learner instruction	Data analysis	T. Parrish	X		X	
Readiness to Learn	4. Achievement gap for English learners during the first six years of school	Data analysis	R. Rumberger	X	X	X	
	5. Connection between risk & resilience factors and student achievement	Data analysis	T. Hanson	X	X	X	X
	6. California Healthy Kids Survey modules for evaluating local youth programs	Data analysis	T. Hanson				X
Systemic Supports	7. Dropout prevention and recovery strategies	Research review	B. Berliner	X	X	X	X
	8. Increasing college-going rates	Research in progress symposium	B. Berliner	X	X	X	X
	9. Course-taking patterns among minority youth & preparation for postsecondary education	Data analysis	N. Finkelstein	X	X	X	X

The projects are grouped in rows according to the broad issue areas introduced above: Curriculum and Teaching, Readiness to Learn, and Systemic Supports. Cross-cutting themes are indicated in the columns on the right side of the chart. For example, most of the projects attend to English learners and/or focus on the secondary school level. We have also deliberately built in attention to the specific needs of both rural and urban areas, as indicated.

Vocabulary Development Using Middle School Science. Elfrieda Hiebert of the University of California, Berkeley will analyze the vocabulary demands in the region's most commonly used sixth grade science textbooks, using sophisticated computerized analysis strategies that she has already devised and applied at the elementary level. This analysis will identify critical vocabulary words along dimensions of content, linguistic form, and Spanish cognates. Sample research-based lesson templates will also be created. Participants in the California Vocabulary Forum, literacy leaders in the California County Offices of Education, are eager for this information and will provide feedback as they pilot the materials.

Academic Language Development. How to better help English learners develop academic language is a topic of growing interest and emerging research, although the research is at varying stages and of mixed quality. We propose to bring together researchers to discuss their work, map out the status of research, and discuss ways to strengthen methodology. The product of this first project will be a research critique with implications for further research that researchers can use to strengthen their work. A follow-up project might be a systematic research review and examination of policy implications.

Alternative Approaches to English Learner Instruction. The American Institutes for Research (AIR), with WestEd, have been conducting an evaluation of California's Proposition 227. This highly anticipated evaluation compares the results of bilingual and immersion models. In the past year, a database was constructed in Los Angeles Unified School District that will allow analyses of individual student achievement over time. AIR will perform additional analyses of this database to explore patterns of relationship across different school contexts and using different analytic techniques, such as those introduced by Gordon and Hoxby.

Achievement Gap for English Learners During the First Six Years of School. Russ Rumberger of the Language Minority Research Institute will conduct several analyses using the Early Childhood Longitudinal Study (ECLS) dataset from NCES, including a western states subsample, to identify variables associated with the gap in achievement between English learners and native English speakers in kindergarten and as the children progress through the early grades. Hierarchical linear modeling will be used to analyze the contribution of both material conditions and resources found in families and schools, and measures of attitudes, behaviors, and practices also found in families and schools.

Connection Between Risk and Resilience Factors and Student Achievement. In 2003, WestEd researchers demonstrated that lower levels of student risk behavior and higher levels of resilience (school assets) were associated with greater progress in improving student test scores. This study will extend that analysis to incorporate data about school characteristics and student demographics and information from the Staff School Climate Survey. It will also extend the data set to additional schools and years. This update will be welcomed by policymakers and educators who, required under NCLB to survey risk behaviors, have been very interested in the previous study. It will also build the base of knowledge necessary before causal studies can be undertaken.

California Healthy Kids Survey Modules for Evaluating Local Youth Programs. The California Department of Education has mandated the Healthy Kids Survey in districts with Title IV or state tobacco prevention funding. Now county offices, districts, and independent evaluators are also using these data to evaluate local programs. To ensure that these evaluations are

appropriate and rigorous, more study of newer scales in the Survey needs to be conducted. Based on previously collected data, we propose to conduct a series of psychometric analyses of the properties of the Resilience and Youth Development module and the Elementary module.

Dropout Prevention and Recovery Strategies. While one goal is to increase college-going rates, for a vast number of students there is a prior goal — to graduate from high school. Regardless of the calculation method, dropout rates in high-poverty communities and for some subpopulations are unacceptably high — over 50%. A number of dropout prevention programs have been implemented across the country. What do we know about their impact? Are there common factors or strategies across successful programs? Building on previous research reviews and upcoming data in the What Works Clearinghouse, we will review high-quality research and evaluation studies to provide much-needed information for regional policymakers.

Increasing College-Going Rates. Our region has a number of innovative, promising approaches to increasing college-going rates, including, for example, offering incentives to attend college or establishing schoolwide or targeted support programs, but such programs have a limited evidence base. With partners at Arizona State University, who are studying and disseminating a successful approach that targets Hispanic students to become first-generation college-goers, we will host a forum for researchers and practitioners to discuss the state of research on these promising approaches, implications for further research, and implications for implementation.

Course-Taking Patterns Among Minority Youth and Preparation for Postsecondary Education. High school students may want to go to college yet find themselves ineligible because of course-taking patterns begun in the early high school years. The University of California (UC) has analyzed course-taking patterns and found that coursework decisions in grades 8-10 are strongly associated with later college attendance. Extended transcript analyses will be conducted, using data collected by the UC Office of the President (currently 60,000 student transcripts from 27 California schools over three years) to describe the status of student course-taking patterns, especially minority youth and English learners. A research brief will report these data and implications for action. In addition, we will work with California colleges to develop a training program to help high schools use transcript data more effectively.

Task 2: Rigorous Applied Research and Development

WestEd proposes to conduct seven randomized experimental studies to establish causal evidence of the impact of interventions that: a) are well defined and fully developed, b) have shown promise through preliminary studies, and c) have outcome assessments with known and sufficient statistical properties.

Four of these studies test interventions developed at WestEd. These studies will be carried out by subcontractors, to ensure objective and credible results. We are fortunate to have two highly qualified subcontractors: Berkeley Policy Associates and Heller Research Associates, both small businesses, to conduct these studies. The other three studies are being conducted by WestEd and focus on interventions or assessments developed by others. Tom Hanson and Neal Finkelstein will direct research in WREL and oversee all subcontracts to ensure high standards of quality. In

addition, we have a distinguished Technical Working Group: Jamal Abedi, CRESST, University of California, Davis; Lloyd Bond, Carnegie Foundation for the Advancement of Teaching; Geoffrey Borman, University of Wisconsin; Brian Flay, Oregon State University; Tom Good, University of Arizona; Joan Herman, CRESST, University of California, Los Angeles; Heather Hill, University of Michigan; Roger Levine, American Institutes for Research (AIR); and Jason Snipes, Manpower Demonstration Research Corporation (MDRC).

Table 2
Task 2: Rigorous Applied R&D

	Name	General Content	Evaluation Agency	Lead Researcher	EL	Rural	Urban	Teacher Quality
A	Math Pathways & Pitfalls	Elementary school math	Berkeley Policy Associates	H. Bos	X	X	X	X
B	Science Cases Professional Development	Middle school science	Heller Research Associates	J. Heller	X	X	X	X
C	Quality Teaching for English Learners	EL/middle/high school	Berkeley Policy Associates	H. Bos	X		X	X
D	High School Instruction: Problem-Based Economics	High school social studies	WestEd	N. Finkelstein		X	X	X
E	Program for Infant/Toddler Caregivers	Early childhood	Berkeley Policy Associates	H. Bos	X	X	X	X
F	Lessons in Character	Character education & English language arts	WestEd	T. Hanson		X	X	X
G	Assessment Accommodations	Accountability systems	WestEd	S. Rabinowitz	X	X	X	

Math Pathways and Pitfalls. Researchers and program specialists at WestEd have developed an approach to building the content knowledge and teaching skills of math teachers through coursework, combined with a supplementary student curriculum, *Math Pathways and Pitfalls* (MPP). This intervention is currently being evaluated in a study funded by IES. Recognizing the need to scale up this successful approach, WREL will evaluate the scaled-up delivery of MPP using professional development strategies designed with multimedia delivery (Web-based/video).

Science Cases Professional Development. This study tests a teacher professional development strategy intended to improve students' content knowledge and academic literacy in middle school science. The research will test the effectiveness of the *Understanding Science* model, an approach that incorporates science content, analysis of student thinking, and discussion of issues

related to teaching that content to English learners. The full set of *Understanding Science* courses, including 15 courses on the major ideas of K-8 earth, life, and physical science, constitute a comprehensive curriculum. The professional development course sessions focus on science concepts in the context of narrative cases of practice drawn from actual classroom episodes involving those concepts.

Quality Teaching for English Learners. WestEd's *Quality Teaching for English Learners* (QTEL) professional development program equips secondary teachers to provide challenging tasks and scaffold student learning to advance development of academic language. The QTEL study, replicating a current study in New York City, will be conducted in one or more of the region's large urban school districts with large numbers of ELL students. The program will be implemented for three years to ensure that the treatment contrast is maximized.

High School Instruction: Problem-Based Economics. Following on strong quasi-experimental findings, this study will implement a randomized controlled trial of a social studies curriculum in high school economics. Economics is a required course for high school graduation in California, and will be added in Nevada in 2007; NAEP will test economics in 2006. The curriculum approach is intended to increase class participation and content knowledge and has been shown to differentially benefit students in low-performing schools. This study will target rural and urban high schools.

Program for Infant/Toddler Caregivers (PITC). This study will test the effectiveness of PITC across the region to build the connection between infant/toddler care and school readiness, consistent with NCLB. Programs from the PITC waiting list will be randomly assigned to treatment and control groups, including samples of both family childcare and group childcare centers. Child assessments will be completed two times for a cohort of students within a center. Because of the age of the children, the early childhood assessments will be primarily observational; later measurement will use a test of cognitive skill and school readiness.

Lessons in Character Program. This study examines the impact of the *Lessons in Character Program* (LIC) — an English Language Arts-based character education program — on student academic performance, attendance, school motivation, and endorsement of universal values consistent with character education. The program comprises 1) core reading and writing curricula, and 2) support materials that reinforce the traits of good character and are designed to support language arts learning standards. Half of the recruited schools will implement LIC in their 4th and 5th grade classrooms, and half will implement in 2nd and 3rd grade classrooms.

Assessment Accommodations. Over the course of the contract, a series of experimental studies will investigate the effects of assessment accommodations on standardized test scores and test score validity for English language learners (ELL). During Year 1, we propose to examine the effects of two types of test accommodations: *linguistic modification* (or linguistic simplification) and *modular administration*. In subsequent years, additional accommodations that are theoretical extensions to this accommodation will be studied. Using what is learned about linguistic modification and modular administration in Year 1, the investigation of accommodations will focus on computer-based testing in Year 2. Each study will examine both *incremental validity* — the degree to which an accommodation yields a more accurate measure of what the targeted students know and can do — and *differential validity*, or the degree to which the accommodations have differential effects on accommodation-targeted students and general education students.

Task 3: National Laboratory Network

The power of the regional laboratories to serve regional and national needs is dramatically increased by operating as a coordinated network. WestEd recognizes this potential and the WREL will participate fully in the national network, taking a leadership role as appropriate. We anticipate significant opportunities to coordinate and collaborate on both R&D work and dissemination/technical assistance. In addition, we believe that the network needs to assist all members in building capacity and solving some of the challenges of rigorous field research.

Task 4: Regional Dissemination

The research-based information from Task 1 and Task 2 R&D is only of value when it reaches policymakers and educators who are prepared to use it. Under Task 4, we will create targeted, user-friendly products, place them on the National Laboratory Network Web site, and follow up with targeted dissemination to build awareness and get these products out to the field. In addition to Task 1 technical assistance and convening, such as regional events bringing researchers and practitioners together to review evidence on a topic, we will work with the Task 6 contractor to do Web-based dissemination, such as Webcasts or other forms of virtual events, which are increasingly popular and cost-effective.

Task 5: Planning, Management and Reporting

Effective management is essential to maintaining the quality of these many simultaneous projects. This applies to the Western Regional Educational Laboratory's internal management, led by WREL Director, Dr. Gary Estes, to regional oversight by the WestEd Board of Directors, and to IES's management of the REL program. We will attentively plan, monitor, and report as required, including quarterly meetings of the Board of Directors.

WREL TECHNICAL PROPOSAL

TASK 1:

TASK 1: REGIONAL NEEDS ANALYSIS, TRAINING AND TECHNICAL ASSISTANCE AND FAST RESPONSE APPLIED RESEARCH AND DEVELOPMENT

As pressures to demonstrate improvement mount, schools, districts, and states in our region are moving fast to implement programs and policies to improve student performance. They are clamoring for evidence-based solutions but often lack adequate staff capacity and time to fully analyze the state of research and make evidence-based decisions about programs and policies.

State and district leaders need access to high-quality research-based information in timely, tailored, practical forms if such information is to help shape programs and policies in ways that improve student achievement. To meet this need, WestEd is creating a WREL Fast Response Unit that consists of a team notable for its content knowledge, analytic and research skills, deep understanding of regional issues, and ability to connect researchers, policymakers, and practitioners to translate research findings into actions at state and local levels. The Fast Response Unit will be well positioned and well qualified to examine the massive amount of available information to clarify the state of research on key topics, identify solutions that have a strong evidence base, and work with policymakers and practitioners to implement evidence-based policies and programs.

A central goal is to build the region's capacity to use high-quality research in support of student learning. Our work will aim to:

- Increase the use of evidence in local and state decision-making;
- Support the implementation of evidence-based policies, programs, and practices; and
- Encourage and support ongoing analysis and evaluation at state and local levels.

Accomplishing these goals requires a nimble, strategic unit that both anticipates and responds to regional needs and provides quality assistance on high-leverage issues. The Fast Response Unit will base its work on a solid understanding of current and emerging education needs facing our region and a strong understanding of research methods that allows us to accurately assess the strength of research evidence. It also requires thoughtful approaches to helping regional stakeholders understand research and put it into practice in a range of regional contexts. Several features characterize our approach to Task 1. We will:

- Work directly with regional stakeholders to analyze regional data and define needs and research questions. This will build buy-in and readiness to take action and will enable us to tailor information to more directly address local contexts.
- Host events at which interested stakeholders and researchers can explore issues and evidence. This will build greater understanding of standards of evidence and the state of research. It will also foster communication between researchers and practitioners and help inform future research.
- Conduct reviews and studies that use rigorous research methods appropriate to the question being asked. We will communicate clearly the research process and the strength of the evidence.

- Communicate both research evidence and tailored local implications through technical assistance, training, and the strategic development and distribution of products. Our dissemination efforts, minimally, will make policymakers and practitioners aware of new evidence-based information and, as possible, help them apply it in their local contexts.

This approach combines outreach and analysis with a range of dissemination efforts, including product development and distribution, convening and engaging, technical assistance, and training, all aimed at strengthening our region's inclination and capacity to access and act upon findings from rigorous research. We know that change requires more than simply putting sound research into the hands of those who need it. It also requires helping them make sense of it, tailoring its application to local contexts, and creating opportunities to share emerging knowledge about how to put research into practice.

The work of the Fast Response Unit is detailed in the next two sections. Subtask 1.1, Regional Education Needs Analysis, Training and Technical Assistance Response Unit, describes how we will assess regional needs and respond with fast response evidence-based technical assistance and training. Subtask 1.2, Fast Response Applied R&D Projects, gives an overview of our approach to fast response projects and outlines the projects we currently plan for Year 1.

Subtask 1.1: Regional Education Needs Analysis, Training and Technical Assistance Response Unit

Under Subtask 1.1 we propose strategies to ensure that the WREL's fast response work addresses critical regional needs and priorities. As noted above, one of our first tasks is to establish a Fast Response Unit whose charge is to systematically analyze and establish the priority of regional needs, design the appropriate fast response (i.e., fast response studies, technical assistance, or professional development based on existing evidence-based knowledge) and, for fast response studies, develop an initial, targeted dissemination plan for their findings. To serve as our Fast Response Unit, we propose a team that brings together skills, knowledge, and experience in four key areas: needs assessment and stakeholder engagement, applied research and development (R&D), research methodology, and dissemination.

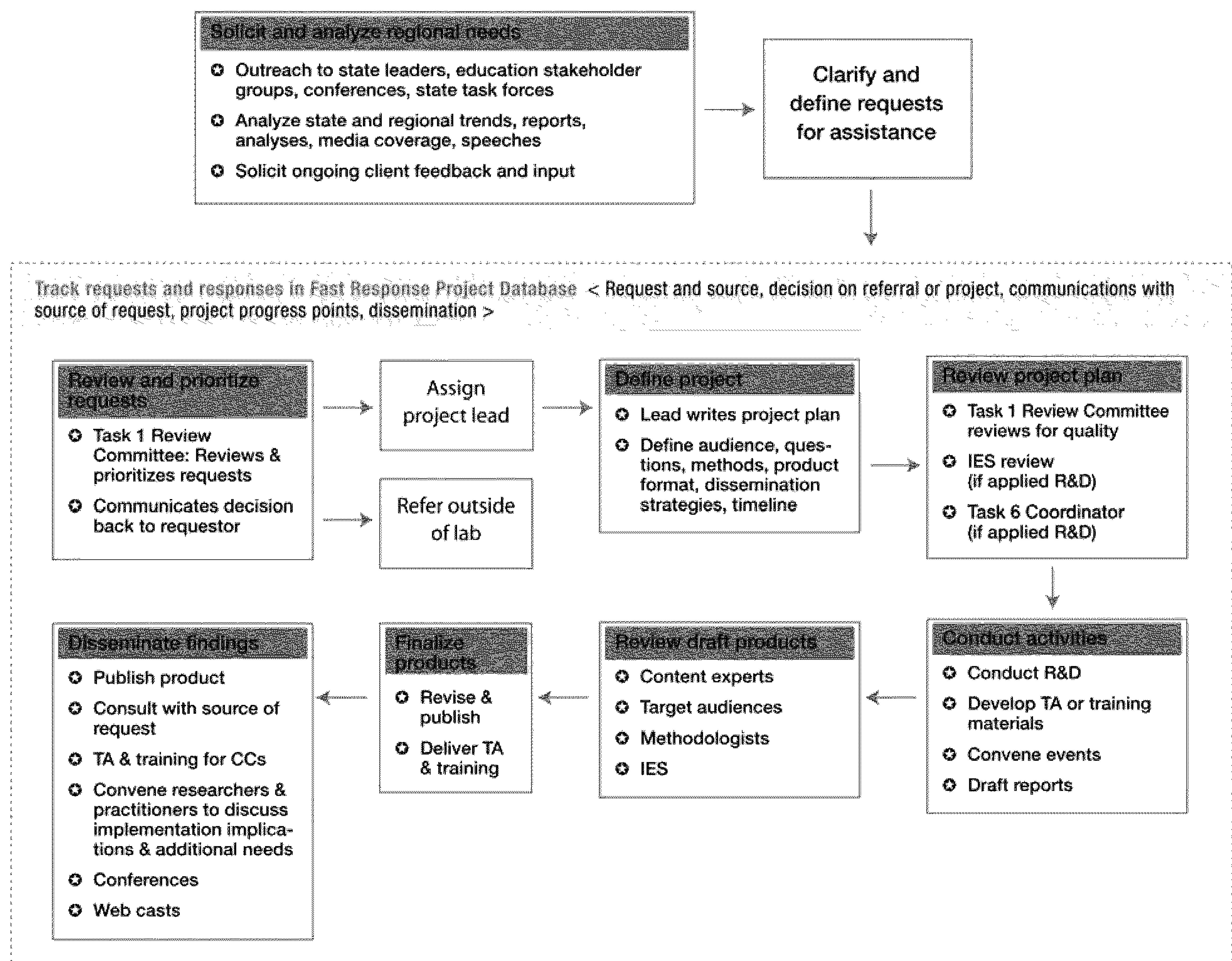
- State Liaisons, each with long experience working closely with educators and policymakers in one or more of the WREL's four states, will lead our market research and outreach efforts. Deeply grounded in the context of each state, the liaisons will tap a wide network of state and local policymakers and practitioners to understand their needs for research-based information and identify the best ways to share such information with them.
- Lead Researchers and Research Associates will lead fast response applied research and development projects. They will work on issues for which they have deep knowledge. As necessary, they will also draw on the expertise of content advisors to ensure that our content is of the highest quality.
- Methodologists and analysts will support each project to deepen understanding of methodological issues and to conduct quantitative analyses.

- Communications experts will work with each project team from project inception to help clearly define target audiences and appropriate formats for product development and other dissemination efforts.

This team will apply the combined knowledge and skills of its members to address pressing needs in the region. We will engage partners within our region or in other laboratories to advise our work, conduct specific analyses, or provide training. (For more information about our work with other RELs, see Task 3.)

The flow chart in Figure 1 depicts how regional needs will be assessed, prioritized, and addressed within the Fast Response Unit. The text that follows describes three major elements of the WREL Fast Response Plan: 1) regional needs analysis; 2) prioritization of fast response requests; and 3) types of responses. Details about specific fast response applied R&D projects for Year 1 of the contract will be described under Subtask 1.2.

Figure 1. Regional Needs and Responses Flow Chart



Regional Needs Analysis^{A-SeePg37}

Regional needs will be analyzed on an ongoing basis using a combination of

1. regional market research to determine technical assistance, training, and research needs; and
2. stakeholder advisory groups on specific projects to further clarify needs, research questions, and effective formats and venues for disseminating findings (described in each detailed fast response project plan later in this proposal).

The needs analysis work of the WREL Fast Response Unit will be led by the state liaisons, all of whom have a grounding in how state and local decisions are made, an understanding of the issues and information needs of policymakers and practitioners in their respective states, and well-established relationships with the stakeholder groups in their states. State liaisons will tap into a wide range of state and local networks to analyze state and regional trends. They will meet regularly with policymakers and practitioners within their states, serve as a front line for receiving and managing requests for technical assistance and training, analyze regional issues and needs, and identify dissemination opportunities.

Honing in on the priority needs in the region will require triangulating and synthesizing different types of data. Simple market survey data, for example, is not likely to be rich enough to help us anticipate needs in ways that can help frame debates, know who might act upon the information provided, or understand how to best disseminate findings. The ongoing work of the state liaisons and content experts of WestEd will be critical for probing needs and clarifying how the WREL might best respond to them. For example, in recent interviews with state education officials in one of our states we were told there was a need for data about the teacher shortage. However, our work on a state task force and our contact with other regional researchers helped us understand that adequate data was already available. Further clarification efforts revealed that what the policymakers really wanted to know was *how* other places have successfully addressed issues related to teacher shortages. It was only by exploring the issue with all these sources that we could clearly identify and appropriately address the needs of these state policymakers.

Identified needs, as well as specific technical assistance and training requests, will be recorded in a regularly updated Regional Needs and Responses Database and reported monthly to the Regional Laboratory Network. Each spring, in preparation for the Updated Annual Plan, the Fast Response Unit will produce a formal needs analysis report that draws from a variety of data sources. However, recognizing that needs do not always arise on a predictable schedule, the Fast Response Unit will remain flexible enough to respond to compelling high-priority requests or needs irrespective of when they arise.

Our needs analysis will entail a mix of quantitative and qualitative data collection, chiefly:

- ***Analysis of state and regional data.*** Monitoring state and regional data on student performance, demographics, teacher supply and demand, finances, and other issues will help us identify needs in our region. Analyses by WestEd staff and other organizations will be part of our ongoing reviews.

- ***Surveys on key education topics.*** We will formally survey potential client groups. A modular online survey instrument would be an efficient way to assess needs, and we will work with the Task 6 contractor, as necessary, to mount one. Surveys will enable us to more fully understand needs for research-based information, including topics and effective dissemination strategies for given audiences and topics. For example, if our needs analysis does not fully identify rural education needs, we will periodically survey a random sample of rural districts to make sure that our research and dissemination efforts address their needs. Such surveys will go through appropriate OMB clearances.
- ***Feedback from WREL clients.*** To strengthen our needs analysis we will seek direct feedback from target audiences. For example, for each product or training event we will include a feedback mechanism to generate information about the utility and quality of information as well as additional needs. This data will be analyzed as part of our market research.
- ***Analysis of state and regional policy debates.*** We will regularly analyze the content of state summits, conferences, major speeches, media coverage, and reports from other institutions to better understand current and emerging issues. Notes on such analyses will be kept in the Fast Response Needs Analysis Database and will inform our needs analysis reports.
- ***Structured interviews with key stakeholders.*** State liaisons and content experts in the Fast Response Unit will meet on a regular basis with key state and local leaders who need research-based information to make decisions. But at least annually they will *formally* interview key stakeholders about their needs for such information. Interview protocols will be developed to guide discussions and help us record information. Target groups include staff from the two Regional Comprehensive Centers serving our region; leadership in each state department of education, state board of education, governor's office, and legislature; leadership in state university systems; and representatives of local educators and administrators. We will also regularly connect with leaders in the core content areas we identify as priorities each year.
- ***Participation in state and regional task forces and events.*** Each of our states periodically establishes statewide commissions or task forces. Anticipating the needs of such groups helps ensure that we can present them with sound research to inform their work. Our WREL work could support such activities as the Arizona Governor's Commission on Teacher Quality, the California State Superintendent's P-16 Commission and, also in California, the Governor's Commission on Education Excellence, Nevada's high school reform efforts, and in Utah, the Governor's Working Group on Student Achievement. Each of these groups has limited staff support and would benefit greatly from research on critical topics.
- ***Focus groups with state delegations on the WestEd Board of Directors.*** The WestEd Board of Directors includes representatives of critical education stakeholder groups from each of the WREL states. Annual focus groups with each of the Board's state delegations will help us ensure that state-specific requests are taken into account and projects are tailored to meet the unique needs of our states. Board members will also assist with outreach activities within their states.

The needs analysis work of the Fast Response Unit does not end with our periodic market research reports. For larger projects, the Unit will also convene targeted stakeholder advisory groups to further clarify needs and help ensure that our work is presented in forms and places that can best support state and local decisions.

Prioritization of Fast Response Requests

The overall work of the Fast Response Unit will be guided by a subgroup, the Task 1 Review Committee, which is responsible for prioritizing specific requests from the field, referring requests to other providers as necessary, and ensuring the quality of products, training, and other dissemination efforts. This committee will meet regularly to review incoming requests and evolving regional needs in order to propose fast response projects for the updated laboratory plan each year, but also to make decisions about potential projects that might arise after the Updated Annual Plan has been submitted.

The Task 1 Review Committee will also monitor progress of ongoing projects, provide feedback on research plans to ensure quality, and review progress on training and other dissemination activities to identify ways to strengthen the impact and utility of our work.

The needs of our region are sweeping and will require considerable prioritizing. Thus, in reviewing potential projects and establishing priority, the Task 1 Review Committee will consider the following criteria.

- ***Project has specific research questions that the laboratory is suited to address.*** To the extent possible, we will probe incoming requests to determine specific questions and needs. The WREL will address requests that encompass specific research questions, unless a request would be better addressed by other federally funded technical assistance centers with greater expertise in the given issue (e.g., Regional Comprehensive Centers, Content Centers, other RELs). In that case, it would be appropriately referred.
- ***Request reflects a need for research-based information.*** The Task 1 Review Committee will give priority to requests that call for:
 1. Analyzing state and regional data to describe “what is happening,” define an issue, identify needs, and formulate research questions.
 2. Summarizing research to identify research-based solutions.
 3. Supporting groups of researchers and regional educators to review and apply evidence.
 4. Supporting quality research and evaluation efforts in the region.

Requests such as how to access a service will not be handled through fast response projects.

- ***Project addresses needs for research information to be used in services provided by the Regional Comprehensive Centers or other technical assistance organizations serving the region.***
- ***Project is relevant and policymakers or practitioners are poised to act on project findings.***

- ***Project also has significance beyond the region and is of sufficient scope to meet needs.*** The project's questions and likely findings are also of interest to policymakers and/or practitioners beyond the region, and the project can make an important contribution to knowledge and practice.
- ***A promising evidence base exists to address the issue.*** Projects that can build on an existing body of evidence to address an issue in a reasonable way will have priority. However, some requests that are relevant and urgent may relate to emerging practices that have not yet been well documented or researched. In such cases, any products or technical assistance must clearly articulate the limits of the evidence base and must, therefore, limit conclusions or recommendations as well.
- ***Project can use existing datasets or studies.*** Projects will draw upon existing datasets and studies of sufficient rigor and quality to address the needs in question. New data collection efforts are not likely to be feasible within the Task 1 timelines.
- ***Project can be completed in one year or less.***
- ***Project is affordable given Task 1 budget and staff constraints.***
- ***Project aligns with Task 2 studies.*** When possible, we will give priority to projects in which impact and reach will be strengthened by Task 2 work or vice versa.

Projects that are deemed lower priority or exceed our budget will be referred elsewhere or deferred.

Types of Technical Assistance, Training, and Other Responses

The Fast Response Unit will analyze regional needs, field requests for technical assistance and training, and respond with fast response applied R&D projects or, if relevant, with technical assistance or training related to existing evidence-based information or programs. Requests cover a range of topics with varying timeframes. In some cases our response may need to be phased. For example, as a state legislature debates an education issue we often get a call asking for help. The depth of our response will depend on the legislature's timeline and the degree of research on the topic. We expect to handle such requests in stages similar to the following:

- Clarify the problem or issues for which assistance is requested. In this phase we will consult with policymakers to understand the nature of their needs and, perhaps, will provide some summary information about critical studies related to the issue. This could be accomplished in as short a timeframe as a few days.
- Frame dimensions and sub-issues raised in the research literature. Additional assistance might include an initial review of the research literature and consultation with experts to identify the extent of available research, to better understand the issue and potential solutions. Generally speaking, this could be accomplished within a month.
- Conduct a fuller research review to summarize relevant research findings or analyze state and regional datasets to better understand an issue. In this phase we might review available research and provide an objective summary and analysis of what rigorous research has found regarding the particular issue. Alternatively, we might analyze

datasets to better understand an issue and inform policymakers. Depending on the level of complexity entailed, such work may require multiple months.

Each fast response project will include a preliminary plan for disseminating its findings. In addition to development of products based on the findings, each plan is likely to call for some form of technical assistance or training to a target audience of policymakers or practitioners, to other technical assistance providers who can further disseminate findings, or, in some cases, to both.

We anticipate four general types of fast R&D responses, delivered in various fashions, as explained below. The four types of responses are: analyzing existing datasets, summarizing research, applying research, and strengthening ongoing regional research.

1. ***Analyze existing data to help the region, a state, or a district define or clarify an issue by analyzing existing data.*** One form of fast response is a study that includes a secondary analysis on existing local, state, or national datasets to help the targeted audience to identify or better understand trends and relations among variables that impact student achievement or needs.

Depending on the audience, assistance might be one or some combination of the following: a research brief, consultation with key policymakers, presentations at state conferences, or facilitated discussions among experts and education stakeholders responsible for addressing the issues surfaced in the report.

For example, WestEd's Policy Center recently analyzed achievement trends in the state of Nevada. We published a report and engaged educators across the state in discussions about the implications of the data. Policymakers are now using that analysis in their debates regarding education priorities and in their efforts to engage the larger community in strengthening the state's schools.

Products associated with data analysis projects will be:

- *Research briefs* (15-30 pages), which will describe study questions, methods of analyses, relevant statistical charts, findings, and implications. Target audiences will be policy analysts and other researchers.
2. ***Summarize research to identify evidence-based information.*** Another form of fast response will be reviews of the research literature, resulting in summaries of the current evidence base to address regional questions. The scope and complexity of such reviews will vary. For example, when a solid literature base of high-quality studies is available, we will conduct a more comprehensive review. When the What Works Clearinghouse or another regional educational laboratory has conducted a more thorough review, the WREL might simply summarize such findings, adding implications for our region.

The information identified in such research reviews will be conveyed through shorter summary publications such as policy briefs, as well as in technical assistance or training presentations to regional policymakers, practitioners, and technical assistance providers. An example is a project we propose for Year 1 that consists of a research review of

effective dropout prevention and recovery programs. Such a review is of interest to legislators in California who are developing proposals to increase graduation rates, as well as to P–16 Councils in California, Nevada, and Arizona, and to local decision-makers who are designing intervention programs.

Products associated with summaries of research include:

- *Research reviews*, which will be longer summaries of research that include methods for conducting the review, summaries of studies included in the review, findings, and policy implications. Target audiences are researchers, trainers, and technical assistance providers.
 - *Policy briefs* (2-20 pages), will also report results of the projects summarizing research, but they will distill the results for policymakers and other education decision makers, focusing more on the policy and/or practical implications of a research review.
3. ***Support application of research by convening groups of regional educators and researchers to review and apply evidence.*** Some responses, also serving as technical assistance, may come in the form of research-to-practice events in which research findings are presented and practitioners discuss the implications of findings for local practice given varied contexts. The WREL might also sponsor training events that feature evidence-based programs identified by the What Works Clearinghouse, another REL, or a WREL-sponsored research review.

For example, one practical implication we might explore is that of costs associated with implementing an evidence-based program effectively. State leaders in our region have requested that our information on evidence-based solutions also include data about costs and strategies to reallocate resources given tight budgets. We might host an event that features districts and schools that have successfully implemented programs featured in the What Works Clearinghouse. Such a forum could explore questions such as: How much did implementation cost? How did districts reallocate resources or secure additional funds? What tradeoffs were necessary?

Products associated with projects to apply research findings include:

- *Proceedings*, which document meetings with regional educators and researchers.
 - *Guides* for practitioners, which help them apply evidence-based solutions in their settings.
4. ***Support quality research efforts in the region.*** As part of our charge to support the use of research in our region, we plan to provide technical assistance on research methods, analysis, and interpretation. This will build capacity in our region to assess research more critically and develop programs and policies that have a research design built into them so that more knowledge is generated.

Some issues that have been less well researched will require convening researchers and practitioners to examine the state of research on the issue and implications for future

research and replication. These “Research in Progress Symposia” will support both researchers and policymakers to address challenging needs in the region and strengthen current and future research initiatives.

Sometimes other institutions in our region might conduct research on an issue and request WREL expertise on designing a rigorous study. For example, the Oquirrh Institute in Utah, along with the Board of Regents and the Utah State Office of Education, has requested our assistance as an advisor on a study they plan to conduct to track the placement and subsequent student performance levels of teachers who go through pre-service teacher preparation programs in the state. A research methodologist from the WREL could support such work by promoting rigorous research methods and helping the research team design a high-quality study.

The Nevada Department of Education recently requested our support in designing a survey regarding school leadership training needs in the state. The WREL can provide consultation, including examples of instruments others have used, and discussion to help clarify the specific questions most relevant in Nevada.

Products aimed at strengthening research include:

- *Research critiques* (10-20 pages), which emanate from research symposia and will focus on the state of research in a new field of interest and recommend research topics and methods to strengthen the field.
- *Research advisories* (1-4 pages) that alert researchers to WREL studies as well as areas in which we have identified gaps in the research. The intent of such advisories will be to periodically connect with regional researchers and promote additional quality research.
- *Research briefs* (10-15 pages) that address research methods or the use of instruments to support local research.

To reach the policymakers and practitioners who need the support we have just described, in addition to working directly with stakeholders when practical, the WREL Fast Response Unit will disseminate research through a variety of other means as well. For example:

- Presentations to state policymakers will be a direct way to engage policymakers in understanding research findings. Discussions with state education agencies, state boards of education, governor’s aides, and legislators will engage them to more carefully consider the research findings and their implications for state programs and policies aimed at improving student achievement.
- WREL-sponsored events to connect research to policy and practice will be another way to connect researchers and policymakers and engage them to identify ways to apply evidence-based solutions to education issues.
- Web-based seminars provide a means to disseminate findings to broader audiences and, especially, to reach far-flung rural educators who may have more difficulty participating in other forums.

- Training and further dissemination through Regional Comprehensive Centers (RCCs) and other technical assistance providers will be a core strategy for disseminating findings. We will have regular contact with each of the RCCs in our region and the related technical assistance networks they support.
- Conference workshops hosted by regional partners will be a forum for connecting to broader audiences, providing research-based information to targeted audiences, and connecting with stakeholders to further understand their needs and concerns.

Some examples of the types of audiences and related events that might support both our needs analysis and dissemination work are described in Table 1.

Table 1. Dissemination and Needs Analysis Opportunities

Group or Organization	Timeframe	Target Audience
Arizona		
• AZ Department of Education High School Reform Task Force	Ongoing	State policymakers
• AZ Leadership Institute	Ongoing	State policymakers
• Governor’s P-16 Council	Ongoing	State policymakers
• Governor’s Task Force on Teacher Quality	Ongoing	State policymakers
• AZ Education Association Annual Meeting	Fall	Teachers
• AZ Administrators Association Annual Conference	Winter	Local administrators
• AZ School Boards Association Annual Meeting	Summer	School boards
California		
• Superintendent’s P-16 Council	Ongoing	State policymakers
• Governor’s Commission on Education Excellence	Ongoing	State policymakers
• Teaching and California’s Future Task Force	Fall	State policymakers
• High School Reform Task Force, CDE	Ongoing	State policymakers
• California Commission on Teacher Credentialing	Ongoing	State policymakers
• Association of California School Administrators: Superintendency Committee, Annual Conference, Summer Leadership Institute	Ongoing	Local administrators
• California County Superintendents Educational Services Association – ongoing professional development and TA to districts, winter retreat	Ongoing	Local administrators
• Small School Districts Association Annual Meeting	Fall	Small districts
• Urban Dialogues – Price Foundation meetings with urban superintendents of largest districts	Ongoing	Large districts
• California Charter Schools Association Annual Conference	Winter	Charter schools
• California Teachers Association Good Teaching Conference, Summer Institutes	Winter, Summer	Teachers
• California School Boards Association Annual Conference	Fall	School boards
• Education Trust West Biannual Conference	Winter	State and local policymakers

Group or Organization	Timeframe	Target Audience
• California Educational Research Association	Fall	Researchers
• Policy Analysis for California Education – legislative seminars	Ongoing	Researchers
Nevada		
• Commission on Educational Excellence	Ongoing	State policymakers
• Legislative Committee on Education Interim Session	Ongoing	State policymakers
• Legislative Counsel Bureau	Ongoing	State policymakers
• NV Commission on Education Technology	Ongoing	State policymakers
• NV Council on Academic Standards	Ongoing	State policymakers
• P-16 Council	Ongoing	State policymakers
• Regional Professional Development Program	Ongoing	Regional policy
• NV Association of Rural Schools	Ongoing	Rural administrators
• NV Association of School Administrators	Spring and Fall	Local administrators
• NV Association of School Superintendents monthly meetings	Ongoing	Local administrators
• NV School Boards Association Conference	Fall	School boards
• NV State Education Association	Ongoing	Teachers
Utah		
• Governor’s Working Group on Student Achievement	Ongoing	State policymakers
• UT Education Advisory Committee	Ongoing	State policymakers
• Coalition of Minorities Advisory Committee	Ongoing	State policymakers
• Leadership in the 21 st Century Conference (BYU)	Biennial	Mixed
• UT Association of Secondary School Principals Conference	Biannual	Local administrators
• UT Rural Schools Association Conference	Summer	Local administrators
• UT School Boards Association	Ongoing	School boards
• UT Education Association Annual Convention	Fall	Teachers
• Regional Educational Service Centers	Ongoing	Regional outreach

Subtask 1.2: Fast Response Applied Research and Development Projects

Having operated a REL for the past 30 years, conducting research, providing technical assistance and training, and working with policymakers throughout the region, WestEd is in a strong position to identify priority fast response applied R&D projects for Year 1. We recognize the imperative for policymakers and practitioners to have evidence-based information. The pressure is mounting. The number of schools identified for program improvement under the No Child Left Behind Act is growing and each of our states has questioned its capacity — in terms of resources, solutions, and expertise — to address the magnitude of school needs and to effectively close persistent achievement gaps.

Guiding our work is a conceptual framework that recognizes the need for a coherent, systemic approach to changing what happens in schools if student achievement is to improve in any meaningful way. Specifically, our work will support strategies designed to ensure that:

- Teachers are equipped to deliver high-quality curricula and instruction to diverse learners;
- Students come to school ready to learn; and
- Schools and school systems provide systemic supports for high-quality teaching and learning, such as high standards, aligned testing and accountability, incentives, and adequate resources.

We recognize that regional priorities and needs evolve and shift over time, but we have identified a collection of fast response applied R&D projects for Year 1 that will support important work already underway in each of our four states. We have intentionally held some resources in reserve so we will be able to respond to additional high-priority requests that surface during the year.

Several themes cut across our Year 1 work, in direct response to the current needs of regional policymakers and practitioners. Topics absent in this year's scope of work will undoubtedly emerge in future years, but we propose a beginning that addresses some of the most persistent challenges in our region.

Addressing the needs of English learners. The foremost need in the western region is to increase achievement for English learners. This was the top priority identified by the Secretary's Regional Advisory Committee, driven by alarming statistics as well as the concerns expressed frequently by parents and educators. Children who speak a language other than English at home make up 31% of all school-age children in the West, compared with 19% in the Northeast, 16% in the Midwest, and 10% in the South (NCES, 2003), and the percentages are rising. The achievement and attainment of English learners is generally lower than for native English speakers. Nationwide, the average score of English learners on the 2003 NAEP 8th-grade reading assessment was 41 points lower than other students. While 70% of English learners scored below basic in reading on this assessment, 70% of native English speakers scored above basic (NCES, 2003). This gap persists into high school and is reflected in passing rates on high school exit exams nationally and in our region (Center on Education Policy, 2005).

Strengthening secondary schools. The current national focus on secondary schools — including reform initiatives launched by the Bush Administration, the nation's governors and the Gates Foundation — has been embraced in various ways in the western states. Educators and policymakers want to know how to increase the rigor of classroom instruction in high schools, by which they mean not just adding more courses but strengthening classroom instruction. They want to know how to engage students in deep learning that has long-term payoff in college, work, and national productivity.

Understanding the implications of research for urban and rural communities. Research information produced by the WREL will be presented to schools that exist in a wide variety of contexts. For example, our states include cities such as Las Vegas, Phoenix, and Los Angeles, that struggle to build new schools and hire qualified teachers fast enough to meet demand. Other

cities struggle against declining enrollment (and resulting budget reductions) as parents flee the public schools. In the context of severe resource constraints, urban communities in our region are racing to close achievement gaps between ethnic and socioeconomic groups and address the challenges of high concentrations of students living in poverty, English learners, and large numbers of low-performing schools.

Large numbers of students living in urban communities often overshadow rural schools, yet the western region serves high numbers of students in rural settings. California alone has a bigger rural enrollment than all but seven states (Johnson & Strange, 2005). Issues related to high concentrations of poverty affect rural students in each of our states. Arizona ranks second in the nation for rural students living in poverty — 22% of its rural children live below the poverty line. High rates of English learners and student mobility are also prevalent in our rural schools. Small and often declining enrollments make it difficult to hire and retain enough qualified teachers and provide access to programs that can support such diverse students. The Rural Community Trust notes that declining enrollment in rural districts is an “acutely western problem,” naming Nevada as one of five states in which half the rural schools are losing enrollment (Johnson & Strange, 2005).

Table 2 on the following page summarizes the projects we anticipate for the first year of the WREL contract.

Table 2. WREL Task 1 List of Initial Year 1 Projects ^{B-See Pg37}

Issue	Topic	Project Type	Products	Lead	¶	Rural	Urban	Secondary
Curriculum & Teaching	1. Vocabulary development using middle school science	Data analysis	Science Vocabulary Guides	E. Hiebert	X			
	2. Academic language development	Research in progress symposium	Research Critique	A. Walqui	X			X
	3. Alternative approaches to English learner instruction	Data analysis	Research Brief	T. Parrish	X		X	
Readiness to Learn	4. Achievement gap for English learners during the first six years of school	Data analysis	Research Brief	R. Rumberger	X	X	X	
	5. Connections between risk and resilience factors and academic achievement	Data analysis	Research Brief	T. Hanson	X	X	X	X
	6. California Healthy Kids Survey modules for evaluating local youth programs	Strengthen regional research	Research Brief	T. Hanson				X
Systemic Supports	7. Dropout prevention and recovery strategies	Research review	Research Review Policy Brief	B. Berliner	X	X	X	X
	8. Increasing college-going rates	Research in progress symposium	Proceedings	B. Berliner	X	X	X	X
	9. Course-taking patterns among minority youth & preparation for postsecondary education	Data analysis	Research Brief	N. Finkelstein	X	X	X	X

The methods we will employ in conducting these projects will vary according to the type of project. For example, the methods used in secondary data analysis are specific to an individual project, as are symposium plans. However, the two research reviews will follow a common procedure, which we describe next. Following this discussion of research review methodology are the plans for each individual fast response project.

Research Review Methods

Cooper (1998) uses a five-stage framework for a literature review, similar to the stages that apply to primary research: 1) problem formulation, 2) data collection, 3) data evaluation, 4) analysis and interpretation, and 5) public presentation of results. We will use this guiding framework to ensure that our reviews systematically address all key issues and that in doing the reviews, decisions are deliberately made and documented.

Problem formulation. This essential first step is not always a straightforward one. Task 1 studies are intended to address regional needs and requests that may vary widely in nature and clarity. Educators may have a general sense of need or of a problem to solve; most generically, they want to increase achievement. From our extensive experience facilitating data-driven decision-making for school planning, we know that considerable work is needed to “unpack” an initial statement of need, understand the context, and prompt for deeper analysis of assumptions and causes before a specific need can be identified and set as a priority.

In addition, problem formulation should take into account the existing research literature. Cooper provides examples of choices in the way key concepts are defined for the review. Is it studies of “math programs,” or “core math programs,” or “middle school math programs,” or “math skill programs” that should be reviewed? The core construct may be defined more broadly or narrowly depending on what has actually been studied as well as regional needs and priorities. Decisions about definition will influence both selection requirements for relevance and also the variables to be coded for analysis.

On problem formulation, we will bring to bear an initial scan of the research literature. We will also involve regional stakeholders in discussion and review of local data in order to arrive at more precisely defined research questions. The conceptual “map” of a domain is itself likely to be useful to the field, to more precisely describe the different aspects of an issue.

Coding sheets will be developed, based on the initial scan of the research and analysis of both the conceptual structure of the domain and the types of studies that are typical. A keyword classification system like that of the Evidence for Policy and Practice Information (EPPI) Centre will be constructed and adapted as needed for individual reviews.

At this stage of the review, a research plan or “review protocol” will be finalized and reviewed by WREL methodologists and management. The Technical Working Group methodologists (see Task 2) will be asked to review our overall process for research reviews and will be consulted on individual review plans as needed.

Data collection. This stage entails locating and collecting the research literature to review. A full systematic review involves a very thorough search for all available literature, including peer-

reviewed articles and “gray” literature that has not been published. It involves not just formal searches using databases like ERIC but also tapping informal networks of researchers and looking at the lists of studies in existing summary articles and the references in major studies.

For the purpose of “fast response studies,” we will follow the lead of Butler et al. (2005) and their “Rapid Evidence Assessments.” Most notably, they recognize that to meet the faster timeline required by policymakers, a more limited search is often necessary. Via the Web, we will search such online databases as University of California, Berkeley (peer-reviewed journals) and ERIC. We will stay continuously informed about the What Works Clearinghouse (WWC) and will consult other ED-funded research centers in a topic area as appropriate. We will search out sources of literature reviews that would have references lists, including Review of Educational Research, Review of Research in Education, National Society for the Study of Education, and the National Academies.

Initial screening will be conducted on the information available from Web sources; primary materials not accessible on the Web will be obtained as fully as time permits. Reports will include information about the search parameters, including where the search was conducted, what timeframe for studies was imposed, and what key words were used in the search.

Data evaluation. This phase entails a two-step process, as carried out by the WWC. The first stage is to screen studies for relevance; the second is to examine the quality of study methods.

The relevance screen asks if the report is of empirical research and includes information that fits the topic of the review (e.g., the variables or intervention studied match the topic, the sample studied fits the review parameters, the research methods are described with enough detail to conduct a review, the measures are relevant and information about their properties is provided).

For studies that are relevant, it is essential to examine study quality. We envision that the kinds of questions asked by policymakers and educators will call for a variety of research methods and that the existing research to address their questions will vary in type and quality of methods employed. We assume that the purpose of Task 1 for the RELs is to go beyond what is being done in the WWC and to provide the best evidence available at the present time to respond quickly to regional needs and questions. This may require looking beyond experimental studies and including some studies that do not meet the “evidence standards” of the WWC. The challenge, then, is to identify critical features of study design across an expanded range of questions and methods, to locate the highest quality evidence available, and to code studies in such a way that results can be analyzed separately for studies of different type and quality.

The field does not yet have accepted ways to address study quality across the range of studies often covered in a research review. The Campbell Collaborative is one source of guidance on methods, for example, the Research Design policy brief prepared by Shadish and Myers (2004) that provides proposals for Campbell Collaborative policies around systematic review of the effectiveness of an intervention. The EPPI group provides additional examples. One approach often used is to quantify study quality in a single metric derived from ratings on a list of design items (see EPPI reviews and the Butler et al. Rapid Evidence Assessment paper). The Shadish and Myers paper recommends against using this kind of summary measure because it glosses over a range of distinct and important design issues.

We will raise these issues with our Technical Working Group methodologists, when they review our approach to research reviews. We also expect that all RELs will face similar issues, and that IES will both provide guidance and facilitate the development of guidelines for RELs to use in different circumstances.

Analysis and interpretation. In this stage, the task is to look for patterns of results and to form conclusions, as appropriate, across studies. We will look separately at results for studies with different research designs. Methods of looking across studies will vary depending on the number of studies and nature of the data. Quantitative meta-analytic techniques will be used when there are enough strong studies of similar focus and setting. We will also look for evidence of mediating or moderating variables.

Presentation of results. Because the purpose of a fast response research review is to provide regional policymakers and educators with information to guide their actions, it is vital to report the results so they can be understood easily. This actually requires multiple products. The first product is a detailed research report that describes the process as well as the results. Various outlines for review reports provide headings similar to those used in primary research: introduction, methods, results, and discussion. There are generally tables that give information about each of the studies that is included, as well as about some that are not. Visual displays of data as well as narrative analysis are part of the report. This full report is the essential base for developing additional products, and it serves as a reference for anyone who wants to delve into how the review was conducted.

In addition to the research report, a shorter summary will also be prepared, organized, and formatted to be “user-friendly.” To achieve broader access by different regional audiences, additional products based on these Subtask 1.2 products will be developed, as described under Task 4.

Subtask 1.2 Projects for Year 1

The following section describes a brief project plan for each of our anticipated Year 1 fast response projects. We have built in some flexibility to address needs that emerge over the course of the year, especially for shorter projects, but the following section reflects needs that have been expressed in each of our states.

Project 1.2.1 Vocabulary Development Using Middle School Science (Data Analysis)

Issue and Rationale for Selection. The vocabulary levels of most American students are substantially lower than are necessary for academic success (Snow, 2005). This is especially so for students who are English learners. In many cases, English learners appear to have developed rudimentary word recognition skills by the end of grade 2, but their vocabularies lag behind their peers who are native-English-speaking (Lesaux & Siegel, 2003). Without improvements in vocabulary — particularly in accumulation of the vocabulary of different subject areas — students will not do well.

In 2005, WestEd cosponsored a California Vocabulary Forum, a two-day meeting in which principal reading researchers met with teams of literacy experts from the county office regions to share research on vocabulary. This event was initiated by the county office system, the infrastructure backbone of school support in California, based on the very positive response of key leaders to the national Vocabulary Forum hosted by PREL. These leaders recognized that vocabulary is a vital piece of literacy development. They responded very positively to the two-day California event, using the information to inform the professional development they subsequently offered for their own district constituents. They are hungry for additional information, including more specific advice on which words to emphasize from among the many in the curriculum, and how to teach these words in ways that are generative and have transfer effects. Our other three states had also sent representatives to the national Forums, and the results of this project will be relevant and useful across the region.

Dr. Elfrieda Hiebert, who orchestrated the Forums and is a well-regarded reading researcher, will conduct this analytic project, which extends previous analysis and research at the elementary level to the critically important middle school level. The project will identify words within the region's state-approved science texts that would benefit from direct, explicit vocabulary instruction identified as effective by the National Reading Panel. In addition, sample lesson templates will be constructed to illustrate how these words could be used in instruction.

This work builds on a program of research on the analyses of texts and the effects of text features on students' reading performances (e.g., Hiebert, 2005; Hiebert & Fisher, 2005). In particular, it builds on work recently completed by Hiebert and Pearson (2005) in which a cluster of words identified by science specialists was taught as part of hands-on science units with literacy experiences to classes of 2nd and 3rd graders. Students who received literacy experiences with the vocabulary did better than students who learned the words in hands-on experiences only (effect size of .6). Most importantly, we found that experimental students did better (effect size of .3) on a set of similarly complex science words from an untaught unit. Students who were taught the science vocabulary were transferring their vocabulary strategies beyond the taught material.

Why have we chosen science texts? Science texts are important for vocabulary instruction for a number of reasons: a) the vocabulary of science is important to success with future school content; b) the vocabulary is conceptually connected; c) the vocabulary in science texts is repeated to substantially higher levels than the vocabulary in the literature that makes up the bulk of reading/language arts textbooks (Hiebert, in press); and d) the vocabulary of science is morphologically connected to Latin and French, meaning that underlying linguistic knowledge of native Spanish speakers can be used to a greater degree than is often the case with the language of narratives. Bravo, Hiebert, and Pearson (in press) have shown that up to 60% of the science words have readily identifiable cognates. Of these cognates, a significant number are common words in Spanish. For example, the common Spanish word for cold, *frio*, connects to frigid — an academic word — rather than the common English word *cold*.

Why have we chosen sixth grade? The results of the 2005 NAEP indicate that the reading performance of 8th graders has stayed stable, even while 4th graders' reading has improved. The thrust of attention to the primary grades has paid off. To sustain the effects of this early attention, however, students need to be better prepared in the middle grades for the shift in text difficulty that occurs in 8th grade. The percentages of rare words in texts at grades 5 through 7 are quite

consistent, followed by a rapid increase in grade 8 (Wiederholt & Bryant, 2001; Zeno, Ivens, Millard, & Duvvuri, 1995).

Research Plan. We intend to develop a vocabulary curriculum that addresses morphological, conceptual, and semantic information about two or three clusters of words that pertain to critical concepts within the grade 4 science curriculum. We also intend to establish a group of science “process” words — words that are not specific to a content area but are used to describe science processes and activities (e.g., investigate, experiment) — which will be integrated into particular content clusters.

For each vocabulary unit, we will develop: a) a group of words clustered according to shared subtopic of the unit; b) the morphological word families of the words, based on both Latin and Anglo-Saxon morphology; c) the words that have a clear cognate in Spanish; d) semantic connections for core words; and e) additional information for core words, including multiple meanings of words in general and typical phrases in which words are used.

Prior research will be used to develop prototypical or template lesson plans that support the particular content. For example, work by Baumann et al. (2003) will be used to develop a template lesson plan for the instruction of morphological similarities across words. Work by Carlo et al. (2004) will be used to develop a template lesson plan for guiding students in using cognates in Spanish.

How will we select units of content? We will use the National Science Education Standards (National Research Council, 1995) to identify at least three units from the textbooks adopted by the California Department of Education and other states and large districts in the region.

How will we select the clusters of words? We will analyze all of the words in the texts with the TExT Analyzer (Martin & Hiebert, 2003), a software program that establishes the frequency count of a word (according to the 5,586 most frequent words). We will also analyze the words in the released items for the grade 8 National Assessment of Educational Progress science assessments.

Using Chung and Nation’s (2003) scheme, words will be identified from these lists according to three criteria: a) words are part of the general science vocabulary (i.e., across a number of the units that are analyzed as well as on the NAEP Grade 8 science corpus); b) words have a meaning that is closely related to the topic but are likely to be used in general language as well; and c) words have a specific meaning in the topic and are unlikely to be used in general language.

These three groups of words will be given to a group of five science specialists who develop curriculum or professional development on the topic. They will be asked to rate and rank words according to their importance in acquiring the content of the national standards. From these analyses, a core group of words across the three groups will be chosen (with the aim of choosing no more than 20 words per topic).

Dissemination Strategies. The results of this R&D project will be presented in a science vocabulary guide that includes the following information for each of the thematic areas:

- I. The Cluster of Content Words
- II. Meaning Families of Words — Latin: English-Spanish cognates and words within a Latin-based morphological family
- III. Meaning Families of Words — Anglo-Saxon
- IV. Meaning Families of Words: Related or not?
Examples with the illustrative topic (Shoreline Science):
 - Habit and habitat
 - Organ, organism, organization
 - Predicate and predator
- V. Degrees of Meaning (Semantic connections)
Adaptation: Alteration, change, modification
Behavior: Conduct, actions, deeds
- VI. Multiple Perspectives on Words: Examples of information that would be provided on a topic such as Shoreline Science:
 - Multiple meanings: organ/organ
 - Words with same sounds but different spellings and meanings: prey/pray
 - Uses of the words in common phrases: vital organs, birds of prey

The guide will also include “template” lessons. Each of these template lessons provides an instructional procedure that is tuned to one of the six types of content. In addition, pilot assessments will be provided, including both a vocabulary assessment and a content assessment modeled after the NAEP science assessment.

The guide will be shared with literacy leaders in all four states, specifically the participants in the national Forums and others in each state whom they identify as key leaders. We expect that some participants of the California Vocabulary Forum will volunteer to pilot-test materials and share with us their experiences and their data. Possible extensions of this line of work are further development and collaborative piloting throughout the region in Year 2 and possibly a Task 2 experimental study toward the end of the contract.

Project 1.2.2 Academic Language Development (A Research in Progress Symposium)

Issue and Rationale for Selection. Despite more than a decade of high expectations, emphasis on standards, and increased accountability, the achievement gap between adolescent English learners (ELs) and native English speakers remains wide, consistent, and unacceptably high (Ruiz-de-Velasco & Fix, 2000; Snow, 2002; Snow & Biancarosa, 2003). Nationwide, the average score of English learners on the 2003 NAEP 8th-grade reading assessment was 41 points lower than other students.¹ In contrast to the 70% of English learners who scored below basic in reading on this assessment, 70% of native English speakers scored above basic (NCES, 2003). A similar gap in performance between English learners and native English speakers exists on the literacy portions of high school exit exams. In most states, EL students score 40 or more percentage points below native speakers on their first try at reading/language arts/English (Center on Education Policy, 2005). In the WREL region, only 36% of English learners, on average, passed the reading/language arts/English portion of their state’s exit exam on the first

¹ In contrast to the 12th grade NAEP, the 8th grade NAEP reading assessment is administered nationwide.

try, while 73% of other students passed.² Large numbers of EL students in our region may lack the academic skills needed to graduate from high school.

The challenges faced by English learners in developing control of the academic use of the language necessary to participate in disciplinary activity have been widely acknowledged (e.g., Cummins, 2000; Hammond & Derewianka, 1999; Saville-Trolke, 1991). In contrast to “everyday” language, the language of academic learning is unlikely to be learned without explicit guidance (Cummins, 2000; Gibbons, 2002; Mohan, Leung, & Davison, 2001; Valdés, 2001; Walqui, 2003).

While the need to help English learners develop control of academic language has been extensively addressed at the college level (Swales, 1991), particularly in the area of English for Academic Purposes (EAP), efforts at the K–12 level have been largely influenced by the early work of Cummins (1979, 1984) on perceived differences between academic English (Cognitive Academic Language Proficiency, or CALP) and interpersonal conversation (Basic Interpersonal Communicative Skills, or BICS). Cummins argued that proficiency in the comprehension and use of academic language required cognitively demanding, decontextualized uses of reading and writing, while interpersonal conversation (BICS) required only knowledge of a shared context. Chamot and O’Malley (1987, 1994) drew upon Cummins’ framework in their development of Cognitive Academic Language Learning Approach (CALLA), stressing the need to teach cognitive and metacognitive strategies as a precursor to teaching academic content. Though Scarella (2003) argued that a research framework for investigating academic language must move away from Cummins’ dichotomous characterization of academic and everyday English, her framework emphasizes the greater cognitive and linguistic demands of academic language as compared to everyday language.

Moving away from Cummins, other researchers have focused on the compilation of generic language functions and structures that are characteristic of classrooms in general (see Solomon & Rhodes, 1995; Bailey & Butler, 2003), or on the use of linguistic simplification to make academic language accessible (Echevarria & Short, 2000). Some researchers, Valdés (2004a) and Walqui (2004), have proposed a continuum rather than a dichotomy in the acquisition trajectory of academic language. Recently, Valdés (2004b) critiqued past research in the field, arguing that second language researchers must expand their dialogue about academic language to include the mainstream English professional community in a discussion of what academic language means and how the two groups can work together to help English learners.

While the field has recognized the importance of research on academic language and proposed differing frameworks and solutions, its research has not made a significant difference in classroom practice. The result is that teachers of English learners have used ad hoc, idiosyncratic approaches (Solomon & Rhodes, 1995), have adopted programs that have not met rigorous standards for research, or as Wong-Fillmore and Snow (2000) point out, have no knowledge of the nature of academic English or of approaches that are effective in teaching it. Clearly, the need for quality research and its pedagogical application to classrooms is urgent.

² Arizona, California, and Nevada all have standards-based exit exams. Respectively, first-time pass rates for EL students are 12%, 39%, and 29%; Utah’s first-time pass rate on its minimum competency exit exam is 65%.

What the field has not done is to examine the limitations of past research on academic language and English learners in terms of the research questions asked and the methodology used. A necessary step in moving forward is to map existing research on academic language and English learners in terms of its content and methodology, strengths and weaknesses, and then make recommendations about the foci and methodology needed if future research is to make a difference that can be generalized.

Symposium Plan. To gain various perspectives from the field and to identify key issues, during the first quarter of Year 1 we will convene a broad range of second language researchers and methodologists to discuss their work, map out the status of the research, and discuss ways to strengthen methodology. Researchers from second language literacy, academic language and English language learning in mathematics, and linguistics and English language learning will be included. Possible participating researchers include Guadalupe Valdés for research in second language literacy for Latino students; Jennifer Hammond for research in second language learning and systemic functional linguistics; Lily Wong-Fillmore for English language learning and linguistics; researchers in the area of academic language and English language learning from the Center for Applied Linguistics; and researchers in the area of academic language in mathematics and EL students such as Judit Moschkovich from University of California, Santa Cruz. Possible educational research methodologists include Guillermo Solano-Flores from the University of Colorado and Francis Butler for CRESST for quantitative research in science and English learners; and Jamal Abedi and Joan Herman from CRESST on state and local assessment and English learners.

Prior to the meeting, panel members will receive a set of focus questions on academic language and English language learning that will guide their preparation for the meeting. Additionally, they will receive criteria for review of research, which we will have prepared. Invited participants will be joined by WestEd fast response content area and research methodologists and by other WestEd staff with expertise in quantitative research design.

Dissemination Strategies. The Fast Response Team will use the results of the meeting to design a framework for reviewing the literature in the field of academic language learning. The resulting publication, a research critique, will provide educators and researchers with a blueprint for implementing research that meets rigorous scientific standards. This research critique will be disseminated broadly within the research community in our region and through the Regional Laboratory Network. It will also be presented at research conferences such as those hosted by the American Educational Research Association (AERA), the California Educational Research Association annual meeting, and the California Association for Bilingual Education.

Project 1.2.3 Alternative Approaches to English Learner Instruction (Data Analysis)

Issue and Rationale for Selection. In June 1998, Proposition 227 was passed by 61% of the California electorate. The initiative significantly altered the ways in which the state's English learners are taught. Proposition 227 requires that they be taught "overwhelmingly in English" through sheltered/structured English immersion (SEI) programs during a transition period and then transferred to mainstream English-language classrooms. However, the initiative included parental waiver exceptions allowing parents to request alternative programs for their children,

which in fact has allowed bilingual programming to continue in the state, although on a limited basis.

California is not the only state grappling with these issues. In 2000, Arizona's voters passed Proposition 203, an even more restrictive prohibition of primary language instruction, and Massachusetts voters passed a similar initiative (Question 2) in 2002.

The major contention underlying all of these policy provisions is that the preferred method for instructing EL students relies overwhelmingly on English and that "bilingual" approaches are inferior with regard to English and core-subject-matter acquisition. While bilingual instruction places a substantial reliance on primary language (i.e., the student's native language), instructional approaches that are almost exclusively conducted in English are often referred to as "immersion." Rightly or wrongly, the relative efficacy of these two approaches has been at the center of policy debates for English learners across the nation for the past decade.

California has by far the most English learners of any state. In fact, 40% of the nation's 4 million EL students are in California (NCES, 2002). State policies regarding EL education not only have a significant impact on EL students in California, but policy choices made here are also watched closely across the country and have the potential to become important precedents. In addition, English learners also constitute large percentages of students in many other states in the larger western region.

Issues relating to the provision of appropriate services for EL students also have a long national history. An early federal program specifically designed to address the needs of English learners was the Bilingual Education Act of 1968, designed to create equal educational opportunity. The next milestone came in 1974 with the landmark U.S. Supreme Court ruling in *Lau v. Nichols*, filed on behalf of Chinese-speaking students against the San Francisco Unified School District. The issue was whether schools were providing equal educational opportunity by simply treating all students the same, or whether special help was required for students who did not understand English. In their unanimous ruling, the court concluded that the Chinese-speaking students were being denied a "meaningful education" because they were not fully English proficient. The case led Congress to quickly pass the Equal Educational Opportunities Act in the same year. This act required school districts to provide English instruction for students who needed it, and it required districts to take action to overcome language barriers to equal participation.

At the state level, California enacted the Chacone-Moscone Bilingual-Bicultural Education Act in 1976. This required school districts to offer services to all English learners in public schools. These services often took the form of bilingual instruction, which became the dominant instructional model for EL students until the passage of Proposition 227.

Research Plan. In 2000, the California Department of Education contracted with the American Institutes for Research (AIR), assisted by WestEd, for a five-year evaluation of the *Effects of the Implementation of Proposition 227 on the Education of English Learners*. A key research question posed for this study was, "Which programs and services being provided to English learners are most effective and least effective in ensuring equal access to the core academic curriculum, the achievement of state content and performance standards, and rapid acquisition of

English?” In essence, this question was focusing on the classic “bilingual” versus “immersion” debate regarding appropriate instructional services for these students.

Using the best extant data available at the time of each annual report, the AIR/WestEd team studied this issue throughout the period of this evaluation. Over this five-year span, our ability to address this key policy question improved each year due to enhancements in state data. However, these data still have important limitations. In the final report just submitted to the state, the most advanced analyses we were able to perform using state data show a slight student achievement advantage to immersion over a bilingual approach. However, interpretation of these results is limited by concerns over selection bias (i.e., students are not randomly assigned to alternative models of instruction). Also, because state student-level data cannot be linked over time, these biases cannot be overcome by strong controls such as prior-year test scores.

In the final year of the study, we were also able to obtain data from the Los Angeles Unified School District (LAUSD), which allowed us to overcome most of the limitations associated with the analyses presented above. Using these data, we were able to link annual reading test scores of 287,210 English learners in grades 1 through 5 over the years 1997 to 2003 (this represents about 94% of the English learners in grades 1 through 5 in LAUSD in 2002–03). Because these student-level data can be linked over time, they allow us to better account for the limitations of the preceding analysis.

In addition, the fact that Proposition 227 forced the movement of large numbers of students from bilingual to immersion programs created a form of natural experiment that helps address the selection bias problem discussed above. Given the severe practical difficulties associated with random assignment of EL students to these kinds of program alternatives, Proposition 227 arguably has created the best opportunity we have had thus far, or may ever have, to study these important instructional policy questions.

To estimate the impact on student results of additional years in each of these programs, we used a hierarchical linear model (HLM) regression, which allows us to examine changes across two different dimensions or hierarchies. The first dimension is *within-student*, looking at test score changes over time for each student. The second dimension is *between-student*, analyzing how *within-student* test score trajectories vary across students. These more refined analyses, enabled through the use of LAUSD data, indicate that the contribution to English learner performance of an additional year in a bilingual instruction program is not statistically different from an additional year in an immersion program.

At the same time, recent work done by Gordon and Hoxby (2004) also treated Proposition 227 as a form of natural experiment to allow assessment of the efficacy of one instructional approach over another. Using statewide data, they found results similar to those reported above in regard to bilingual versus immersion models of English learner instruction. They also report a boost to non-EL performance as a result of Proposition 227.

We propose to extend analyses of extant data using methods largely forged through these prior studies to further investigate English acquisition and academic content knowledge over time for EL students receiving these alternative modes of instruction. The major steps we would like to take are threefold:

1. Conduct more fine-grained analyses on LAUSD data to assess the extent to which the overall conclusion that no one model is more efficacious than another applies equally across schools types (i.e., elementary, middle, and high schools), and across various primary language groupings. Are there certain conditions under which one model does appear more advantageous than another?
2. Further explore the Gordon and Hoxby approach and techniques to see what further implications might be drawn from a statewide perspective. We would also like to apply the Gordon and Hoxby approach to the LAUSD data to assess the extent to which one approach over another has added efficacy for non-English learners.
3. Conduct the same analyses using data from a second major school district enrolling large numbers of English learners and with similarly detailed data as found in LAUSD.

It should be noted that if selected, we would need to seek permission from LAUSD to further examine the data provided to us thus far for these extended analyses. To obtain comparable data from another school district would be a greater challenge, although we have approached Elk Grove District in California and have tentatively received a favorable reply.

Dissemination Strategies. Policy debates in states passing such initiatives were based on a relative paucity of scientifically based evidence. We believe the analyses described above have the potential to fill this gap. The results of our analyses will be published in a research brief in user-friendly language that can inform policymakers of this evidence. We also plan to host a cross-state forum to discuss these findings and their implications for English learners. We will explore issues such as what should take the place of a given model of instruction if it turns out that model of instruction is not a useful paradigm in guiding EL instruction. This work would also be strengthened by the full scrutiny of at least one professionally reviewed scholarly publication. Accordingly, we propose publishing these results in a journal such as *Educational Evaluation and Policy Analysis*. Once the findings have been peer reviewed, we intend to produce user-friendly, relevant summaries to help inform policymakers of this evidence. Last, we propose a cross-state forum to discuss these findings and implications for English learners.

Project 1.2.4 Achievement Gap for English Learners During the First Six Years of School (Data Analysis)

Issue and Rationale for Selection. One of the most urgent education challenges in the United States is eliminating the large achievement differences between racial, ethnic, and language groups. Although this challenge has existed through the history of our country, it has taken on increased urgency in the current era of education accountability. This issue is particularly important in western states with their large and growing populations of traditionally underachieving students. This study will examine the extent of the achievement gap between language minority (both English proficient and non-English proficient) and English background students during the first six years of elementary school and the factors that explain it. Although a large number of specific factors are examined, they constitute two distinct types related to two distinct approaches to reducing the achievement gap. The first type deals with material conditions in students' families and schools, which call for policy prescriptions to improve family and school resources. The second type deals with attitudes and behaviors, which call for

policy prescriptions to alter students' beliefs and attitudes, improve family practices, and reform schools.

Research Plan. This study will address the following questions:

1. What are the average differences in initial academic achievement between language minority and English background students upon entry to kindergarten in the western states and in other states?
2. How do these differences change during the first six years of elementary school?
3. What individual, family, and school factors explain these differences?

The study will use data from the Early Childhood Longitudinal Study of the Kindergarten Class of 1998–99 (ECLS-K), a federally funded national longitudinal study of 20,000 kindergarteners who first attended 1,000 public and private schools in the fall of 1998. Although the study was designed as a national study, a sizeable number of study respondents reside in the four WREL states, thereby allowing the national sample to be disaggregated into two sub-samples — one of students residing in the four western states and one of students residing in other states.

The ECLS-K data provide comprehensive measures of students' academic, social, and physical development as they progress through elementary school and extensive data on their background, as well as the characteristics of their families, teachers, and schools. These data were collected from a) direct assessments of children's cognitive, socio-emotional, and physical characteristics; b) parent/guardian questionnaires; c) teacher questionnaires; and d) school administrator questionnaires. Data were collected at six time points: 1) fall of kindergarten, 2) spring of kindergarten, 3) fall of first grade (for a sub-sample of students), 4) spring of first grade, 5) spring of third grade, and 6) spring of fifth grade (to be released soon). This study will focus on achievement differences in reading and math. The data will be used to construct a broad array of independent variables based on the conceptual framework described above that includes both measures of material conditions and resources found in families and schools and measures of attitudes, behaviors, and practices also found in families and schools.

The study will utilize hierarchical linear modeling (HLM), which was developed to analyze multilevel data such as ECLS-K where students are sampled over time and within schools. The study will develop and test a series of models to estimate initial achievement and achievement growth in reading and math with different sets of predictor variables specified at three levels: level one models growth in achievement over time nested within students and schools; level two models the effects of student, family, and teacher variables on differences in achievement growth among students nested within schools; and level three models the effects of school variables on mean achievement differences between schools after controlling for differences in the intake or background characteristics of students in the schools. The models will be used to estimate initial achievement at the beginning of kindergarten and learning during five periods of time: 1) kindergarten, 2) the summer between kindergarten and first grade, 3) first grade, 4) the period between the end of first grade and the end of third grade, and 5) the period between the end of third grade and the end of fifth grade. The estimates will then be used to examine gaps in achievement upon entry to kindergarten, gaps in learning during the next six years of school and, finally, gaps in achievement upon completion of elementary school to see how they have changed over this period.

Dissemination Strategies. The results of this analysis will be published as a research brief for dissemination to regional policymakers. A meeting with staff from both Regional Comprehensive Centers (RCC) serving our states will be convened to discuss findings and implications for RCC technical assistance activities. Forums such as legislative hearings and state educational conferences will be sought to disseminate findings and discuss implications with a broader audience of state and local policymakers.

Project 1.2.5 Connections Between Risks and Resilience Factors and Student Achievement (Data Analysis)

Issue and Rationale for Selection. Although the implementation of new standards, curricula, teaching techniques, and other practices that focus classroom time and attention directly on academics are indispensable for improving academic performance, substantial numbers of students may not be able to benefit from these types of academically oriented reforms. Many children come to school with a variety of health-related social, behavioral, and psychological problems that make successful learning difficult, if not impossible (Council of Chief State School Officers, 1998). Moreover, academic reforms often neglect the role of environmental barriers to learning. Violence, crime, harassment, disruptive behavior, and other forms of social disorganization on school campuses can hinder student learning and reduce the effectiveness of academic interventions.

To shed light on the connections between nonacademic barriers to learning and academic performance, WestEd researchers conducted a series of secondary analyses examining the relationship of student health risk and resilience assets to the annual academic progress of secondary schools in raising their scores on standardized tests. The analyses relied on aggregated health risk and resilience data collected with the California Healthy Kids Survey (CHKS) and school-level standardized test score data released by the California Department of Education (CDE). The analyses — which are summarized in the seminal report entitled *Ensuring No Child Is Left Behind: How are Student Health Risks & Resilience Related to the Academic Progress of Schools* — indicated that secondary schools made greater progress in raising test scores when they had higher percentages of students a) who were less engaged in risky behaviors such as substance use and violence, b) who were more likely to eat nutritiously and exercise, c) who reported high levels of psychological well-being, and d) who reported caring relationships with and high expectations from their teachers at school.

This report has been widely disseminated nationally and is one of the most downloaded documents on the WestEd Web site. The researchers have received numerous invitations to present at conferences and other venues, including the National Safe and Drug Free Schools Conferences, meetings of the American Educational Research Association and American Public Health Association, the California Assembly Subcommittee on Mental Health, and to school district and county office of education staff throughout California. This high demand reflects the need schools have for research on the non-academic factors that affect achievement and can be addressed programmatically. But as important as this study has been to the field, it is only an initial analysis, limited in scope. The primary objective of this project is to produce an update to the *Ensuring No Child Is Left Behind* report that describes the relationship of health risk, resilience, and school connectedness to academic performance. Although the report will be based on sophisticated secondary analyses, it will be non-technical, intended for a wide variety of

audiences — including policymakers, state-, district-, and school administrators, teachers, and other stakeholders.

Research Plan. We plan to conduct a detailed, rigorous statistical analysis of previously collected California Healthy Kids Survey data matched to school-level test score data collected by the CDE. The analysis will address the following questions:

- What is the relationship of health risk behaviors, protective factors, resilience assets, and school connectedness to *changes* in school-level academic test scores?
- How are staff perceptions of school-climate factors related to subsequent changes in test scores?
- In what ways are the relationships between health risk/resilience and *changes* in student test scores similar and different in socioeconomically disadvantaged and advantaged schools and across schools that vary in other compositional characteristics?
- Are the relationships between health risk/resilience and student test scores similar for males and females, students in different grades, and across different test subject areas?

We propose to extend and expand the original analyses in the following ways:

- **Replication with a larger, richer, and more representative sample.** The original analysis was based on data from districts that had elected to administer the CHKS. CDE has since mandated biennial CHKS administration in grades 5, 7, 9, and 11 in every school district in the state with federal Title IV or state tobacco prevention funding. This has resulted in a much larger database that represents the vast majority of California schools. The state mandate of CHKS administration in elementary schools will also allow us to conduct the analysis for elementary schools, and the sheer size of the database will allow us to examine relationship differences across diverse types of schools, such as between urban and rural schools, schools with small and large enrollments, and schools with varying ethnic compositions.
- **Relationship of changes in risk/resilience to changes in test scores.** Due to the short time series of available school-level CHKS data, the original analysis examined how *levels* of risk/resilience were related to subsequent changes in test scores. Because more data points are now available, the proposed analysis will examine how *changes* in risk/resilience are related to subsequent changes in test scores — results that have more direct implications for prevention and intervention activities.
- **School connectedness.** Since 2003 the survey has assessed *school connectedness*, using a scale derived from the National Adolescent Health Survey. This construct has been shown to be highly correlated with academic achievement and low involvement in health-risk behaviors. We propose to conduct analyses of factors associated with school-level variations in school connectedness and level of perceived school environmental assets and examine how these variations relate to changes in school-level test scores.
- **Staff school-climate perceptions.** Beginning in Fall 2003, CDE also required that all school districts conducting the student CHKS administer the *School Climate Survey* online to all school staff, as part of No Child Left Behind compliance. This survey assesses staff perceptions of student risk and resilience behavior (including

connectedness, school safety, and the nature, communication, and enforcement of school rules/policies). In addition, it asks fundamental questions about academic standards and priorities, learning supports and barriers, and quality of supportive staff relationships. We propose to examine how these staff perceptions of school-climate factors are related to subsequent changes in test scores. These analyses will shed further light on those school-culture conditions that are most related to student performance.

The data that will be the basis of this report come from four sources: 1) aggregated health risk and resilience data from local school administration of the CHKS; 2) data from the CHKS Staff School Climate Survey; 3) the 1998–2005 standardized test results released by CDE’s Standardized Testing and Reporting Program (STAR); and 4) the California Basic Educational Data System (CBEDS, 1998–2005).

We will use the following measures:

- **Academic Performance.** School-level academic performance will be assessed by average California Standards Tests (CST) scaled scores in the subjects of English language arts and mathematics for grades 5, 7, 9, and 11.
- **Health Risk and Resilience.** The CHKS assesses most major areas of health-related risk behavior using standard survey measures, including nutritional practices, physical activity, substance use, school violence, bullying, harassment, and school safety. It also assesses school resilience assets — such as caring relations with adults at school, high teacher expectations, and opportunities for meaningful participation — and school connectedness.
- **School Climate.** Assessed with the CHKS School Climate Survey, measures include staff perceptions of student risk and resilience behavior, as described above. In addition, it asks fundamental questions about academic standards and priorities, learning supports and barriers, and quality of supportive staff relationships.
- **Control and Stratifying Variables.** The following variables will be used as controls and stratifying variables: racial/ethnic composition (African American, Asian, Hispanic, White), parental education, percentage of students receiving subsidized meals, percentage of English language learners, and grade in school (5th, 7th, 9th, 11th). Most of the control variables come from the CBEDS.

To examine the relationship between school health risk/resilience and changes in school-level CST scores, we plan to use regression techniques to estimate conditional change models (Finkel, 1995) — with controls for the baseline test scores, demographic, socioeconomic, and other factors. The conditional change model has the advantage of accounting for regression to the mean effects in evaluating predictors of change. To obtain standard errors of the parameters, we will take into account the dependence across grades and across multiple administrations of the CHKS among schools by using the Huber-White sandwich estimator of variance that relaxes the assumption of independence of observations (Huber, 1967; White, 1980).

This project will commence in July 2006 once the 2005–06 CHKS data are processed and included in the aggregate database. We believe that this project can be carried out in nine months. Because the data to be utilized are already collected and available for analysis, the main

tasks are to: 1) create and validate the measures, 2) develop and estimate the proposed models to examine the key questions, 3) write a non-technical report summarizing the findings, and 4) disseminate the results.

Dissemination Strategies. A technical research report and, for broader distribution, a more-accessible research brief will be developed and widely disseminate. We also plan to consult with state policymakers such as legislative committees and leadership in the California Department of Education regarding findings and implications of the study. In fact, California Department of Education staff have requested this analysis and plan to work with us to disseminate its findings to districts throughout the state. Based upon past experience with this type of study, we expect to present findings at various conferences in our region and nationally.

Project 1.2.6 California Healthy Kids Survey Modules for Evaluating Local Youth Programs (Strengthen Regional Research)

Issue and Rationale for Selection. Since Fall 2003, the California Department of Education has mandated biennial CHKS administration in grades 5, 7, 9, and 11 in every school district in the state with federal Title IV or state tobacco prevention funding. This mandate applies to every school in 85% of state school districts. With such widespread administration, county offices of education, school districts, schools, and independent evaluators are increasingly using the data collected by CHKS to evaluate their local programs. Capitalizing on the mandated administration of a standard instrument for local evaluation purposes has the benefit of reducing survey burden for students and providing comparable outcome data across different program evaluations. However, such widespread usage of the Elementary module and the Resilience and Youth Development module (RYDM) for local evaluation purposes may be premature. In neither of these modules have the psychometric properties of specific scales been established.

Based on previously collected data, WestEd proposes to conduct a series of psychometric analyses of the properties of the Healthy Kids RYDM and Elementary modules. The purpose of this analysis is to: a) contribute to the limited state of knowledge of how to best assess school connectedness and students' perceptions of the school environment; and b) determine whether modifications need to be made to the RYDM that would improve its ability to assess school connectedness and measure change in it over time, especially as part of a program evaluation. These analyses will provide important information regarding the appropriateness of the use of both the elementary as well as the secondary school RYDM for use in experimental and quasi-experimental intervention research. Rigorous improvement of the current CHKS instruments and clear indication of their psychometric properties for *current*, target populations will not only strengthen them methodologically but will also greatly expand the scope of their usage. This will benefit clients such as school districts and community agencies who already use the instruments and increase the visibility, competitiveness, and research applicability of CHKS.

Research Plan. The analysis involves examining: a) the dimensionality of scales via exploratory and confirmatory factor analysis (CFA) models; b) construct validity by examining the relationship of scales to other theoretically related constructs; c) measurement equivalence across demographic subgroups by estimating CFA models with covariates (i.e., MIMIC models) and multiple group CFA models; and d) construct reliability by estimating internal consistency reliability coefficients.

Dissemination Strategies. The results of the measurement analyses will be disseminated in a technical report and short research brief. We will also work with the California Department of Education and the California Comprehensive Center to train staff on how to use the instruments and further disseminate findings of this analysis.

Project 1.2.7 Dropout Prevention and Recovery Strategies (A Research Review)

Issue and Rationale for Selection. The nation's low graduation rates have come under intense public scrutiny this year. Newspapers have trumpeted a national crisis and several recent research reports have worried everyone from the White House to the board room, pressuring educators to reverse the tide. One third of those who enter high school do not leave with a diploma (Educational Testing Service, 2005). Especially vulnerable subpopulations, like Blacks, Hispanics, English learners, low-achieving students, and students with identified disabilities, report graduation rates well below 50% in many of our high-poverty communities (Lehr et al., 2004; Orfield, et al., 2004). On average, 2,805 students drop out of school each day, resulting in hundreds of thousands each year. In the 2000–01 school year, a projected 1,252,396 students entered 9th grade but did not graduate in 2004 (Hall, 2005). The U.S. high school graduation rate is now 17th among developed nations (Hall, 2005). Without a diploma, the minimum requirement for successful participation in the workforce, dropouts experience unemployment, poverty, criminal and other risky behaviors, and incarceration at much higher rates than graduates (Educational Testing Service, 2005).

The No Child Left Behind Act has generated urgency for high schools to reform and boost stagnant levels of achievement, and it is driving efforts to increase graduation rates for all students. Graduation rates are core to its public reporting and accountability provisions. Under the law, schools are held accountable for student progress using indicators of adequate yearly progress (AYP), including measures of academic performance and rates of school completion set by individual states. Graduation rates are an essential measure of high school performance.

WestEd is keenly aware of the dropout crisis nationally and in the western region in particular. At the request of state leaders, we have conducted state-specific analyses and published three reports on the specific needs of Nevada and California schools. Through recent targeted needs assessments conducted by WestEd, western regional educators and policymakers have requested high-quality research to better understand their dropout problem, develop policy responses, respond to NCLB requirements, and bring lasting solutions to schools.

Research studies have examined students who dropped out of school and the reasons why. Understanding predictors and variables associated with dropping out, and accounting for the “push” and “pull” factors that contributed to students leaving, provide an important foundation for designing and implementing effective intervention strategies. In our four states, however, educators, administrators, and policymakers have reported to WestEd that they are searching for more complete answers. Some of the nation's most challenged urban high schools are located in western communities, including Fresno, Oakland, San Diego, Stockton, Las Vegas, Los Angeles, Phoenix, and Tucson. Rural areas in the western region are hard-hit, too (Balfanz & Legters, 2004; Orfield, et al., 2004). In Arizona, nearly half of all Native American (48.3%) and Hispanic (42.7%) students are not completing high school (Cortez, A. & Cortez, J., 2002). A recent report on Utah's 8th graders identified 24% at risk for dropping out because they do not read well

enough to understand high school textbooks or complete assignments (Alliance for Excellent Education, 2005).

For decades schools have tried to prevent students from dropping out, or to help them re-enter school to graduate. These programs and practices include counseling, tutoring, alternative schools, after-school programming, mentoring, and service learning. Studies generally show that these efforts do not target students most at risk of leaving school, and they lack evaluation data to document effectiveness. Given the consequences of not graduating, and the time, staff, and dollar resources required to implement dropout prevention and recovery programs, there is a growing demand for information about what works.

Research Plan. In response to the needs of the western region, we propose to review the literature on the theory, practice, and evaluation of dropout prevention and recovery strategies and identify examples of national and regional interventions that show evidence of effectiveness. The proposed study will address two questions:

1. Which dropout prevention and recovery strategies are effective at reducing the high school dropout rate?
2. Which of these strategies are most effective for particularly vulnerable subpopulations in our region (e.g., Blacks, Hispanics, English learners, low-achieving students, students with identified disabilities, homeless/transient students)?

This review will follow the general process described earlier, specifically, collecting, screening, and identifying studies that address the effectiveness of dropout prevention and recovery strategies, focusing on those that provide sufficient evidence of causal validity. Selection criteria will be narrow in terms of focus (dropout prevention and recovery strategies, programs, and practices) and of methodology (randomized controlled trials, quasi-experimental studies, or longitudinal studies). Descriptive information will be used to explicate related theories and concepts, and to link the study more broadly to high school reform, school restructuring, and student motivation.

The selection process will be comprehensive and systematic. At a minimum, it will include reviewing key searchable databases (e.g., National Dropout Prevention Center, Educational Resources Information Center, and Education Abstracts); examining the NCLB School Dropout Prevention Program's grantees recognized for lowering dropout rates; working with state-level policy groups (e.g., Arizona's P-20 Council); scanning Web sites of organizations and agencies for online documents; reviewing bibliographies and reference lists from relevant studies, programs, and trainings; and contacting lead researchers and program developers for referrals. Screening tools, the coding frame, and the study design will be informed by related evidence-based syntheses such as the National Center on Secondary Education and Transition's *Essential Tools*; Collaborative for Academic, Social, and Emotional Learning's *Safe and Sound*; and the What Works Clearinghouse's evidence standards and forthcoming study on dropout prevention programs. Additionally, we will critically examine and possibly build upon the National Dropout Prevention Center's widely disseminated "15 Strategies" to increasing graduation rates and other secondary resources that claim to have an empirical base to their approaches (Smink & Schargel, 2004).

Dissemination Plan. Two products will result from this review:

- A research review that documents the review, how it was conducted, and the results.
- A policy brief aimed at policymakers at various education levels responsible for funding, designing, and evaluating dropout prevention efforts.

In addition to both publications being posted on the national REL Web site, the policy brief will be distributed in hard copy to state departments of education, county offices of education, school districts, and professional membership organizations in the region. To provide broader yet targeted access to the study findings, an online event will be held to launch the release of the review, providing an opportunity for policymakers and educators to discuss the results and their implications for specific states, districts, and schools. Possible follow-up activities might include additional online events for specific stakeholder groups, such as legislators within or across the region, district decision makers seeking or developing programs, or educators targeting an especially vulnerable subpopulation.

Project 1.2.8 Increasing College-Going Rates (A Research in Progress Symposium)

Issue and Rationale for Selection. Increasing college-going rates among historically underrepresented minority groups is a regional and national goal. Determining how to accomplish this goal remains a challenge. Because there are promising current initiatives in the western states, but only relatively weak scientific research evidence, we propose to cosponsor a “Research in Progress Symposium.” At this event, researchers and educators will explore current and emerging evidence, build greater understanding of the factors most commonly identified as contributing to success and how they look in practice, and highlight priorities for more rigorous research and evaluation.

The National Postsecondary Education Cooperative (NPEC) Working Group on Access to Postsecondary Education published a report on intervention programs for NCES (Gandara, 2001). The group mapped the types and features of early intervention programs and reviewed selected programs with analytic data. They identified some common elements in what appeared to be stronger programs, such as a key person to monitor and guide the students, high-quality instruction, a long-term investment, attention to cultural background, providing a peer group that supports students’ academic aspirations, and providing financial assistance and incentives. They recognized, however, that there were a number of significant limitations to the research base, since few programs had engaged in thorough or systematic evaluation.

Meanwhile, some promising programs have been identified in the western region. Arizona State University’s College of Education (ASU/CoE), for example, has supported state initiatives to increase graduation and college-going rates by studying state data and cosponsoring two research conferences in 2003 for southwestern states to share information and identify common problems and solutions. One promising site that emerged during ASU/CoE’s research is a high school with a demographic profile usually connected to a high dropout rate that manages, nonetheless, to beat the odds; in addition to graduating most of its students, it also sends most of them on to four- and two-year colleges.

For the last two years, ASU/CoE has been documenting, through both qualitative and quantitative methods, the approach of this school, Cibola High School, a large (2700 students) secondary school in a small city on the border with Mexico. The Cibola approach is well documented and its attainment rate data have been reviewed and are reliable. The school also fills a gap identified in the NPEC report: it uses a schoolwide approach, not a selective supplementary program.

California has also focused on this priority and hosted a statewide high school reform summit in 2004, one goal of which was to increase the rigor of high schools so that more students enter postsecondary education programs. The state has a number of schools and programs that have attracted attention. For example, San Diego State University's "Compact for Success" with Sweetwater Union High School District, launched in 2001, includes a guarantee that any 7th grader who keeps a B average through 12th grade and completes requirements without need for remediation will be admitted to SDSU, with a scholarship if needed. A communitywide initiative supports students to reach this goal.

Other schools in the region are also interested in establishing successful approaches to increasing graduation and college-going rates. They want to learn from research and the experiences of others. Schools need access to both examples of success and research and analysis to understand what features contribute to that success.

Research in Progress Symposium Plan. With ASU/CoE, the WREL will host an invitational symposium in the spring of 2006. This symposium will provide an opportunity to explore research, discuss practical implications, and learn from successful school and district experiences. The result, captured in a proceedings document, will be better understanding of the research base, exploration of conditions needed to support implementation, and identification of research and evaluation needed to establish a stronger evidence base.

We propose inviting a group of researchers, state policymakers, and educational leaders from schools and districts in the region who are engaged in efforts to increase college-going rates. The three-day symposium will feature presentations about ongoing research related to increasing college-going rates and discussions about both the promising features and weaknesses of such research.

The symposium will also feature presentations by representatives of promising high school initiatives and discussions about the policy, programmatic, and resource decisions they have made to implement their reforms.

Invited districts will also have an opportunity to share the challenges they face and work in small groups with researchers and policymakers to consider how the information shared from research and promising practices can be applied in their local settings.

Throughout the symposium sessions, participants will identify implications for further research and state and local policy.

Project 1.2.9 Course-Taking Patterns Among Minority Youth and Preparation for Postsecondary Education (Data Analysis)

Issue and Rationale for Selection. Throughout the western region, each state has raised the issue of high school achievement patterns. On one end of a continuum, state leaders have expressed concern over the extraordinary non-completion (dropout) patterns and what can be done to retain students in high school. At the other end, for students who are likely to complete high school, the identified concern is preparation for college and what can be done to increase the chances that students move on to postsecondary education. Research shows that the chances of attending college are radically decreased when students' early high school course patterns are out of alignment with college entrance requirements (Choi & Shin, 2003). To make matters worse, course patterns that render students ineligible for college, observable in countless high schools, have a disproportionate impact on those who are underrepresented in higher education institutions: African American, Latino, and Native American students.

Over the last seven years, the University of California has developed sophisticated technology for evaluating high school student transcripts as part of its Eligibility in the Local Context program, which attempts to increase diversity among the University's undergraduate population by identifying as eligible the top 4% of juniors in each California high school. Students from all areas of the state and across broad sociodemographic characteristics are assured a space in the University through this eligibility process.

As part of this effort, the program has begun analyzing the transcripts of California's 9th and 10th graders. Perhaps the most important finding of the implementation of the Eligibility in the Local Context program has been the observed changes in students' behavior upon receiving critical information about their chances of attending college. When alerted early, and given an explanation of steps to take to improve their chances of college eligibility, students are overwhelmingly responsive. Students take purposeful and deliberate steps to complete high school course patterns to ensure college eligibility.

In fact, transcript analysis increases access to and preparation for postsecondary education in three ways: 1) by prompting students to choose a course pattern that meets college eligibility and selection requirements; 2) by improving schools' capacity to use data to improve students' academic course choices, and 3) by institutionalizing within schools the interventions necessary for more students to meet the academic and financial aid requirements for enrolling in college and obtaining appropriate financial assistance.

The technology has been expanded over the past two years to assess students' progress toward meeting college entrance requirements, beginning with high school freshmen; the technology has been named the Transcript Evaluation Service (TES). The software that provides the foundation for TES is now fully operational; the implementation of programs to support its use is in place in 20 California high schools thus far. In addition, a comprehensive dataset exists with complete transcript information on over 60,000 high school students in California. In this project we will further analyze these data, and develop a training program to support use of these data by schools.

Research Plan. First, WestEd will work with the University of California to analyze the transcript data that have been collected with TES. The data currently includes information for a high school cohort of freshmen entering in Fall 2004. Additional panels of data are slated for collection in the spring of each year, consistent with the University's implementation of support programs for these 20 schools. These data will provide patterns of course-taking progress that can be analyzed by both student sociodemographic characteristics and school-level characteristics. For example, we are interested in understanding the progression patterns of high school students who start in 9th grade courses that are designated as English learner sections, but that do not meet college eligibility requirements. With access to additional historical data available within the University of California, we will be able to predict college-going patterns of current students based on the historical patterns that have been previously identified. Logistic modeling will provide likelihood estimates of college attendance based on course patterns early in high school.

Dissemination Strategies. WestEd will develop a dissemination program that describes the utility of analyzing course patterns early in students' high school careers. The dissemination program will describe findings from the data analysis described above. The initial product will be a research brief, which will, among other things, be posted on the national REL Web site.

In addition, WestEd will work with the University of California, the California State University and the California Community College systems to develop training programs that use these data for school-level planning. The training programs will feature specialized curriculum for the use of the data, information for school personnel, and strategies for providing ongoing support to low-performing schools to assist students in preparing for postsecondary education.

These training programs will draw upon new tools developed by the national Pathways to College Network, in which the University of California is a partner. That model is designed specifically to help educators increase the number of students well prepared for postsecondary success. It includes tools to help schools use data effectively, build upon their best practices, cultivate a community of practitioners who know how to encourage students to aspire to college, and track student preparation trends. To address the unique needs of limited English-proficient learners who face additional barriers in becoming college-ready, the training program will incorporate existing research about successful programs. Training will be developed in collaboration with the network of Regional Comprehensive Centers and will draw upon a network of professionals from each state within the region.

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Task 1: References

(b)(4)

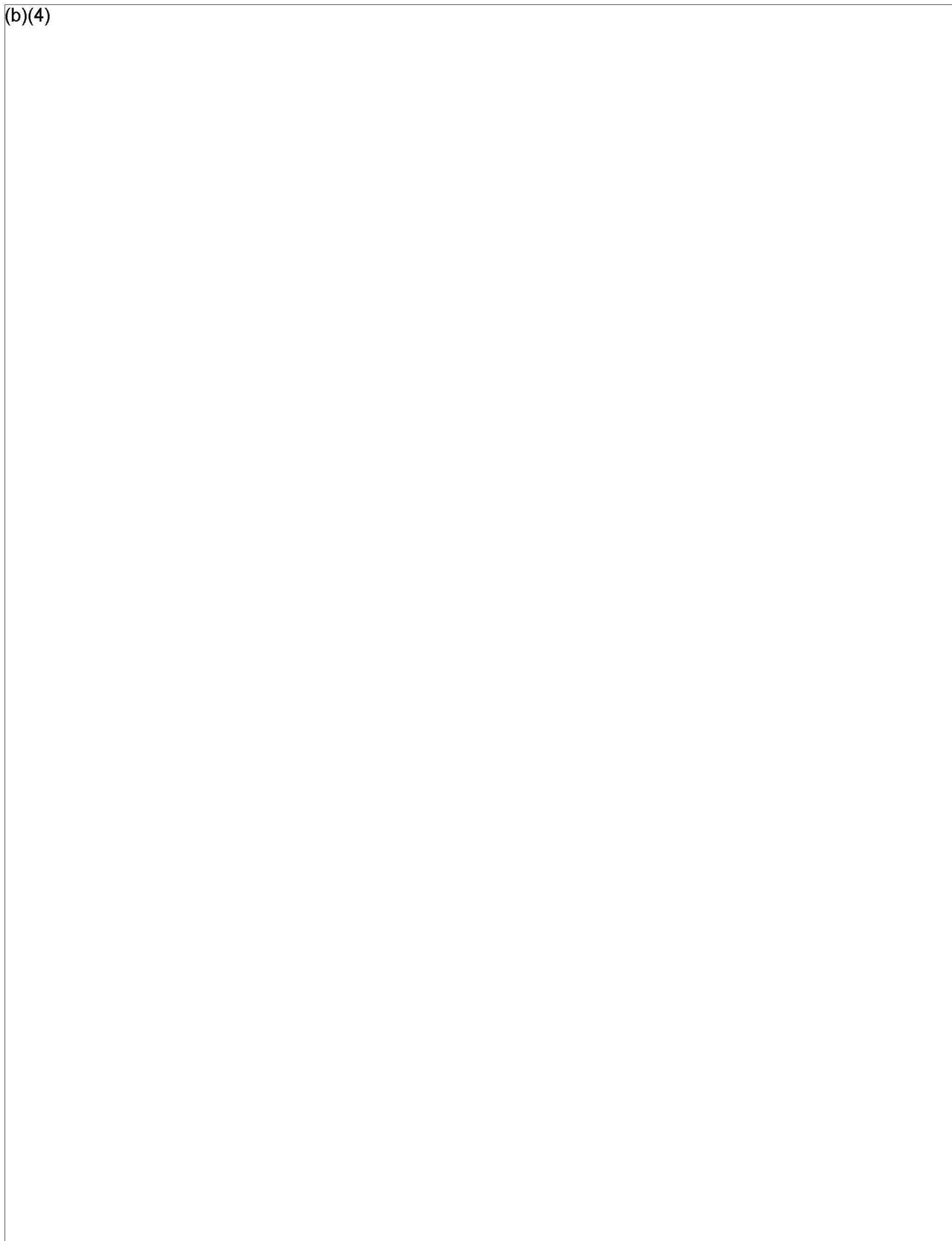
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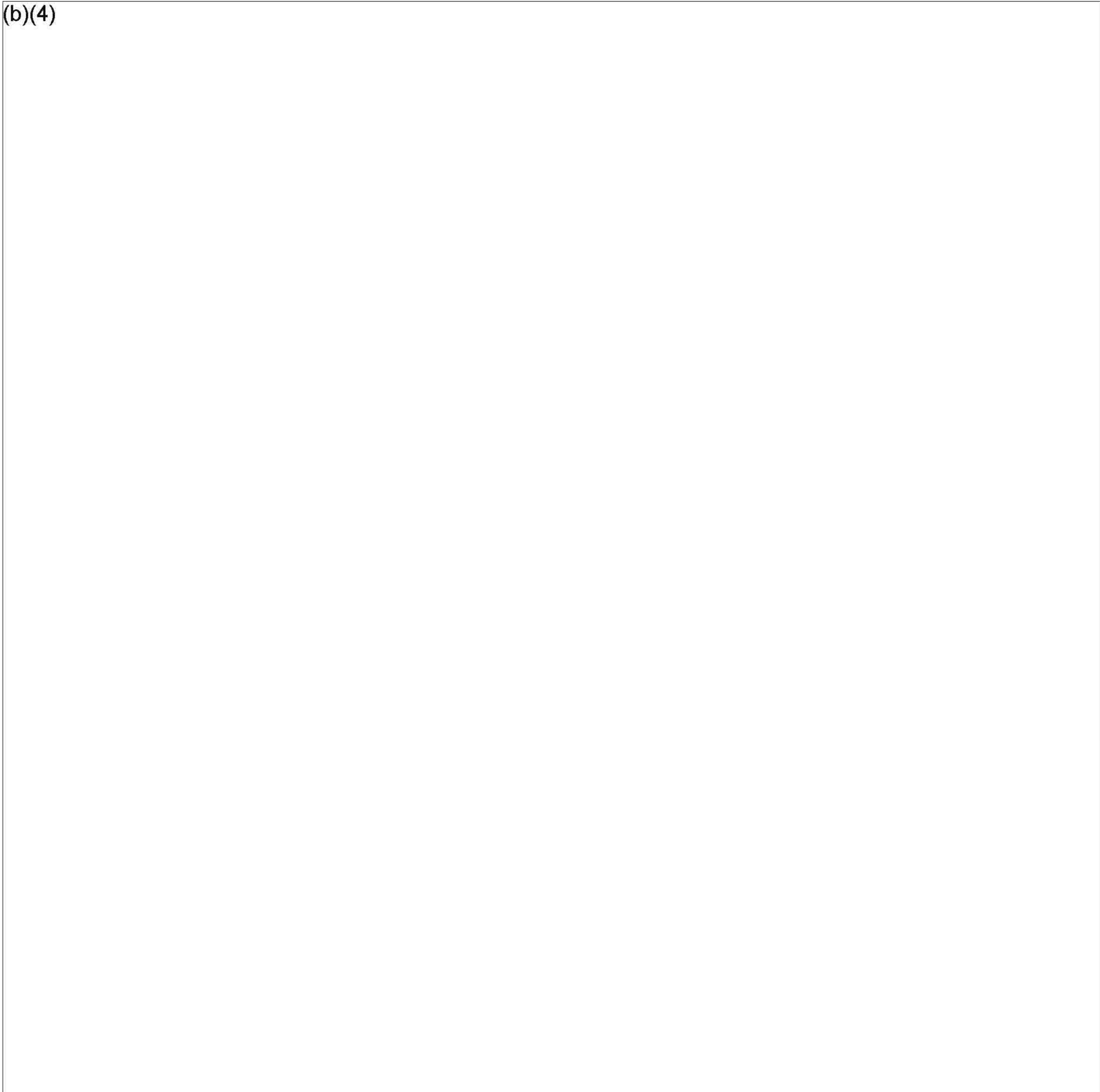
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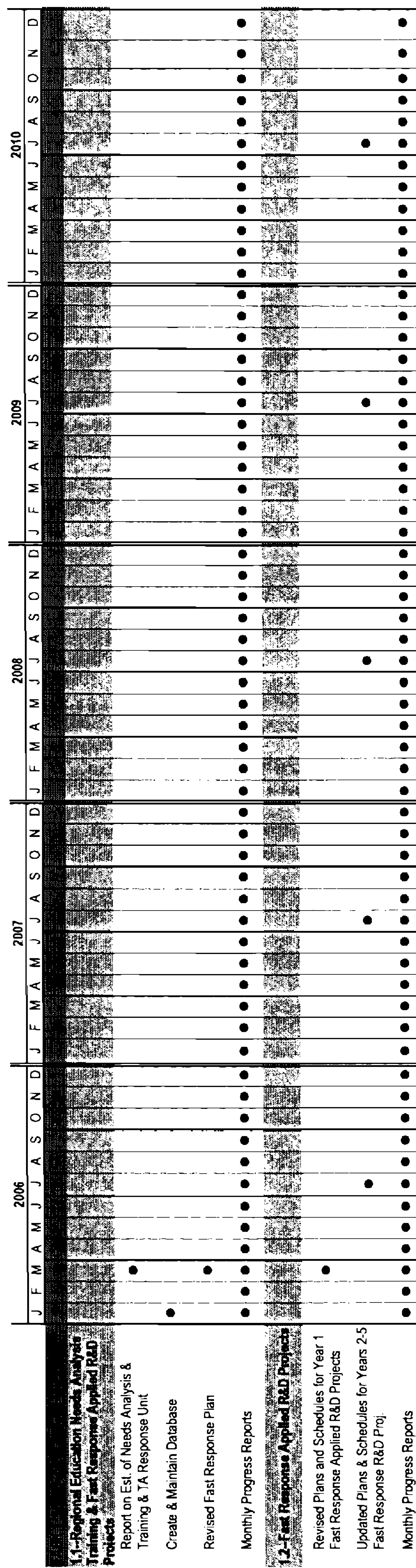
WREL TECHNICAL PROPOSAL

TASK 1:

**TIMELINE &
SCHEDULE OF
DELIVERABLES/
MILESTONES**

Task 1 Timeline

- Key**
- Deliverable/Milestone
 - S Research in Progress Symposium
- 1 Vocabulary development using middle school science
 - 2 Academic language development
 - 3 Alternative approaches to English learner instruction
 - 4 Achievement gap for English learners during the first six years of school
 - 5 Connections between risk and resilience factors and academic achievement
 - 6 California Healthy Kids Survey modules for evaluating local youth programs
 - 7 Dropout prevention and recovery strategies
 - 8 Increasing college going rates
 - 9 Course-taking patterns among minority youth preparation for postsecondary education



Task 1 Timeline (cont'd)

Task Description	2006			2007			2008			2009			2010		
	J	F	M	J	F	M	J	F	M	J	F	M	J	F	M
Project Implementation (1)															
1. Vocabulary development using middle school science			1												
2. Academic language development			2												
3. Alternative approaches to English learner instruction			3												
4. Achievement gap for English learners during the first six years of school			4												
5. Connections between risk and resilience factors and academic achievement			5												
6. California Healthy Kids Survey modules for evaluating local youth programs			6												
7. Dropout prevention and recovery strategies			7												
8. Increasing college going rates			8												
9. Course-taking patterns among minority youth preparation for postsecondary education			9												
Final Products for Each Fast Response Project															
Guide			1												
Symposia Proceedings			8												
Research Critique			2												
Research Review			7												
Research Brief			6			3									
Policy Brief			5			5									
Final Products for Each Fast Response Project (including ERIC submission)															
Guide			1												
Symposia Proceedings			8												
Research Critique			2												
Research Review			7												
Research Brief			6			3									
Policy Brief			5			5									
															7

(1) End dates do not reflect dissemination and training.

Task 1 Schedule of Deliverables/Milestones (cont'd)

TASK	DELIVERABLE/MILESTONE	DUE DATE (from start of contract)
Task 1		
1.2	Fast Response Applied R&D Projects	
	Draft Products for Each Fast Response Project	
1.2.1	Draft Guide: Vocabulary development using middle school science	September 2006
1.2.2	Draft Research Critique: Academic language development research in progress symposium	November 2006
1.2.3	Draft Research Brief: Alternative approaches to English learner instruction	March 2007
1.2.4	Draft Research Brief: Achievement gap for English learners during the first six years of school	November 2006
1.2.5	Draft Research Brief: Connections between risk and resilience factors and academic achievement	March 2007
1.2.6	Draft Research Brief: California Healthy Kids Survey modules for evaluating local youth programs	July 2006
1.2.7	Draft Research Review: Dropout prevention and recovery strategies	January 2007
1.2.7	Draft Policy Brief: Dropout prevention and recovery strategies	May 2007
1.2.8	Draft Proceedings: Increasing college going rates	September 2006
1.2.9	Draft Research Brief: Course-taking patterns among minority youth and preparation for postsecondary education	December 2006
	Final Products for Each Fast Response Project (including ERIC submission)	
1.2.1	Final Guide Vocabulary development using middle school science	October 2006
1.2.2	Research in Progress Symposium: Academic language development	July 2006
1.2.2	Final Research Critique: Academic language development research in Progress symposium	December 2006
1.2.3	Final Research Brief: Alternative approaches to English learner instruction	April 2007

Task 1 Schedule of Deliverables/Milestones (cont'd)

TASK	DELIVERABLE/MILESTONE	DUE DATE (from start of contract)
1.2	Fast Response Applied R&D Projects Final Products for Each Fast Response Project (including ERIC submission)	
1.2.4	Final Research Brief: Achievement gap for English learners during the first six years of school	December 2006
1.2.5	Final Research Brief: Connections between risk and resilience factors and academic achievement	April 2007
1.2.6	Final Research Brief: California Healthy Kids Survey modules for evaluating local youth programs	August 2006
1.2.7	Final Research Review: Dropout prevention and recovery strategies	February 2007
1.2.7	Final Policy Brief: Dropout prevention and recovery strategies	June 2007
1.2.8	Final Proceedings: Increasing college going rates	October 2006
1.2.8	Research in Progress Symposium: Increasing college going rates	May 2006
1.2.9	Final Research Brief: Course-taking patterns among minority youth and preparation for postsecondary education	January 2007

WREL TECHNICAL PROPOSAL

TASK 2:

TASK 2: RIGOROUS APPLIED RESEARCH AND DEVELOPMENT

WestEd proposes to conduct seven Randomized Controlled Trials (RCTs) to establish causal evidence of the impact of interventions that: a) are well defined and fully developed, b) have shown promise through preliminary studies, and c) address high-priority needs in the region. The portfolio of studies includes impact evaluations of programs and curricula developed by WestEd as well as programs and practices developed by others. Interventions originally developed by WestEd will be evaluated by subcontractors: Berkeley Policy Associates (Dr. Hans Bos, President) and Heller Research Associates (Dr. Joan Heller, President). Having these products and services independently evaluated by outside agencies will enhance the validity and credibility of research findings.

To describe efficiently the portfolio of planned Task 2 studies in this proposal, we provide an overview of the evaluation approach used across all the studies, including a description of the levels of random assignment and counterfactual conditions, efforts to maintain the integrity of the experimental design, data analytic procedures, and our approach to statistical power analysis. After describing our overall evaluation approach, we provide complete descriptions of each individual study. This section concludes with additional information about our compliance with the Privacy Act, protection of human subjects in research and collaboration in the REL network.

Cross-Cutting Themes

The studies that have been chosen individually and collectively provide research that is critical to the western region. In addition to conducting research that stretches from early childhood through high school, the portfolio of Task 2 studies emphasizes work that is central to reducing well-documented achievement gaps. Specifically, the gap between English learners and native English speakers is of critical importance and a focus of several of the proposed studies. In addition, several of our studies include work in rural parts of the region, testing academic programs that could be useful if they were to demonstrate effects that could be implemented in greater scale in the future. Table 1, on the following page, shows the portfolio of Task 2 studies we propose. A general timeline for implementing these studies follows; a comprehensive task timeline has been included in this proposal under Task 5, and includes critical deliverables.

Organizational Capacity to Conduct RCTs

WestEd, Berkeley Policy Associates, and Heller Research Associates have a proven record in conducting large-scale randomized-controlled trials and quasi-experimental research. To conduct each stage of the research process, staff from these agencies lend their substantial experience in design, sampling, instrument selection, recruitment, randomization, data collection, analysis and reporting. Our experience includes numerous examples of how optimal designs of RCTs meet practical constraints in the daily operations of schools; this proposal explains a number of strategies we will use to maintain the integrity of the research at all stages. A sample of the prior experience of these agencies to conduct large-scale RCTs is shown in the Organizational Capacity statement of this proposal and in the resumes of key personnel.

Table 1. Portfolio of Task 2 Studies

Name	General Content	Lead Researcher	Special Components	Intervention (delivery)	Unit of Assignment	Sample	Teacher Outcomes	Student Outcomes
A	Math Pathways and Pitfalls	H. Bos, Berkeley Policy Associates	EL, Urban/Rural, Teacher quality	Math Teacher PD courses + supplementary student lesson materials (audiovisual)	Schools	3,000 students/120 teachers/60 schools	Content and pedagogical knowledge; instructional practice	Mathematics achievement
B	Science Cases Prof. Dev.	J. Heller, Heller Research Associates	EL, Urban/Rural, Teacher quality	Science content-focused Teacher PD specific to ELs (in person)	Schools	3,000 students/120 teachers	Science content; pedagogical knowledge & instructional strategies	Science content knowledge; academic language use
C	Quality Teaching for English Learners	H. Bos, Berkeley Policy Associates	EL, Urban, Teacher quality	Teacher PD + coaching specific to ELs (in person)	Schools	12,000 students/240 teachers/40 schools	Content knowledge; pedagogical practices & beliefs	Oral & written English language proficiency
D	High School Instruction: Problem-Based Economics	N. Finkelstein, WestEd	Urban/Rural, Teacher quality	Economics curriculum (in person)	Schools	2,400 students/150 teachers/60 schools	Pedagogical practices & beliefs	Economics achievement; content-specific skills & interests
E	Program for Infant/Toddler Caregivers	H. Bos, Berkeley Policy Associates	EL, Urban/Rural, Teacher quality	Caregiver PD + on-site coaching (in person)	Childcare sites	1,650 children in 240 child care sites	Childcare quality	School-readiness; cognitive, language, & social development
F	Lessons in Character	T. Hanson, WestEd	Urban/Rural, Teacher quality	Language arts curriculum supplement (in person)	Schools	15,000 students/50 schools	N/A	Academic achievement; Student character traits and behavior, social skills
G	Assessment Accommodations	S. Rabinowitz, WestEd	EL, Urban/Rural	Alternative testing accommodation practices (n/a)	Students	550 students per study	N/A	Test score achievement

The proposed studies begin with the implementation of a consultation and approval process with IES, our Technical Working Group, and the Office of Management and Budget (OMB). Following this planning and design phase, the interventions for each of the RCTs is anticipated to follow the schedule shown in Table 2, below. The intent is to stagger the implementation of the RCTs over the five-year period, acknowledging the time required to plan and put into place all of the components of the research program. Detailed study timelines follow this narrative.

Table 2. Proposed Implementation Timeline: WREL Task 2 Studies

	2006				2007				2008				2009				2010			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Study A - Scaling MPP																				
Study B - Science Cases																				
Study C - QTEL																				
Study D - High School Economics																				
Study E - PITC																				
Study F - Character Education																				
Study G - Assessment																				

Formation of a Technical Working Group (TWG)

A Technical Working Group (TWG) has been assembled to provide consultation on the design, implementation and analysis of each of the Task 2 studies. Our advisors will provide assistance on issues of methodology across all of the studies proposed. In addition, all of the TWG members are specialists in particular content areas that are represented in the proposed portfolio of work. The TWG is expected to consult for five days per year through a combination of in-person and teleconferenced meetings. We have commitments from colleagues listed below. Biographical statements for all of the TWG members are included in the Personnel section of this proposal.

- Professor Jamal Abedi, CRESST, University of California, Davis
- Dr. Lloyd Bond, Carnegie Foundation for the Advancement of Teaching
- Professor Geoffrey Borman, University of Wisconsin
- Professor Brian Flay, Oregon State University
- Dr. Tom Good, University of Arizona
- Dr. Joan Herman, CRESST, University of California, Los Angeles
- Professor Heather Hill, University of Michigan
- Dr. Roger Levine, American Institutes for Research (AIR)
- Dr. Jason Snipes, Manpower Demonstration Research Corporation (MDRC)

General Evaluation Approach

We provide an overview of the evaluation approach used across all the studies below, followed by complete descriptions of each individual study. We look forward to reviewing these approaches in detail with the TWG and with IES program staff.

Level of Random Assignment^{A-SeePg61}

The portfolio of studies described below all rely on randomized experimental designs to assess causal impacts of programs and practices on academic achievement and related high-priority needs in the region. Of the seven studies proposed for Task 2, all but one utilize *cluster random-assignment* procedures, whereby *schools* or *childcare centers* serve as the unit of randomization and the units of observation (students and teachers) are nested within these clusters. Such designs are used because of their feasibility, cost-effectiveness, and usefulness in helping to guard against the contamination of study conditions. Although cluster-randomized designs maintain the inherent internal validity that randomization imparts and are consistent with how programs, curricula, and practices are typically delivered in educational settings, such designs provide less statistical precision of impact estimates than those based on individual randomization. To achieve an acceptable margin of error, sample sizes in studies that use cluster random assignment must be larger than is the case with studies that use individual randomization. The remaining study, the *Assessment Accommodation* study, randomly assigns *students* within purposively selected sites directly to experimental and control groups.

Counterfactual Conditions

Across all but one of the studies (see *Assessment Accommodations* study), the control groups generally represent treatment-as-usual conditions. Control group members will be exposed to the ties in their sites, but will be barred from participating in the treatment. It is also possible that schools, childcare centers, or teachers may change practices because they were assigned to the control condition. We generally view such practices as representing the appropriate counterfactual in the studies described herein, as such practices represent alternative implementation decisions. Moreover, counterfactual conditions will often vary from site to site within each study. Each study will put in place a monitoring system to assess professional development activities, curricular activities in both treatment and control conditions to better interpret observed program impacts, or lack thereof, as well as to document the treatment contrast.

Recruitment, Securing formal Agreements, and Assuring High Response Rates

WestEd has a long history in the western region conducting research and providing technical assistance to schools and school districts. As a consequence, we have the support of several superintendents who are ready to consider conducting large-scale RCTs in their districts (see letters attached as a sample). Each study will begin with the development of a recruitment plan and the assignment of a recruitment coordinator; the plans will vary but range from engaging small groups of teachers in rural areas to participate (high school economics study) to the agreement of a large district to adopt a sustained professional development model over several years (QTEL). The planning process includes understanding current and anticipated reform strategies that could confound the RCT, mobility patterns of students and teachers, support from senior district officials, the quality of data systems, and an assessment of the need for the particular intervention. In developing each study, incentives for participant support have been considered. These incentives range from institutional incentives to individual incentives to compensate teachers for their time associated with participating in the studies. Several of the studies include our commitment to provide the treatment on a delayed basis to the control group, following the completion of the treatment period, should a positive impact be found. Data

structures will be developed to track recruits, carefully acknowledging that once an individual has committed to be in the study, it is possible that they will miss treatments or drop out of the study completely. As noted in the following sections, we intend to manage systematically these practical and analytic problems. Recruits will need to provide relevant contact information, including the names of family members likely to know a forwarding address.

Once oral confirmation of study participation is received, a memorandum of understanding (MOU) will be sent to each site outlining what support and possible compensation sites will receive for participating in the study, the roles and responsibilities of both research staff and site staff, and estimates of the time required to collect data.

We propose to use a combination of good survey design, good initial collection of contact information, and very persistent follow-up to achieve high response rates across all the studies. Survey data are processed immediately to identify non-respondents, who are then scheduled for follow-up administration. We will implement special procedures to follow up with students who either move to a different school or move out of the district. We use financial or other incentives to ensure high response rates among respondents. In our experience, it is most important to closely monitor the progress of survey administration and to make quick and decisive adjustments to the survey protocol when response rates fall below key targets. Such flexibility requires high-level attention to survey progress by the Project Directors and task leaders for data collection and analysis. Extensive personal experience in administering and managing survey efforts enables us to recognize when problems occur and to take steps to address them. All of our proposed senior-level project staff have hands-on experience with managing survey efforts and the use of survey data in experimental and quasi-experimental studies.

Maintaining the Integrity of Experimental Design

No Shows. Although each study includes a plan to monitor and insure implementation fidelity, for many of the studies, particularly those requiring teachers to participate in professional development activities, it is likely that non-trivial numbers of participants assigned to the treatment group will not participate in intervention activities. Nonparticipation by significant numbers of those targeted to receive the intervention would likely dilute potential program impacts. Across all the studies, extensive efforts will be made to collect data from such non-participants, and levels of participation in the intervention will be monitored through surveys and records. So as not to bias impact estimates, all such participants will be kept in the impact analysis in their original, assigned groups to avoid sample selection bias. That is, an intention-to-treat analysis (ITT) will be performed. ITT refers to the fact that random assignment only ensures that those assigned to the program experience it.

Although we believe that ITT estimates represent the most straightforward, unbiased, policy-relevant estimates represent the impact of *offering* an intervention and are not influenced by self-selection

estimates using the procedures proposed by Heckman and Ichimura (1995) estimates that randomization only influences outcomes for individuals who receive intended treatment. The treatment effect is estimated by the proportion of the treatment group members who received the treatment. TOT

analyses provide estimates of program effects for those who actually received the intervention. Such estimates are thus more consistent with how people think of program effects (Gennetian et al., 2005).

In addition to recalibrating ITT impact estimates to represent TOT impacts, we also plan to use instrumental variables (IV) techniques to estimate the effects of program participation on outcomes (Angrist, Imbens, & Rubin, 1996; Gennetian et al., 2005). In an IV framework, the random assignment variable is used to predict program participation. The resulting predicted value is subsequently used as an explanatory variable in an analysis of the effect of program participation on each outcome. By only using the predicted value of program participation due to the random assignment variable, any inherent bias in the observed relationship between program participation and the outcome is removed from the analysis. TOT and IV estimates of program impacts are of only *secondary* interest, however. The primary estimate of program impacts will be based on ITT analyses.

Crossovers. One of the strengths of a design in which schools or childcare centers are the unit of assignment is that the spacial separation of sites reduces the possibility of control group contamination. That said, however, there is still potential for breaches in the planned random assignment. For example, because teachers assigned to the intervention and control groups will often be employed in the same district, there is the potential for teacher re-assignment to schools opposite to the assigned condition. Moreover, there is the potential for control teachers to learn about and thus potentially participate in the PD, or for district staff to fill empty slots in the intervention with control teachers. Various steps will be taken to prevent and correct breaches in the planned random assignment, including: 1) memorandums of understanding regarding the integrity of the design, signed by all participants and other relevant parties; 2) the establishment of a toll-free telephone number for program staff to contact evaluation staff with questions and requests for assistance regarding the planned random assignment and contamination; and 3) careful monitoring of treatment crossover with periodic site check-in phone calls/emails/visits and the inclusion of questions on surveys asking about exposure to specific PD activities. ^{B-SeePg61}

Attrition. A high level of sample attrition is unacceptable for the integrity of the experimental design. Sample attrition relates to our ability to collect outcome data on all who were randomly assigned at the start of the study. Serious violations in this regard will likely cause significant biases in the estimated program effects. For example, in a study in which schools are randomly assigned to program and control schools, if several program group schools drop out of the study, it is likely that both the background characteristics and the expected outcomes in these schools are different from the ones that remain. As a result, program impacts may appear more or less favorable than they should. There is no reliable way to identify control schools to accompany the program schools that left the study. For this reason, it is critical that any schools or other institutions that agree to participate in the proposed studies remain involved in the research efforts until all data collection is completed, even if they were unable to fully implement the intended program treatment. This is a key focus of the upfront recruitment efforts that are part of every study proposed here.

To the extent that attrition occurs, it is most likely to occur *after* the first year of program implementation in each study, and thus impact the analysis of second year outcomes. Only three of the seven studies in the portfolio involve delivery of more than one year of program services/curricula to intervention targets. The QTEL, PITC, and Lessons in Character studies are

structured to provide two or more years of implementation, and will thus require even greater efforts to prevent attrition. Selective attrition (i.e., differences between participants and non-participants) represents a threat to external validity while differential attrition (differences between non-participants across experimental conditions) is a threat to internal validity. It is conceivable that burdens of intervention activities will be associated with differential attrition, which can represent a grave threat to internal validity. We think it more likely that selective attrition will compromise external validity and statistical power. Both selective and differential attrition will be investigated in the data analysis.

Although all efforts will be made to minimize attrition from the study, our estimates of treatment effectiveness will be biased to the extent that unmeasured factors associated with attrition are related to predictor and outcome measures. To correct for this potential bias, we will use *inverse probability weighting* between non-random attrition and our outcome variables. This method is similar to the propensity score method developed in the prevention literature (Rosenbaum & Rubin, 1983, 1984). We will also experiment with multiple-imputation techniques to impute values for respondents who dropped out of the study (Schafer, 1997).

Missing Data. Even though extensive efforts will be made to collect data from all participants who have been assigned to experimental conditions, there is still likely to be some missing data. Deletion of cases with missing values (listwise deletion) will adversely affect the efficiency of our estimates and will result in invalid inferences regarding the effects of predictor variables on outcomes unless data values are missing completely at random (King, et al., 2000; Little & Rubin, 1987; Schafer, 1997). Unfortunately, data values are not likely to be missing completely at random, as respondents who do not provide answers to survey items are likely to differ from those that do. When warranted, we will use *multiple imputation by chained equations* (MICE) which is a flexible and produces estimates that are unbiased and efficient when data values are missing at random, conditional on observed variables in the data set (Schafer & Olsen, 1998).

Assessing the Integrity of the Experimental Design

The internal validity of each study depends on the integrity of the random assignment process. We will conduct several sets of analyses to assess the success of the random assignment. First, using data applicable to the pre-intervention period, we will conduct statistical tests to examine baseline differences between treatment and control groups. Second, we will examine the mobility and attrition of study participants using follow-up data. And finally, using site-level interview and observational data, we will monitor changes unrelated to the interventions in both treatment and control sites. Such changes include exceptional events, changes in policies, changes in leadership, and changes in local site environments.

Impact Analyses

The analysis of program impacts will depend on the random assignment research designs utilized in each study as a primary source of inference. Adjusted post-intervention outcomes for students, teachers, or other participants in the treatment group will be compared to the outcomes for their counterparts in the control group. For the studies utilizing a cluster-randomized design, the primary hypothesis-testing analyses will involve fitting conditional multilevel regression models

(HLM), with additional terms to account for the nesting of individuals within higher units of aggregation (e.g., see Goldstein, 1987; Raudenbush & Bryk, 2002; Murray, 1998). For example, the *Math Problems and Pitfalls* (MPP) study involves school-level random assignment and delivery of training courses to teachers within treatment schools, who in turn incorporate 10 supplementary lessons into their classroom mathematics instruction. The design thus involves clustering at the school and classroom levels, as students are nested within teachers and teachers are nested within schools. A random effect of school site and teacher will be included in the model to account for the nesting of observations within schools and teachers, respectively. Potential fixed effects include treatment group, baseline (pretest) measures of outcome variables, and other individual and aggregate school- and teacher-level covariates. The purpose of including statistical controls is not to remove potential sources of bias from the impact estimates, which is the purpose of the experimental research design, but to minimize random error and to increase the precision of the estimates.

Using the MPP impact analysis as an illustrative example of the types of analyses we plan to perform, consider the following three-level hierarchical linear model (HLM) for a continuous outcome:¹

$$\text{Math}_{i,j,k} = \alpha_0 + \beta_1 \text{Pre}_{i,j,k} + \beta_2 \text{Tx}_k + \sum \beta_I \text{I}_{i,j,k} + \sum \beta_T \text{T}_{j,k} + \sum \beta_S \text{S}_k + \tau_{j,k} + \mu_k + \varepsilon_{i,j,k} \quad [1]$$

where subscripts i , j , and k denote student, teacher, and school, respectively; the nesting is reflected by the colons (:); *Math* represents student mathematics achievement; *Pre* represents the baseline measure of the outcome variable; *Tx* is a dichotomous variable indicating student attendance at the school assigned to the treatment condition; and I , T , and S are three vectors of control variables for students, teachers, and schools, respectively, measured prior to exposure to the intervention. Lastly, τ and μ represent random variables for teachers and schools (clustering groups), respectively, and $\varepsilon_{i,j,k}$ is an error term for individual sample members. In this model, the intervention effect is represented by β_2 , which captures treatment/control school differences in changes in the outcome variable between pretest and posttest. $\tau_{j,k}$ and μ_j capture random effects (intercepts) of teacher and school, which account for the positive intraclass correlations in the data. When warranted, analogous models will be estimated for teacher outcomes, except such models entail only two levels of nesting (i.e., teachers nested within schools).

Simple extensions to model [1] allow us to examine differential effectiveness across subgroups by including interactions between treatment status and one of the variables in I , T , or S . Model [2], for example, shows how we can estimate separate program effects for boys and girls:

$$\text{Math}_{i,j,k} = \alpha_0 + \beta_1 \text{Pre}_{i,j,k} + \beta_{2B} \text{Tx}_k \text{Boy}_{i,j,k} + \beta_{2G} \text{Tx}_k \text{Girl}_{i,j,k} + \sum \beta_I \text{I}_{i,j,k} + \sum \beta_T \text{T}_{j,k} + \sum \beta_S \text{S}_k + \tau_{j,k} + \mu_k + \varepsilon_{i,j,k} \quad [2]$$

The only difference between this model and [1] is that the term $\beta_2 \text{Tx}_k$ is replaced by two terms that interact program variable Tx_k with dichotomous variables boys and girls. Program impacts on boys and girls are captured by the coefficients β_{2B} and β_{2G} , respectively. By statistically testing the hypothesis $\beta_{2B} = \beta_{2G}$, we can then establish whether program impacts are statistically different for boys and girls. Similar subgroup analyses will be possible across teacher and school-level variables. However, the statistical power of such higher-level subgroup analysis is very limited, especially at the school level and especially for subgroups that encompass relatively few schools.

¹ For binary outcomes, a conditional mixed-effects logistic model will be estimated.

The *Assessment Accommodation* study (*Study G*) described below involves *individual* random assignment of students in purposively selected sites *directly* to treatment and control conditions. Because sites will be selected purposively, we rely on fixed effects multivariate regression models to estimate program impacts. These models are analogous to the multilevel models described above, except they do not account for the clustering within sites and classes.

Program Variations in Impact. In the majority of studies, traditional or multilevel regression models will also be used to examine how intervention characteristics (e.g., implementation fidelity) are related to program effectiveness. Because the designs do not involve random assignment to different types of implementation regimes, these analyses will be purely descriptive in nature, and should not be used to make causal inferences. Nonetheless, the results from these analyses may be useful for planni

[1] and [2] will be estimated, except only the treatment group will be analyzed, and covariates will be included for measures of implementation.

Statistical Power Considerations

A Priori Stratification. To improve precision of impact estimates and to guard against chance non-equivalence between randomly assigned conditions, sites (e.g., schools and childcare centers) will be matched prior to randomization in the cluster assignment studies. With potentially high levels of heterogeneity across sites, non-equivalence between conditions is still possible, especially when the number of groups is limited. In the studies that randomize schools to condition, similar schools will be matched based on two factors: 1) a composite index composition (see California Department of ic performance, holding constant the socio-demographic characteristics of its students. Each potential participating school will be located in multidimensional space defined by these factors, and matched with one other school. Matched schools will be randomly assigned to treatment and control conditions. If feasible, an analogous procedure will be used for the PITC study, except only the composite socio-demographic index, perhaps based on census-tract data, will be use to match childcare sites.

Statistical Power. In order to determine the appropriate sample sizes required for the study designs presented in this proposal, we calculated *minimum detectible effect sizes* (MDES) based on the unit of randomization, the sources of clustering, the availability of baseline explanatory variables, and other design characteristics applicable to each study using the procedures described by Donner and Klar (2000), Murray (1998), Raudenbush (1997), and Schochet (2005). MDES estimates represent the smallest *true* program impacts in standard deviation units that can be detected with high probability (Bloom, 1995). As defined in our design work, the MDES of a particular study is the smallest effect size that has at least an 80% probability of being found statistically significant with 95% confidence. For a design to be sufficiently powerful, this MDES must be small enough so that a likely program impact that is large enough to be policy-relevant does not go undetected.

In general, our proposed study designs ha student-level and teacher-level outcomes, respectively. Given that most professional development program designs seek to affect students by changing the qualifications or classroom practice of their teachers, larger MDESs at the teacher level are acceptable, since impacts at the more proximal teacher level will tend to produce smaller subsequent impacts at the more distal

suggest that student-level effect sizes of this level are typical in educational interventions and are of sufficient magnitude to close achievement gaps across subpopulation groups (Agodini et al., 2003; Finn & Achilles, 1999; Schochet, 2005). Indeed, if placed in the context of the natural progression of student learning, student effect sizes of 0.20 appear quite large. Analysis of test score data from the Longitudinal Evaluation of School Change and Performance data found that scores increased by about 0.70 standard deviations, on average, during the school year. Such an increase suggests that a standardized effect size of 0.20 is equivalent to the test score growth that students experience after exposure to three months of

Due to the clustered nature of the data in most of the studies, subgroup analyses at the student level tend to be more powerful than subgroup analyses at the teacher or school level. Reducing the number of clusters in any given analysis has a much more deleterious effect on statistical power than reducing the number of observations by the same proportion.

The reduction in statistical power associated with cluster random assignment designs (and the concomitant increase in the required sample size) depends on the extent to which observations that share a cluster (e.g., school) also share the same background characteristics. Statistically, this phenomenon is captured by the intraclass correlation (ICC). The ICC is defined as the proportion of all the variation in an outcome measure that is between clusters as opposed to within clusters. The larger the ICC, the more different each cluster is from the others and the more likely it is that any random selection of clusters will be different from any other one. As illustrated below, the level of clustering within sites has a substantial impact on the precision of impact estimates.

Table 3 presents MDES estimates for various design, sample size, and clustering scenarios. We present MDES estimates across four different clustering scenarios, 10 different sample size scenarios, and for models with and without covariates. The table shows the number of sites (J), the number of individuals (e.g., students or teachers) in each site (n), their multiple (nJ , which is the total sample size), and eight estimates of the MDES for different levels of the intraclass correlations and covariates. Assumptions are displayed at the bottom of the table. Note that for student outcomes, we assume between-school and within-school R^2 values of 0.50, based on our limited knowledge regarding the explanatory power of covariates for the teacher outcomes, we conservatively assume that covariates explain 20% of the within-school and between-school variation in these outcomes. Also note that our MDES estimates only account for clustering at the highest level of clustering.

When schools are randomly assigned to condition, we only take into account the clustering of students within schools and ignore the nesting of students within teachers in schools when we calculate MDES. Research suggests that clustering within intermediate nested subunits has little influence on Type 1 errors (Murray, Hannan & Baker, 1996).

The highlighted rows show MDES estimates for typical sample sizes used in the studies described in the proposal. Row 8 shows that the full sample for a typical study, which includes 40 schools with 100 students each, will allow us to detect student-level impacts with an effect size of as little as 0.16. Row 3 shows that the MDES is between 0.40 and 0.49 for teacher-level

outcomes, assuming five teachers per school and the presence of covariates. The other rows show how varying the number of schools in any given analysis would change the results. These types of statistical power analyses were conducted for each of the studies presented here and the MDES associated with each of the proposed designs are presented in the accompanying text.

The estimates in Table 3 illustrate that the level of clustering within sites has a substantial influence on the precision of impact estimates, and thus the required sample sizes necessary for

Table 3. Minimum Detectable Effect Sizes (MDES) for Different Combinations of Sites and Individuals

	J ^A	n ^B	n*J ^C	Intraclass Correlation								
				No Covariates				Covariates				
				$\rho=.20$	$\rho=.15$	$\rho=.05$	$\rho=.00^D$	$\rho=.20$	$\rho=.15$	$\rho=.05$	$\rho=.00^D$	
Teachers												
1	20	5	100	.79	.75	.65	.56	.71	.67	.58	.50	
2	30	5	150	.64	.60	.52	.46	.57	.54	.46	.41	
3	40	5	200	.55	.51	.45	.40	.49	.46	.40	.36	
4	50	5	250	.49	.46	.40	.36	.43	.41	.35	.32	
5	60	5	300	.44	.42	.36	.32	.39	.37	.32	.29	
Students												
6	20	100	2000	.60	.53	.32	.12	.43	.37	.23	.09	
7	30	100	3000	.48	.42	.26	.10	.34	.30	.18	.07	
8	40	100	4000	.41	.36	.22	.09	.29	.26	.16	.06	
9	50	100	5000	.37	.32	.20	.08	.26	.23	.14	.06	
10	60	100	6000	.34	.29	.18	.07	.24	.21	.13	.05	

Notes: ^ANumber of sites (e.g., schools, childcare centers)

^BIndividuals (e.g., students, teachers) per site

^CTotal sample size

^DEstimates assume students are the unit of assignment and that clustering does not inflate the variance of impact estimates. Calculations are based on the following assumptions: 1) equal numbers of sites assigned to experimental and control conditions, 2) statistical power levels of .80, 3) Type I error rates of .05 (two-sided), 4) a fixed-effects statistical model, 5) covariates used in the analysis explain 50% of the within- and between-site variance for student outcomes, and 6) covariates used in the analysis explain 20% of the within- and between-site variance for teacher outcomes.

of different data sources suggests that school ICCs for standardized test scores range from 0.10 to 0.20. Results from school-based prevention trials suggest that school intraclass correlations of substance use and psychosocial measures average 0.03 to 0.04 for common behavioral and attitudinal outcomes (Murray & Hannan, 1990; Murray & Blitstein (2003); Murray & Short, 1996; Scheier et al., 2002), although Schochet (2005) reports averages in the 0.01 to 0.09 range. Based on this previous work, the statistical power estimates for each study described below assume intraclass correlations of 0.15 and 0.07 for the student academic and nonacademic outcomes, respectively, unless otherwise specified.

the Quality Teaching of English Learners program in New York and on other school-based studies (e.g., Bryk & Driscoll, 1988), we anticipate teacher outcome intra-cluster correlations of 0.09.

Study A

Scale-Up of *Math Pathways and Pitfalls* Initiative

Summary

Researchers and program specialists at WestEd have developed an approach to building the content knowledge and teaching skills of math teachers through coursework, combined with a

supplementary student curriculum, *Math Pathways and Pitfalls* (MPP). This intervention is currently being evaluated in a study funded by IES. Recognizing the need to scale up this successful approach, WREL will evaluate the scaled-up delivery of MPP using professional development strategies designed with multimedia delivery (Web-based/video).

Importance of Study

A growing body of evidence suggests that teacher qualification is a very strong predictor of student achievement in mathematics (Wilson, Floden, & Ferrini-Mundy, 2001). Although the exact content of what teachers need to know has not yet been fully identified, two strands of research literature point to important elements of specialized knowledge of mathematics. First, mathematics educators are in wide agreement that teachers need to understand the nuances of various mathematical representations, how they relate to each other and the concepts they represent, as well as how to use them in teaching (e.g., Carpenter et al., 1989; Hill, Rowan, & Ball, 2004; Leinhardt & Smith, 1985). Second, researchers from various fields call attention to the need for teachers to understand how mathematical language (oral and written words and symbols) is developed and how it influences the way concepts are formed, held in memory, and used in reasoning (e.g., Borko, et al., 1992; Khisty, 1992; Quiñones-Benitez, 2003). Teachers also need to learn new pedagogical practices. A growing body of experimental, quasi-experimental, and correlational research suggests that such pedagogical practices as engaging in challenging instructional conversations with a particular learning goal in mind, using cognitively challenging tasks, supporting language and concept development by using scaffolding strategies, and associating new learning with prior learning have a positive impact on student achievement (see Doherty, Hilberg, Pinal, & Tharp, 2003).

Math Pathways and Pitfalls (MPP) mathematics teacher professional development courses focus on specialized content knowledge through specific questions and tasks that have mathematics as the foreground but are also embedded in the work of teaching. The courses bridge mathematical learning to pedagogical practices by helping teachers plan and deliver lessons that have mathematical integrity and are grounded in equitable and effective pedagogical practices. The courses emphasize common mathematics pitfalls and

use discourse-based pedagogical practices that are effective for all students.

The MPP courses are coupled with a parallel set of supplementary mathematics lessons for students. These 10 lessons, which are designed to be taught about once a month during the course of the academic year, address the pitfalls of fundamental understanding of math concepts and acquisition of math skills. Coupling the MPP professional development courses for teachers with these supplementary lessons helps to implement the practices learned from the professional development component and makes it less likely that the effects of these courses on teaching practice will erode over time. The MPP course/lesson package has been shown to be effective in an NSF-funded study and is currently being evaluated in an IES-funded efficacy study.

MPP is currently delivered by WestEd staff and trained consultants. Reliance on a small number of staff and consultants has precluded more widespread distribution of the initiative. The proposed study will use a more decentralized model of delivering the professional development

using multimedia tools to train district math staff developers and provide them with support as they teach the courses. The long-term objective is to distribute the MPP courses more efficiently and more widely, to ensure their faithful replication, and to transfer ownership of the professional development approach to local school districts.

Prior Empirical Evidence Supporting the Intervention. The proposed scaled-up, decentralized model of delivering the MPP professional development has not been previously implemented or explicitly evaluated. Previous research, a small pilot study and a larger field test that is still in progress, provides evidence of efficacy when teacher delivery of the MPP student instructional materials is combined with one day of teacher professional development and 4-6 hours of coaching support. Prototype materials were pilot-tested with a diverse group of 233 students whose teachers replaced 11 hours of related instruction with project lessons. Utilizing a quasi-experimental design with statistical controls, results indicated that students exposed to MPP-instructed teachers and MPP materials exhibited greater gains in rational number knowledge than a similar group of students exposed to comparison teachers delivering regular standards-based instructional materials during the same time period (Heller, Gordon, Paulukonis, & Kaskowitz, 2000). Impact estimates were pronounced, with effect size estimates (ES) of 0.59 standard deviations detected. The results were most dramatic for students who performed at low and medium levels in mathematics at the beginning of the academic year, with effect sizes ranging from 0.68 to 0.90.

The results of the pilot study were replicated in a subsequent study (NSF) utilizing a cluster-randomized experimental design in five school districts in California, Arizona, and Missouri. Approximately 100 teachers serving students in grades 2, 4, and 6 were randomly assigned to either a wait-listed control group or an intervention group that used MPP materials in their classrooms. Results from hierarchical linear regression models indicated that mathematics achievement increased more in the MPP group than in the control group within each grade considered. Effect size estimates ranged from 0.34 standard deviation units among 2nd graders to 0.43 standard deviation units among 4th graders. This two-year study is still in progress, and results will be reported in 2006.

Key Research Questions

1. Do teachers who receive the scaled-up version of the MPP professional development intervention, compared to teachers in the control condition, exhibit greater knowledge of math pedagogy and more classroom practices consistent with the intervention?
2. Do students whose teachers participate in the scaled-up version of the MPP professional development exhibit classroom responses consistent with the goals of the intervention, compared to students whose teachers are in the control group?
3. Do students whose teachers receive the scaled-up version of the MPP professional development demonstrate higher math achievement and proficiency relative to students whose teachers are in the control group?
4. Is teacher participation in a scaled-up version of the MPP professional development differentially effective for EL students, struggling math learners, and girls vs. boys?

Research Design

The goal of this proposed study is to evaluate the effectiveness of a scaled-up version of the MPP professional development program on teacher knowledge, classroom practice, and student achievement. The impact evaluation utilizes a *group-randomized experimental design* to control for most threats to internal validity. Elementary schools will be randomly assigned to one of two wait-listed control group

30 schools per group. The study population will consist of approximately 4,500 4th grade students and 180 teachers in 60 schools in Arizona, California, and Nevada. In examining program impacts, the study will rely on student scores on project-designed quizzes correlated to the content of the courses and on standardized achievement test scores. The study also relies on survey measures of teacher content knowledge, teacher pedagogical knowledge, and observational measures of classroom practice. Interviews and assessments of implementation fidelity will be used to explain quantitative findings and to identify factors that may influence the effectiveness of the program.

Design Overview and Timeline.^{C-SeePg61} The scaled-up MPP evaluation is a three-year study, which will begin in late 2007 and end in late 2010. During the first six months we will recruit sites, refine the design, and develop instrumentation. During this time, program staff will develop and pilot-test the audiovisual training materials for the professional development component of the program. A summer institute for training district math staff developers will be offered in June 2008, and teacher training by district math staff developers will take place shortly after that. Teacher implementation of MPP practices will occur during the 2008/09 academic year. Student achievement outcomes will be tracked through the 2009/10 academic year to estimate program impacts on two-year achievement trajectories. The final six months of the study will be devoted to data analyses, manuscript preparation, and dissemination activities.

Table 4. Math Pathways and Pitfalls Experimental Design

	2008 Spring	2008/09			2009/10		
	Spring	Sum	Fall	Spring	Sum	Fall	Spring
Teachers							
Treatment		O	PD				
Control		TxU	O	MPP	O		
				TxU	O		PD
Students							
3 rd Grade							
Treatment	O ^T						
Control	O ^T						
4 th Grade							
Treatment			O	MPP	O		
Control			O	TxU	O		
5 th Grade							
Treatment							O ^T
Control							O ^T

O = Observations or measurement points (O^T = student standardized tests only)

PD = Prof Development Condition

MPP = Math Pathways and Pitfalls Implementation

TxU = Treatment as usual

Shaded areas correspond to student cohort tracked across two years

Site recruitment will take place in three states: California, Nevada, and Arizona. We will use established marketing channels at WestEd to identify school districts that are interested in using the MPP professional development and are interested in supplementing their math curriculum

with the MPP lessons. Districts will be selected only if they have at least two elementary schools whose principals have confirmed their interest in participating in the study. We will oversample districts with high proportions of English language learners and/or relatively low math performance by students. In selecting districts we aim to choose a representative cross-section of districts across the region, including a mix of urban and rural districts with a variety of existing resources and teacher qualifications.

Within each district, schools will be randomly assigned to treatment and wait-listed control conditions. We will recruit all 4th grade teachers and their students at each participating school. Prior to recruitment, all teachers will be informed that their school has a 50% chance of being assigned to intervention condition. We anticipate that at least two teachers per school will come forward to participate in the project. Control schools will be offered the professional development one year after the program schools receive it. By offering the control schools access to the same professional development after a short delay, we minimize the likelihood that principals in those schools will seek out alternative math professional development services on their own. This, in turn, maximizes the potential treatment contrast between program and control schools.

Table 5. Scaled-up MPP – Study Characteristics and Data Collection Schedule

Study Design	Cluster-randomized trial; single cohort		
Unit of Assignment	Schools		
Sample Characteristics	rs and 50 students per school randomized to Tx or TxU (control)		
Statistical Power Estimates	For Type 1 error = .05, 80% or higher power to detect MDES of 0.21 at student level and 0.41 at teacher level; MDES of 0.25 to 0.31 for subgroup analyses of program effects; prior evaluations found effect sizes upwards of 0.43 standard deviation units.		
Implementation begins	Summer 2008		
	2007/08	2008/09	2009/10
<i>Student Outcome Measures</i>			
Standardized Math Achievement Test	Spring	Spring	Spring
Mathematics Pitfall Quizzes		Fall/Spring	
<i>Teacher Practice/Fidelity Measures</i>			
Teacher Questionnaires		Summer/Spring	
Classroom Observation		Spring	

Study Outcomes. Program effects will be measured in three distinct outcome areas, which closely map onto the outcome areas being studied in the current IES evaluation of the MPP program: 1) teacher content and pedagogical knowledge, 2) classroom practice and student response, and 3) student mathematics achievement.

Teacher Content and Pedagogical Knowledge. We will assess these outcomes through an online teacher survey, which will be administered to treatment teachers shortly prior to participation in the initial round of MPP professional development (pretest). Control group teachers will be assessed during the first two weeks of the fall semester. Posttest assessments will be administered to both groups during the spring semester of 2009.

All teachers will be pre- and post-tested using the SII/LMT test of number and operations content using items developed by Hill, Schilling, and Ball (2004) as part of the Study of Instructional Improvement (SII) and the Learning Mathematics for Teaching (LMT) project. common content knowledge (e.g., ability to compute) and specialized content knowledge (e.g., ability to represent numbers or operations or interpret student explanations). Reliabilities for the current forms of the SII/LMT test range from .71 to .84. The SII/LMT tests measure content and pedagogical knowledge explicitly addressed in the MPP course content, as well as related content not explicitly addressed.

Classroom Practice. The second outcome area is classroom practice and student response. This will be assessed using classroom observation, again in both treatment and control groups. The assessment will use a structured observational tool to describe the classroom practice of math teachers (with a specific focus on the pathways and pitfalls underlying the MPP program philosophy) as well as the responses of students in their classrooms. The observational assessment will have a special focus on struggling math learners and EL students and may include direct input and feedback from students themselves. The classrooms of all participating teachers will be observed at least one time during the spring semester of 2009.^{D-SeePg61}

achievement data from district-administered *standardized tests* for all students will be collected for the years *before, during, and subsequent* to the intervention for the 2008/09 4th grade cohort. Each of the states relies on standardized tests criterion-referenced to state standards to assess the academic performance of 4th and 5th graders. The California Standards Test (CST) is administered in Grades 2-11 in California. Arizona uses the Arizona Instrument to Measure Standards (AIMS), which is administered in Grades 2 through 9, while Nevada administers the Iowa Test of Basic Skills (ITBS) in Grades 4 and 7 and a criterion-referenced test (CRT) in Grades 3, 5, and 7. Each of these tests has been well validated and has good psychometric properties. Although these tests measure the same general constructs, they are different in terms of content emphasis, item sampling, and item difficulty. To convert the scores to an identical metric so that test score data from all of the sites can be analyzed together, all the test score data will be normalized by subtracting the state mean state standard deviation (at baseline). This is analogous to techniques used in meta-analysis to pool the results of studies using alternative measures of similar constructs.

The *Mathematics Pitfall Quizzes* are 20-item assessments developed by the MPP developer in her NSF-sponsored work. Parallel pre- and posttests of in the areas of fractions, decimals, and proportional reasoning have been developed for Grades 4 and 6, and Grade 5 assessments are currently being developed. The assessments demonstrate adequate reliability ($\alpha=.81$). Items on the Pitfall Quizzes assess concepts that are known to cause difficulty for students as identified from the research literature and prominent assessments such as the NAEP and TIMMS. Most of the items are in multiple-choice format with at least one of the choices containing a common misconception that students have with regard to the concept being assessed. These quizzes will be administered to the subset of students who are in the classrooms where observations are conducted. This will enable us to link the results from the classroom observations directly to a set of highly relevant and precise measures of student proficiency in the math concepts and skills that are directly targeted by the MPP initiative.

Sampling and Power Estimates. Sixty (60) schools will be randomly assigned to treatment and control conditions, with two 4th grade teachers/classes per school and 25 students per class. We conservatively assume a student attrition rate of about 20% a year for power estimation purposes, which will leave 20 students per class for the analysis of two-year achievement trajectories. Other assumptions are described in the Statistical Power Considerations section that can be found on pages 9-11 of this proposal.

With two teachers per school, the MDES for realistically attainable impact. With 30 schools per condition and a minimum of 40 students in each school, we estimate the MDES to be 0.21 for student achievement. With as few as 10 students per school, the MDES rises to 0.25, suggesting that more than enough power is available for conducting analyses of student subgroups. Statistical power diminishes more considerably in the analysis of subgroups of schools (e.g., for the examination of state differences), however. For a subsample of half

Although the trainer-of-trainer delivery of the MPP initiative may attenuate program impacts, the study is adequately powered to detect impacts that are substantially less pronounced than those found for the currently configured program.

Intervention Strategy. The study involves implementation of a delivering teacher professional development, and development of multimedia tools that provide visual models and support for instructing the MPP courses. Approximately 15 district math staff developers recruited from participating school districts will attend a three-day summer institute, where they will learn how to train teachers using the MPP model. The instructor training will be conducted by WestEd staff and consultants trained by WestEd. During the first two days of training, WestEd staff will model how to instruct the course, while the third day will be spent having instructors-in-training practice the teaching components of the course with co-participants, using the comprehensive instructor course guides. Each course component will be modeled on a DVD, which instructors can use subsequent to the training to refresh their understanding as needed. The DVDs also contains other material, such as frequently asked questions (FAQs), to remind instructors about critical issues as they prepare for and teach the course. The DVD material will also be designed to help instructors anticipate and deal with possible issues that arise in the course. Continuing, as-needed telephone support will be provided to trained coaches during the implementation year.

Teachers in schools randomly selected to be in the experimental condition will attend a five-day MPP course, facilitated by district math staff developers, and will be provided with the MPP instructional materials to use in their classes.

and pedagogical knowledge through concrete tasks, including: 1) producing and analyzing concrete and pictorial representations of mathematical concepts and evaluating their strengths and limitations for instructional purposes, 2) explaining mathematical ideas in words and symbols, 3) providing word problems or situations to correspond with a math concept or operation, 4) analyzing correct and incorrect student thinking, 5) hypothesizing plausible reasons for student errors, and 6) generating instructional strategies to address student difficulties. The MPP course has a second component that guides teachers in planning and teaching lessons that have mathematical integrity and are grounded in equitable and effective pedagogical practices. In this component, teachers learn to analyze their own and others pedagogical practices using a mathematically specific version of the standards of equitable and effective pedagogy identified

by Tharp et al. (2000). An important underlying theme of these standards is the development of content area and engaging students in goal-oriented dialogue. Each course follows the same structure and has requirements that are similar, making them easy for teachers and instructors to follow.

Data Collection. In addition to the collection of outcome data, we will closely monitor program implementation in schools assigned to one of the two program groups. We will collect data on teacher participation in professional development activities, utilization of the MPP curriculum, and any supplemental or follow-up activities that the district math staff developers engage in with schools and districts. This will enable us to precisely describe the degree of fidelity with which the program is implemented in each of the participating districts. Because random assignment will take place within each district rather than across a large sample of schools across many districts, it will be possible to break down program impacts by the level of fidelity of program implementation. Analysis of program fidelity is particularly important in this scale-up study, because implementation will be more decentralized and will involve less direct control by WestEd staff. Hence, it is important to understand the degree to which the program as evaluated in this study is equivalent to the more expensive hands-on effort that is being examined in the current IES-funded evaluation and to work with districts as needed to ensure adequate implementation of the program.

Collection of implementation data will be streamlined using an online data collection system that will be centrally administered by BPA. This data collection system will enable on-site program administrators to enter detailed information about the district staff development activities (and who is involved in them) for each treatment school. This information will be used to monitor treatment crossover and other threats to the integrity of the experimental design.

Data Analysis

Impact analyses for the MPP evaluation will rely on multilevel regression models to estimate program impacts. Student mathematics achievement, teacher content knowledge, teacher pedagogical knowledge, and teacher practices will be modeled as a function of treatment group status, pre-test measures of outcome variables, and pre-intervention measures of other covariates. These models will account for the nesting of individuals within higher units of aggregation. Further technical details regarding the data analysis strategy are provided in the Impact Analyses section found on pages 7-9 of this proposal.

Given that the MPP program will be regionally implemented in a wide variety of settings, subgroup analyses will allow us to determine whether the MPP program is equally effective in different contexts and for different groups of students. Examples of key subgroup breakdowns that we will explore are student gender, student EL status, prior student performance in math and reading, and the socioeconomic status of the student (as captured by his or her eligibility for a free or reduced-price lunch). At the teacher level, we will explore subgroup analyses by teacher experience and teacher qualifications. Due to the clustered nature of the data, impact estimates from those analyses will have lower precision than those based on student-level data. Possible school-level subgroup analyses include comparisons across states and examination of differentials across rural and urban areas. The conclusions from all these subgroup analyses serve

to contextualize the overall program impacts and enable program developers and policymakers to further refine the program in future adaptations.

Challenges

Possible violations of the experimental research design are the most important threat to the integrity of this study and the validity of its findings. Such violations are potentially more serious in cluster random-assignment research designs because the loss or compromise of a single cluster has a greater potential impact than would be the case in a study that uses individual random assignment. Because of this we will devote significant project resources to the selection and initial preparation of participating school sites. District officials and school principals must buy into the study wholeheartedly and must be aware of the importance of their role in guaranteeing that school districts that are experiencing organizational turmoil (such as significant leadership transitions, state takeovers, financial crises, etc.). After random assignment is conducted, we will use implementation monitors in the field to periodically assess MPP program implementation as well as adherence to the embargo on MPP services in control group schools. However, there is limited room to make mid-course corrections in the study design or the program implementation, underscoring the critical need for intensive upfront training and preparation.

Other threats to the design concern the outcome data collection. As described above, we will administer teacher questionnaires, conduct classroom observations, and collect and analyze standardized test score data. Each of these data sources has some potential problems associated with it, which may compromise or invalidate our findings. The observational measures, for example, potentially suffer from biases that may reduce their validity. Even experienced classroom observers may not register certain subtle patterns of teacher behavior and response that are critical to the success of their instruction, especially for struggling learners. This is especially true if these patterns of behavior manifest themselves slowly over time. Even the most intensive classroom observations only last a day or two and may not capture such subtle details.

And while state-mandated standardized test scores have significant stakes for the students and teachers, and both program and control group students will take the tests seriously, these test scores may not capture the full extent of the student-level program effect. For example, students who are taught math using the MPP principles and materials may not immediately improve their performance on math tests, but they may change their attitudes toward math or their learning style in ways that ultimately will lead to better performance.

Study B **Impact Study: *Understanding Science*** **and the Academic Literacy of English Learners**

Summary

This study tests a teacher professional development strategy content knowledge and academic literacy in middle school science. The research will test the effectiveness of the *Understanding Science* model, an approach that incorporates science content, analysis of student thinking, and discussion of issues related to teaching that content to

English learners. The full set of *Understanding Science* courses, including 15 courses on the major ideas of K-8 earth, life, and physical science, constitute a comprehensive curriculum. The professional development course sessions focus on science concepts in the context of narrative cases of practice drawn from actual classroom episodes involving those concepts.

Importance of Study

The purpose of this study is to investigate how to prepare middle-school teachers of diverse student populations, including English learners (ELs), to improve knowledge and academic English. In a randomized experiment, the research will test the *Understanding Science* model of professional development, an approach that combines specific science content with strategies for helping ELs learn science content and develop academic language skills. This model will be evaluated by comparing it with a control condition that provides no additional professional development beyond that already received by teachers in each district. The study will investigate the impact of the content knowledge and knowledge about teaching science content knowledge and academic language capabilities.

For students, language development in science is important. Because language is the primary mode of communication in class, benefit from instruction rests largely on their ability to understand academic content and express themselves through reading, writing, talking, and listening (Buxton, 1998; Lee & Fradd, 1998). Students and negotiate meanings in technical subjects such as science are especially dependent on language proficiency because of the specialized vocabulary in those fields, as well as specialized meanings of common words. The demand for academic language competencies increases in the middle-school grades when science curricula become more rigorous than in the elementary grades. Furthermore, given the academic language found in science texts, virtually all middle

are challenged by issues of literacy. It is not surprising, then, that the science achievement of students who are learning English lags well behind native English speakers in the U.S. (Torres & Zeidler, 2002).

At the same time, teachers report that they are unprepared to meet the needs of ELs, and the professional development available to them is not helpful. Teachers report little or no professional development designed to help them teach EL students, and the quality of what they have received usually is not helpful (Gandara, Maxwell-Jolly, & Driscoll, 2005). As a result of these and other factors, ELs are severely underserved with respect to science (Hewson, Kahle, Scantlebury, & Davis, 2001; Spillane et al., 2001). The proposed study evaluates a professional development program that addresses these needs.

The Understanding Science Professional Development Model. The *Understanding Science* model was developed at WestEd for elementary and middle school grades with funding from the Stuart Foundation and NSF.² The full set of *Understanding Science* courses will make up a comprehensive curriculum, including 15 courses on the major ideas of K-8 earth, life, and

² Sample materials for an *Understanding Science* course for elementary teachers are available online (<http://www.wested.org/cs/we/view/pj/372>).

physical science. The course sessions focus on concepts in science in the context of narrative cases of practice drawn from actual classroom episodes involving those concepts (Barnett-Clarke & Ramirez, 2004; Daehler & Shinohara, 2001; Merseth, 1996; J. Shulman, 1992; Wassermann, 1993). Written by classroom teachers, these case materials contain student work, student-teacher dialogue, context information, and teacher thinking and behaviors.

Course sessions include hands-on science investigations for the teachers that parallel those of students in the cases and in their own student courses is to help teachers build the content knowledge and academic language proficiency of ELs. Research suggests that these students can benefit greatly from inquiry-based science instruction: hands-on activities based on natural phenomena are more accessible to students with limited science experience, and depend less on mastery of English than do de-contextualized textbook knowledge or direct instruction by the teacher; and collaborative, small-group work provides opportunities for developing English proficiency in the context of authentic communication about science knowledge (Lee, 2002; Lee & Fradd, 2001; Rosebery, Warren, & Conant, 1992).

Prior Empirical Evidence Supporting the Intervention. There are strong indications from three years of evaluation studies that *Understanding Science* courses bring about intended teacher and student outcomes at the elementary level (Heller, Daehler, & Shinohara, 2003; Heller & Kaskowitz, 2004). In a pre-post, quasi-experimental study, project teachers in *Understanding Electricity and Magnetism* courses showed significant gains (Heller & Kaskowitz, 2004). With respect to student achievement, a pre-post comparison group study (Heller, Daehler, & Shinohara, 2003) showed that scores on a test of electricity and magnetism increased significantly from pre- to posttest among students of teachers in the project. There were no significant pre-post gains among students of non-participating teachers during the same period. In addition, adjusted posttest scores for the project group were significantly greater than for the comparison group after controlling for pretest differences. An additional encouraging result is that low-performing students of project teachers made the biggest gains, improving by more than two standard deviations, closing a portion of the achievement gap between students.

Key Research Questions

The premise underlying this work is that, to improve student science achievement and academic literacy among ELs, their teachers must acquire strategies for teaching the particular science content that are tailored to the language needs of EL students. This requires teacher education and professional development that contextualize strategies for teaching EL students in subject-specific knowledge about: a) the science content, in this case, force and motion; b) student thinking about and difficulties of learning that content; and c) instructional strategies related to that content. The following research questions will be addressed:

Research questions to be addressed include:

1. To what extent does the *Understanding Science* professional development model foster improvement in teacher content knowledge, instructional strategies, student content knowledge, and academic language development?
2. Does participation in the *Understanding Science* professional development program improve instructional strategies tailored for EL students, and is participation differentially

effective for EL students with regards to science content knowledge and academic language development?

Research Design

Design Overview and Timeline. A cluster-randomized trial will be conducted in six school districts in the western region of the U.S. (see Table 6). The study will compare outcomes for a professional development treatment group and a control condition. Teachers will be randomly assigned to groups, and pre- and posttests administered before and after the treatment groups participate in professional development courses. Students will not be randomly assigned to teachers, but rather will be in their normally assigned classes. They will receive multiple language pre-assessments to control for language maturation effects.

Table 6. Understanding Science Experimental Design

	2007/08 Spring	Fall	2008/09			2009 Fall	
			Winter	Spring			
Teachers							
Treatment		O	PD	US	O		
Control		O	TxU	TxU	O		
Students							
Treatment	O ^A	O ^{BC}	TxU	O ^D	US	O ^{ACD}	O ^B
Control	O ^A	O ^{BC}	TxU	O ^D	TxU	O ^{ACD}	O ^B

O = Observations or measurement points

PD = Prof Development Condition

US = *Understanding Science* Force & Motion

TxU = Treatment as usual

^AStudent standardized tests

^BState English language dev test

^CProject-administered language assessment

^DProject-administered science assessment

Study Outcomes. The *Understanding Science* professional development model posits that student achievement is a function of teacher knowledge and practices. The key outcome variables are, for teachers: a) science content knowledge about force and motion, and b) pedagogical knowledge and instructional strategies for teaching force and motion to EL students; and for students: c) science content knowledge about force and motion, and d) academic language use in science.

The operational definitions of these variables will be developed in the first year of the study. With respect to force and motion, as part of their NSF development project, the WestEd *Understanding Science* project is developing a content framework that specifies the science standards and objectives for the course. This framework will be based on a careful review of the research literature on student and teacher misconceptions, science teaching and learning, and the content dilemmas teachers commonly face. Sources assessment map for force and motion, the *National Science Education Standards*, Project 2061 concept map, *Benchmarks* (AAAS), and *FOSS*, *SEPUP* and *STC* curricula.

Drawing from research and publications, such as the *Guide to Scoring LEP Student Responses to Open-Ended Science Items* from the Chief Council of State School Officers and the work of *Understanding Science* project will also develop frameworks describing pedagogical knowledge and strategies for helping English learners understand the science content. These frameworks will be used to guide development of the

Understanding Force and Motion course to prepare teachers to teach that topic to ELs. In addition, a framework specifying components of student academic language use in science will be created that will guide the development of measures of students

Table 7. Understanding Science Study Characteristics and Data Collection Schedule

Study B Design	Cluster-randomized trial; multiple cohort		
Unit of Assignment	Schools		
Sample Characteristics	their students assigned to Tx or TxU		
Statistical Power Estimates	For Type 1 error = .05, 80% or higher power to detect MDES of 0.24 at student level and 0.52 at teacher level; MDES of 0.25 to 0.36 for subgroup analyses.		
Implementation begins	Winter 2009		
	2007/08	2008/09	2009/10
<i>Student Outcome Measures</i>			
Standardized Achievement Tests	Spring	Spring	
State English Language Development Test		Fall	Fall
Project-administered Language Assessment		Fall/Spring	
Project-administered Science Assessment		Spring/Spring	
<i>Teacher Practice Measures</i>			
Teacher Surveys		Fall/Spring	
Teacher Interviews		Spring	

Assignment to Condition. Each district will have a coordinator who will assist project staff in recruiting course facilitators and teacher participants, and in running the study at that location. All middle schools in each district will be matched on student demographics and randomly assigned to either the treatment or control group. All 8th-grade physical science teachers in each school (typically 2-3) will then be invited to participate in the study and will receive stipends for their participation.

Sampling and Power Estimates. Forty-eight (48) schools with large percentages of EL students will be randomly assigned to treatment and control conditions, with an average of 2.5 teachers/classes per school and 25 students per class, for a total sample of approximately 120 elementary teachers and 3000 students. We anticipate that approximately one-third of students will be EL. With 2.5 teachers per school, the MDES

a fairly substantial impact. With 24 schools per condition and 62 students in each school, we estimate the MDES to be 0.24 for student achievement. With as few as 20 students per school, the MDES rises to only 0.26, suggesting that more than enough power is available for conducting analyses of student subgroups. For a s

e MDES rises to 0.36. Overall, the design

provides adequate power for detecting small-to-moderate program impacts on student outcomes and moderate-to-large impacts on teacher outcomes.

Intervention Strategy

Treatment. The treatment will be a 24-hour *Understanding Force and Motion* course composed of eight three-hour sessions held after school every other week for 14 weeks. This course will focus on strategies for teaching ELs in the context of specific science content. Each of the course sessions includes two main components: *Science Investigations* that engage teachers in inquiry of

the type included in commonly used, standards-based student curricula, and *Case Discussions* focused on descriptions of actual classroom practice that highlight important teaching dilemmas, exemplary teaching, and pedagogical issues related to teaching force and motion to EL students. The teachers in the treatment group will be asked not to take part in any other science professional development during the school year.

Force and Motion will be the course content for this study for several reasons. In general, physical sciences (Fulp, 2002) as opposed to the biological and ecological. National and state standards as well as curricula and textbooks for 8th-grade science include the topic of force and motion, yet it often is taught by teachers who have major deficiencies in their knowledge of this subject. Approximately a quarter of all middle

Given the centrality of this topic in the middle grades, students have the potential to make sizeable gains in their overall science achievement scores, if taught by teachers who are better prepared in both.

The teachers will be provided the professional development by trained facilitators. At each district the course will be led by two facilitators, one of whom will be randomly selected to lead and the other will serve as the backup in case the lead facilitator leaves the study. Each district will identify and solicit the participation of professional development leaders who have at least two years experience leading teacher professional development courses in middle school science, and *Understanding Science* staff will participate in selecting the facilitators from those individuals. The six pairs of facilitators will be trained to lead the course in one five-day event held at WestEd in Oakland, CA. The districts will fund 50% of the stipends for facilitators.

Control. Teachers who are randomly assigned to the control group will be informed that they have been placed on a waiting list for the course, and will be guaranteed placement in the course during the summer. The teachers in the control group will be free to take part in any other science professional development that arises during the school year but will receive no additional treatment as part of this study. Assessment measures will be administered to control groups in each district at the same time that the treatment group measures occur.

Data Collection. The aim of the proposed research is to investigate how to design courses that and teaching practices, including with ELs, and, of that content. These key outcomes will be assessed through a combination of qualitative and quantitative data collection methods including: science content tests for both teachers and students; classroom performance assessments that English proficiency in the context of science; written surveys of comprehension and application of science content; in-depth interviews with teachers to assess their knowledge of science pedagogy specific to ELs; and observations of professional development activities and classroom implementation of science content. Measures will be developed and pilot-tested during Years 1-3 in collaboration with Dr. Jerome Shaw of UC Santa Cruz, an expert in science assessment with English learners.

will be measured using written force and motion assessments developed by the NSF-sponsored project, *Assessing Teacher Learning About Science Teaching* (ATLAST), undertaken by Horizon Research, Inc., in collaboration with Project 2061 of the American Association of the Advancement of Science. Each of these tests

consists of 25 multiple-choice items and is administered in one 45-minute period. Based on national science content standards and the research literature on student and adult thinking about force and motion, the ATLAST project created a content framework that specifies learning goals, prerequisite knowledge, and misconceptions about this topic. Both the student and teacher test questions were specifically designed to assess conceptual knowledge in this framework.

The tests were validated to ensure that the items measure the intended assessment targets, first through cognitive interviews conducted with middle school students. Items were revised based on these interviews, reviewed for face validity by content experts, and further revised as needed, and then piloted and field-tested with thousands of students. To develop a scale with acceptable psychometric properties, the ATLAST assessments were analyzed using Item Response Theory (IRT). IRT test information curves for both assessments indicate that the scales provide adequate or better information across a range of abilities from $-3 SD$ to $+ 2.5 SD$.

assessed using both generic and science-specific measures. With respect to academic language proficiency, test scores will be obtained from state-required standardized measures such as the California English Language Development Test (CELDT). The CELDT is required in each grade for all students whose primary language is other than English, and assigns a proficiency level on a five-point scale from Beginning to Advanced.

A test of knowledge for developing language proficiency in science will be developed based heavily on criteria measured in the Sheltered Instruction Observation Protocol (SIOP), which identifies the features of sheltered instruction that practice with ELs (Echevarria, Vogt, & Short, 2000). The protocol is composed of 30 items grouped into three sections: Preparation, Instruction, and Review/Evaluation. Items are further clustered under Instruction: Building Background, Comprehensible Input, Strategies, Interaction, Practice/Application, and Lesson Delivery. Items are scored using a Likert scale with scores proficiency in science will draw on the work of Levy & Mislevy (2004) and others in the realm of science performance assessments (e.g., Sandoval & Reiser, 2004; Williamson et al., 2004), in relation to English language learners (see for example Shaw, 1997).

Data Analysis

As described in more detail in the Impact Analyses section on pages 7-9, multilevel regression models will be estimated to provide evidence related to the research questions. Specifically,

pretest scores and demographic variables, teacher-level covariates, and the experimental condition of the school. EL/non-EL differences in program impacts will be examined by including interactions of treatment status and EL status in the models. Analogous models will be estimated for teacher outcomes, except such models only involve one level of nesting. The interviews, observations, and surveys will be analyzed for evidence related to science instruction and academic language.

Challenges

Recruitment for the study will be a challenge. We plan to engage research sites in six or more urban school districts in the western United States that serve large populations of EL students

and that have more than 15 8th grade science teachers, such as the Los Angeles Unified School District. WestEd and the *Understanding Science* project have existing networks of sites and science teachers, which include middle school teachers, as a result of the development work currently funded by NSF. In addition, the project has other networks of teacher leaders in the region, such as The Carnegie Foundation for the Advancement of Teaching, National Board-Certified teachers and lead teachers involved in local NSF-funded projects.

To ensure implementation fidelity, project staff will discuss and draw up a clear statement of expectations and conditions thought to be essential to the successful implementation of the program and the research. The reporting and data contribution at the classroom level will be kept to a minimum. Every required data element (e.g., demographics, prior test scores, etc.) that can be obtained from centralized sources will be identified and obtained in that way. In addition, data collection from teachers will be embedded in the professional development itself, therefore not requiring more time and effort than already involved in participation. The project will provide staff to administer student tests, so that teachers need only make the time available.

In terms of response rates, keeping the burden to a minimum is, of course, the first device for ensuring adequate response rate, but we recognize that that alone is often insufficient. District coordinators, facilitators, and teachers will also be provided stipends as incentives.

Study C

Impact Study: Quality Teaching for English Learners (QTEL)

Summary

Quality Teaching for English Learners (QTEL) professional development program equips secondary teachers to provide challenging tasks and scaffold student learning to advance development of academic language. The QTEL study, replicating a current study in New York City, will be conducted in one or more of the numbers of EL students. The program will be implemented for three years to ensure that the treatment contrast is maximized.

Importance of Study

The linguistic landscape of classrooms in the United States has radically changed during the past few decades, with approximately 4.5 million English schools (NCES, 2002). While all areas of the country have experienced growth in the number of EL students, the West leads the nation with 57% elementary and secondary schools (Meyer, Madden, & McGrath, 2004). In the four states comprising the Western Regional Educational Laboratory region, Nevada experienced a 278% increase in the number of Limited English Proficient (LEP) students in the last decade; Utah an 83% increase, followed by Arizona with a 78% increase, and California with a 40% increase (OELA, 2002).

Secondary schools, in particular, lack the resources to educate ELs well. Secondary immigrant students in grades 6-12 are the fastest growing school population, and many of these students have significant gaps in their education. U.S-born ELs — students who have attended U.S. t of the EL school population. In fact, 65% of

all ELs nationwide are U.S.-born students who, even while having attended U.S. schools exclusively, lack the necessary levels of oral and written academic language to succeed in school (Fix & Passel, 2003; Ruiz-de-Velasco & Fix, 2000). Subject-area teachers report feeling overwhelmed, unprepared, and unable to teach students who are years behind native English speakers in reading and writing (Ruiz-de-Velasco & Fix, 2000; Fix & Zimmerman, 1993). Lack of access to quality teaching in middle school is especially debilitating given research that shows th grade correlates strongly with high school completion rates (Neild, Stoner-Eby, & Furstenberg, Jr., 2001). Without adequate preparation in middle school, English language learners have higher grade-retention and dropout rates in high school, which are nearly four times higher than students who are fluent in English (U.S. GAO, 2001). Clearly, teachers need adequate professional development and support to effectively serve English language learners, particularly at the secondary level (August & Hakuta, 1997; Parsad, Lewis & Farris, 2001; Ruiz-de-Velasco & Fix, 2000).

This proposed study evaluates *Quality Teaching of English Learners* (QTEL), a model of professional development for teachers of middle-school ELs developed by WestEd. The QTEL program of teacher professional development is based on the premise that improving the education of secondary ELs requires teachers to: 1) develop deep knowledge of what it means to participate in academic activity; 2) understand, take part in, and reflect on research-based academic literacy in English; and 3) receive the necessary support to change their classroom practice.

Drawing on theory and practice from a broad body of research — in pedagogy (McGonigal, 1997; Resnick & Nelson-Le Gall, 1997; Rogoff, 2003; Shulman, 1987, 1995; Walqui, 2000); teaching and learning theory (Bruner, 1983; Lave & Wenger, 1991; Lemke, 1990; Resnick & Nelson-Le Gall, 1997; Rogoff, 2003; Vygotsky, 1978); and second language acquisition and teaching (Allwright, 1988; Allwright & Bailey, 1991; Candlin, 1987; Candlin & Murphy, 1987; Gibbons, 2002, 2003; Hammond, 2001; Oxford, 1997; van Lier, 1988, 1996, 2004; Walqui,

simplified curricula for ELs are the norm. Instead, QTEL offers an academic framework rich in intellectual challenge and highly supported tasks that are designed to develop teacher expertise and student achievement.

Key Research Questions

The primary research questions guiding the research design are as follows:

1. Does participation in the *Quality Teaching for English Learners* Program result in
 - 1 content knowledge, teaching expertise, learn, and instructional practices?
2. Do the teachers change their practice to be aligned with the theoretical orientation and strategies demonstrated in the professional development sessions?
3. Does the *Quality Teaching for English Learners* language proficiency and achievement in English language arts?

Research Design

The study will use a multiple-cohort, three-year longitudinal design to assess program impacts on teacher and classroom outcomes. The study will focus on one or more large urban school districts within the western region. We have initiated preliminary conversations with Clark County in Nevada, which includes the cities of Las Vegas and Henderson. Clark County is a large and rapidly growing school district, which serves a very large population of EL students. The current implementation of the QTEL model in the largest school district, will inform the replication of QTEL in Clark County or in other urban settings.

Like the New York City study, the proposed QTEL replication will target middle schools. By targeting relatively young EL students, we hope to maximize the potential long-term benefits of QTEL for these students. From the perspective of the study design, targeting the intervention at 6th, 7th, and 8th graders makes it possible to follow them into high school and measure the long-term benefits of QTEL for student outcomes.

To carry out the study, we will enter into formal agreements with the participating school district, state and county educational agencies, and individual middle school principals. These agreements will address the implementation of random assignment, the delivery of services, access to the schools for data collection, and access to student-level data for analysis.

Design Overview and Timeline. In preparation for the implementation of the QTEL RCT in Summer 2007, substantial work will be ongoing in 2006 and early 2007 around refinements to the intervention and piloting of the classroom observation protocol. Specifically, the QTEL intervention includes substantial ongoing coaching of teachers throughout the academic year to reinforce the professional development program that occurs during the summer months. The coaching component of QTEL will be refined and a curriculum will be developed to reach a systematic implementation and measurement of the coaching portion of the program. In addition, from Spring 2006 to Spring 2007, we will continue the development and refinement of the classroom observational protocol. This will occur in two separate but related ways. First, with the objective of increasing inter-rater reliability, we will refine the training program for classroom observers. An existing three-day program, using video samples, proved unacceptable in past experimental settings using novice observers. With more experienced classroom observers, a longer training program and substantial practice in classrooms, we believe substantial improvements to inter-rater reliability can be reached. This improvement in the classroom observer training program will be coupled with changes to the existing instrument and substantial piloting in classrooms unconnected to the school district where the RCT will occur. The changes will focus on increased proximal measurement of classroom practice consistent

The impact study will use a four-year longitudinal design to track effects on student English reading and writing skills. Schools will be randomly assigned to the program group and control group with a minimum of 20 schools per group and approximately six teachers per school (40 schools and 240 teachers total).

The study design is a cluster random-assignment design in which the unit of random assignment is the school. Within each school assigned to the program group, individual teachers will be the

focus of the treatment. Using the school rather than the teacher as the unit of random assignment will help to minimize crossover and contamination as threats to the experimental design.

The design is structured to provide QTEL professional development and coaching to English Language Arts (ELA) and English as a Second Language (ESL) teachers serving cohorts of EL students as they move through middle school. As shown in the top panel of Table 6, Group #1 represents the ELA/ESL teachers supported by the intervention. Group #2 serves as a control group. Control group teachers will be exposed to regular teacher professional development opportunities that occur in their schools.

The bottom panel of Table 6 depicts the design with respect to *students*. At minimum, we anticipate that 100 unique ELs per grade, on average, will have been enrolled in courses with participating teachers in each school, or 4000 students in total. We will collect baseline 5th grade test score data from the school district, and begin analyzing student outcome data at the end of English language proficiency between grade levels will be assessed. Longer-term impacts will be assessed each subsequent year. A comparison of the teacher and student panels in development and coaching are aligned with the grade trajectories of different cohorts of student participants. Note that the 2007/08 7th and 8th grade student cohorts will receive less cumulative exposure to QTEL-trained teachers than their grade-specific counterparts represented in other cohorts.

Table 8. QTEL Professional Development Experimental Design

	Funding Year 1 2006/07		Funding Year 2 2007/08		Funding Year 3 2008/09		Funding Year 4 2009/10	
	Spr	Sum/Fall	Spr	Sum/Fall	Spr	Sum/Fall	Spr	
Teachers								
6 th /7 th /8 th Grade ELA/ESL								
Group #1		○ PD	○	○ PD	○	○ PD	○	
Group #2		○ TxU	○	○ TxU	○	○ TxU	○	
Students								
5 th Grade								
Group #1	○		○		○			
Group #2	○		○		○			
6 th Grade								
Group #1	○	QT	○	QT	○	QT	○	
Group #2	○	TxU	○	TxU	○	TxU	○	
7 th Grade								
Group #1	○	QT	○	QT	○	QT	○	
Group #2	○	TxU	○	TxU	○	TxU	○	
8 th Grade								
Group #1		QT	○	QT	○	QT	○	
Group #2		TxU	○	TxU	○	TxU	○	

○ = Observations or measurement points

PD = QTEL Professional Development/Coaching condition

QT = Exposure to QTEL-trained teacher

TxU = Treatment as usual condition

Shaded areas correspond to student cohorts tracked across multiple years

Bolded/shaded areas (center diagonal) correspond to classrooms in which observational data are collected

Study Outcomes. The theory of action that underlies this study postulates changes in three types of outcomes: teacher knowledge and efficacy, teacher practice and classroom interactions, and student English language proficiency. As a result, we will administer three instruments (teacher, classroom, and student level) in both the treatment and control middle schools. The three sets of instruments described below will measure teacher and student outcomes in a valid, reliable, and instructionally sensitive way. Together, they will provide a balance of unique and overlapping information essential to answer

Table 9. QTEL Study Characteristics and Data Collection Schedule

Study C Design	Cluster-randomized trial; cascading multiple cohorts			
Unit of Assignment	Schools			
Sample Characteristics	treatment and control condition			
Statistical Power Estimates	For Type 1 error = .05, 80% or higher power to detect MDSES of 0.26 at student level and 0.40 at teacher level			
Implementation begins	Summer 2007			
	2006/07	2007/08	2008/09	2009/10
Student Outcome Measures				
English Language Arts Achievement	Spring	Spring	Spring	Spring
ESL Standardized Instrument	Spring	Spring	Spring	Spring
Teacher Practice/Fidelity Measures				
Teacher Surveys		Fall/Spring	Fall/Spring	Fall/Spring
Teacher Interviews		Spring	Spring	Spring
Classroom Observations		Spring	Spring	Spring

The study will assess teacher knowledge and efficacy by means of a questionnaire, which will likely be administered online. Building from the principles of QTEL, this instrument will measure knowledge of key pedagogical concepts, including how to: 1) promote deep disciplinary knowledge in teaching ELs; 2) engage students in high-challenge and high-support tasks; 3) engage ELs in quality interactions; 4) make le 5) develop a quality curriculum for teaching ELs; and 6) sustain a language focus in teaching ELs. These six concepts represent distinct, but correlated measurement constructs. The primary attitudinal construct to be measured with the questionnaire is teacher efficacy.

The questionnaire will be a relatively concise instrument, comprising approximately 35-50 multiple-choice items and selected constructed-response items, allowing for 8 to 10 items per construct that is assessed. The teacher questionnaire will be administered to all participating 6th grade teachers before and after the professional development in Years 2-4 of the study.

A classroom-level observation instrument will measure the degree to which the nature and ctions involving students reflect the principles of QTEL. The specific types of evidence that the observation instrument will examine include: 1) lessons that establish a level of rigor of academic language and content and offer appropriate, high-challenge and high-support tasks to students that develop their conceptual, academic, and linguistic abilities; 2) linguistic procedures linked to activities that facilitate academic discourse

and academic literacy; 3) collaborative interactions and processes; 4) scaffolding strategies in various academic contexts; and 5) metacognitive and metalinguistic strategies.

We will train graduate students and research assistants to administer the classroom-level observational instrument. These annual spring classroom observations will only be conducted for ELA/ESL classes serving the 2007/08 6th grade cohort of students (see bolded diagonal of student panel in Table 8).

Sampling and Power Estimates. Assuming a sample of 40 middle schools in a large urban district like Clark County, Nevada, the MDES for teacher outcomes will be 0.40 if data are collected from six teachers per school. The exact number of teachers who will be involved in the study will depend on the success of recruitment and the size of individual schools in the district. The QTEL pilot project in New York City served five ELA/ESL teachers per school, which would yield an MDES of 0.42.

By using standardized test scores and existing assessments as our primary student-level outcomes, we will be able to study large numbers of students in each participating school. With 100 EL students per school in each grade, the MDES for student level outcomes is 0.26, and only drops to 0.28 for as few as 25 students per school for analysis of student subgroup. If we pool students across all three grades ($n=300$), the MDES drops marginally to 0.25. Insufficient power, however, is available for examining school-level differences in impacts. For example, 10 schools per condition yields a MDES estimate of 0.37 large to be realistically attainable.

Intervention Strategy. The intervention focuses on development of fluency, and academic content knowledge, from

levels and beyond. The intervention includes three years of support. As described in Table 10, the first two years include professional development (70 hours) and coaching (five coaching sessions per year; each session includes planning, observation, debriefing). To reach higher levels of academic achievement, the first year emphasizes the use of rich text, quality interactions, and quality curriculum (Donato, 1994; Genessee et al., 2001). The second year builds on the first with a focus on developing student production of oral and written genres in specific disciplines (Applebee et al., 2003; Langer, 2001; Nystrand et al., 2003). The third year of support is intended to extend support within and across schools.

Assignment to Condition. The target population for the study will be middle school ELA and ESL teachers and their EL students in middle schools served by the school district. Schools will serve as the unit of randomization. Prior to random assignment, all eligible middle schools will be matched with a similar school using the procedures described on page 9 (*A Priori Stratification*). In each selected school, all ELA/ESL teachers will be recruited to participate during Funding Years 2, 3 and 4 (see Table 8). Prior to volunteering, all participants will be informed at the outset that their school has a 50% chance of being assigned to the intervention. *After* all the participating teachers have been identified, paired schools (along with the volunteer teachers within them) will be randomly assigned to treatment and control groups.

Data Collection. The English language proficiency of all students identified as limited English proficient (LEP) will be assessed at the end of the school year using the second language

Table 10. QTEL Professional Development Intervention Topics

Year 1: Building the Base I: 42 Hours of PD plus Coaching	Year 2: Building the Base II: 28 Hours of PD plus Coaching	Year 3: Expanding Expertise: 20 Hours of PD plus Coaching
<ul style="list-style-type: none"> • Understanding how sociocultural notions of teaching and learning support academic and linguistic development • Model of Pedagogical Scaffolding • Using QTEL tasks for scaffolding the reading of complex texts³ • Using QTEL tasks in three moments in reading: preparing learners, interacting with text, and extending understanding • Differentiating instruction through Jigsaw projects • Developing vocabulary knowledge • Developing academic oracy • Applying QTEL scaffolding to develop lessons 	<ul style="list-style-type: none"> • Expanding our notions of sociocultural theory • Understanding and using Principles of Quality Teaching for English Learners • Developing thematic units • Developing disciplinary literacy: English language arts and history • of genre • Applying QTEL scaffolding to develop units 	<ul style="list-style-type: none"> • Developing capacity within and across schools • Increasing capacity of teachers to develop high-challenge, high-support curriculum • Targeting support to increase model • Expanding understanding of how to English, with an emphasis on writing

achievement test that is mandated by the state in which the study occurs. These tests generally provide scores in four modalities: reading, writing, listening, and speaking. In addition, student test score results will be collected from the host

English Language Arts. All students in classrooms participating in the proposed study in treatment and control middle schools are expected to take the assessment at the end of Years 1, 2, 3 and 4 of this study. WestEd, by an advance arrangement, will work with the participating district to provide the scores of students in the participating classrooms at the end of each year.

Data Analysis

As described in the Impact Analyses section on pages 7-9 of this proposal, multilevel regression models are used to estimate program impact. Proficiency and ELA achievement is modeled as function of experimental condition, teacher- and school-level covariates, and random effects to account for clustering within units of aggregation. Analogous models will be estimated for teacher outcomes.

Subgroup analyses offer an important opportunity to extend what we can learn from the study. For example, by dividing the sample of teachers into ones who have a formal certification in ESL and ones who do not, we can compare program impacts across different levels of relevant teacher qualifications. If the program were significantly more or less effective for one of these groups or the other, such a finding would help education policymakers distribute future professional development resources more effectively. Similarly, program impacts may be racy level. The program may be more effective

³ _____
 ation structures) use different types of scaffolding (modeling, bridging, contextualization, schema building, text re-presenta understanding and use of discipline-specific academic content and language.

for those who have strong skills in their native language and for whom traditional ESL instruction is not sufficiently challenging.

Linking Teacher-Level and Student-Level Outcomes. The study will evaluate program effectiveness on both the teacher and student outcomes, using teacher surveys and classroom observations to measure teacher effects and student test scores to measure student effects. In addition to separately presenting program effects at both of these levels, the availability of linked and nested data will enable us to directly analyze how these outcomes relate to one another. For example, we will be able to assess how certain teacher behaviors (such as those targeted by the QTEL intervention) affect student outcomes. As described in more detail on page 6, we plan to use instrumental variables (IV) techniques to examine the linkage between teacher-level effects and student test scores

Challenges

The primary challenge facing the proposed study stems from the fact that, to efficiently deliver the professional development and to maximize its reach to EL students, the study will be limited to a single large urban school district. This creates a number of potential threats to the integrity and usefulness of the study:

1. A significant districtwide policy change or other external event affecting all schools in the district may overwhelm the effect of the QTEL program and may make it impossible to find significant program effects. Even if the internal validity of the estimated program effects would be unaffected, their generalizability might be severely compromised in a case like that.
2. Teachers often move from one school to another within a district. Such moves could compromise the research design, especially if program group teachers end up in control group schools. Even if program and control group teachers do not move from one school to another, they are more likely to be in contact with one another if they teach within the same districts. Such professional or social interaction may cause some teacher practices associated with being in the program group to be disseminated to teachers in the control group.
3. When students move from one school to another, they may go from a program school to a control school or vice versa, thereby diluting the program effect. After entering high school, program and control group students will likely be mixed and may influence one another.

We will address these threats in a number of different ways, both in the organization and management of the study and in the data analysis. To prevent whole-scale district or school-level change from compromising the study we will conduct detailed site recruitment interviews with district administrators, school principals, and other key stakeholders. In these interviews we will emphasize the importance of stability and consistency for the study and the need to exclude schools that are undergoing major restructuring or are experiencing other significant organizational turmoil that would interfere with schools with very high turnover of students or teachers. We will ask the district to provide us with data on teacher and student mobility so that we can track potential crossover at both of these levels and can control for it in our analyses. Lastly, we will use research monitors throughout the

visits to program and control schools and to monitor that the study is implemented as planned. The combination of strong upfront buy-in and continued ongoing monitoring will ensure that the inevitable threat of crossover and treatment contamination is minimized.

Study D

Impact Study: High School Instruction with Problem-Based Economics

Summary

Following on strong quasi-experimental findings, this study will implement a randomized controlled trial of a social studies curriculum in high school economics. Economics is a required course for high school graduation in California, and will be added in Nevada in 2007; NAEP will test economics in 2006. The curriculum approach is intended to increase class participation and content knowledge and has been shown to differentially benefit students in low-performing schools. This study will target rural and urban high schools.

Importance of Study

Two characteristics are called for in a curriculum: rigor and relevance. Rigor means challenging curricula leading students to deep understanding of important ideas. Relevance means seeing how this knowledge applies to real life. Together, these factors can engage students in learning that produces both academic achievement and transferable habits and skills. Or at least that is the goal. What specific curricula and instructional methods are demonstrated to be effective?

Problem-based learning is one approach designed to place learning in the context of the real world. In problem-based methods,

- Students confront a realistic dilemma that, through analysis, investigation, research, and discussion allows for more than one possible solution;
- Students seek knowledge that is essential to understanding and solving the problem; and
- Students become intrigued by the problem they are addressing, and motivated to learn the standards-based content.

A problem-based approach to curriculum is frequently a defined component of current high school reform models (Expeditionary Learning Outward Bound, 1999; Honey & Henríquez, 1996; Newmann & Wehlage, 1995); however, teachers and schools often have difficulty incorporating problem-based teaching into daily classroom instruction (Hendrie, 2003).

One promising approach to problem-based education has been developed by the Buck Institute for Education (BIE). The Buck Institute has partnered with university economists and expert teachers to create a well-defined Problem-Based Economics (PBE) curriculum. Units lasting 4-15 days provide clear instructions for covering core content. The curriculum is introduced with a two-day workshop led by expert teachers who have used the materials in classrooms. While BIE has developed curriculum units, with accompanying teacher training, in several domains of government and social studies, the most fully developed and tested are the economics units.

Economics has been the focus of attention because of the opportunity to improve instruction in what may be a required course, but is often poorly taught. In general, high school economics courses do not help students to understand our economic system and the relationships between supply and demand, consumers and producers, and the workings of world trade (NCEE, 1999). In addition, most teachers are not prepared to teach economics and are discouraged by their teaching experiences, because good instructional materials are not available, and professional development is scanty at best. Identifying a reliable and valid solution to this problem is of great value nationally. Thirty states require student testing in economics or intend to by 2006; 33 require standards to be implemented (NCEE, 2003). NAEP will test economics in 2006.

The BIE economics curriculum has been developed to respond to standards developed by the National Council for Economics Education (NCEE) and is supported by professional development for teachers teaching the curriculum. BIE has partnered with the Centers for Economic Education, affiliated with NCEE, to disseminate the curriculum.

Evidence has been gathered in several studies appears to be beneficial for diverse students (Mo & Choi, 2003; Ravitz & Mergendoller, 2005; Moeller, 2005). Previous research indicates the curriculum is effective with both low- and high-achieving students and that its specific practices are correlated with better student retention of core concepts (Ravitz & Mergendoller, 2005; Moeller, 2005).

Key Research Questions

This study is designed to test _____ curriculum on student learning of economic content and problem-solving skills by addressing the following research questions:

1. Does Problem-Based Economics (PBE) increase student content learning, motivation, and problem-solving skills?
2. Does use of PBE change the beliefs and practices of teachers?
3. Does use of PBE increase teacher confidence, enthusiasm or desire to teach economics?

Research Design

The goal of this study is to evaluate the effectiveness of PBE using a cluster-randomized trial design. The unit of randomization is at the school level. High school economics teachers will be randomly assigned to the treatment or control condition. Given the large number of high schools required to conduct the study (60 in total) and the capacity for high-quality implementation of the treatment, the study will continue for two years. In Year 1, 30 schools will be selected from which 15 will be chosen at random for the treatment condition. This will be repeated in Year 2 with a second group of 30 schools.

Design Overview and Timeline. This study is expected to run for two years, beginning in Summer 2007. In each of two summers, 2007 and 2008, a group of 15 high school economics teachers will receive the treatment. These two cohorts will implement the curriculum for two consecutive fall semesters. Students enrolled in fall semester high school economics classes will receive either the PBE curriculum or the typical course. Fall courses are important as high school economics is often taken in the senior year; we believe it is not advisable to run the study with

students in their final semester of high school. Table 11 depicts the experimental design for teachers and students.

Table 11. Problem-Based Economics Experimental Design

	2007		2008	
	Summer	Fall	Summer	Fall
Teachers				
Cohort #1				
Treatment	PD	PBE		○
Control	TxU	TxU		○
Cohort #2				
Treatment			PD	PBE
Control			TxU	TxU
				○
				○
Students				
Cohort #1				
12 th Grade				
Treatment		○	PBE	○
Control		○	TxU	○
Cohort #2				
12 th Grade				
Treatment			○	PBE
Control			○	TxU
				○
				○

○ = Observations or measurement points

PD = Problem-Based Economics Professional Development

PBE = Problem-Based Economics curriculum delivery

TxU = Treatment as usual

At the beginning of each fall semester, teachers will administer a short student survey and a pretest of the Test of Economic Literacy. During the semester, teachers will complete a short survey following the implementation of each section of the course. The Test of Economic Literacy will be administered to students at the end of the course. We advise that this be the course final exam to reduce test administration and to increase the likelihood that students take the test administration seriously. The posttest will be an equivalent but different version than the pretest.

Table 12. Problem-Based Economics – Study Characteristics and Data Collection Schedule

Study D Design	Cluster-randomized trial; single cohort with comparison, repeated		
Unit of Assignment	Schools		
Sample Characteristics	ers and 40 students per school randomized to treatment and control.		
Statistical Power Estimates	For Type 1 error = .05, 80% or higher power to detect MDES of 0.21 at student level and 0.44 at teacher level		
Implementation begins	Summer 2007		
	2007/08 Cohort		2008/09 Cohort
Student Outcome Measures			
Performance Assessment	Fall		Fall
Test of Economic Literacy (pre/post)	Fall/Fall		Fall/Fall
Student Surveys	Fall		Fall
Fidelity/Teacher Practice Measures			
Teacher Surveys	Summer/Fall		Summer/Fall
Teacher Interviews	Fall		Fall

Study Outcomes. Measurement of student economics learning will use validated and highly reliable tests. We have chosen two of the best-known and strongest assessments that allow comparison with regional and national averages. These instruments are sensitive to key concepts and serve to test concepts taught by both treatment and control teachers. Key outcome variables for the proposed study are summarized below:

Student Outcomes	Teacher Outcomes
<ul style="list-style-type: none"> • Scores on standardized tests of economic content knowledge • Scores on performance assessments of student conceptual understanding • Scores on general problem-solving skills ($\alpha=.83$) using performance tasks (e.g., argumentation) • Interest in economics (self-report, pre-/ post-survey, $\alpha=.80$) 	<ul style="list-style-type: none"> • Self-reported changes in practices and beliefs • Interest in teaching economics • Confidence teaching different topics • Concepts taught anew, or better than in past • Reported benefits from professional development experiences.

A primary test of economic content learning, used widely in peer-reviewed studies, is that Test of Economic Literacy (TEL), developed by the National Council on Economic Education. As a nationally normed and standardized test for meaning the achievement of high school students in economics. Two versions of the test have been carefully matched for both content coverage specifically to support pre-post testing measures, as used in this study. The results can also be compared to national and regional outcomes. Analysis of the tests developed for the BIE curriculum, not used in this study, indicate that there is close alignment with TEL, hence a high expectation of impacting outcomes. In addition, National Assessment of Educational Progress (NAEP) will be testing economics in 2006. We will use available items from this test to compare outcomes between the control group and treatment group to the national norm, adjusting for demographic differences.

judge student conceptual knowledge and economic problem-solving skills. UCLA/CRESST has developed cognitive-based economics performance problems and a validated rubric for assessing conceptual knowledge and argumentation. The economics assessments are based on CRESST's extensive experimental research in model-based, cognitively sensitive assessment (e.g., Baker, 1997; Baker, Freeman, & Clayton, 1991; Baker, et al., 1996; Baker & Mayer, 1999; Niemi,

The specific assessment tasks we will use for this study were created and then piloted with over 300 students in Spring 2005. These economics performance tasks make no explicit reference to the BIE curriculum and were piloted with teachers who both did and did not use the relevant curriculum units. The assessment tasks and their common rubric were revised based on several rounds of student responses. Based on this pilot work, CRESST has indicated that the tasks will provide good evidence about the quality of student conceptual understanding in economics. Over the next year, BIE will work with CRESST to collect more data and score enough essays to provide more substantial validity and reliability data for the performance tasks and the rubric prior to their use.

Finally, teacher and student perception, attitude, and behavior data will be collected using self-report surveys at the start and end of each semester. The teacher end-of-semester survey will ask about impacts on teaching practices, including a) How much they emphasized different concepts, and for what duration; b) Concepts taught anew, or better than in the past; c) What methods they used to teach these concepts; d) Confidence teaching different concepts; e) Interest in teaching

economics in the future; e) Satisfaction with materials and methods used; and f) perceived student reactions to economics. The survey will be administered by their teacher using a script provided. It will ask about interest in economics overall, and interest in learning more about economic topics.

Sampling and Power Estimates. We will identify 60 high schools throughout California and Nevada that have not been exposed to PBE. We will begin with the state roster of schools and remove any that are already known to be using BIE materials; this is particularly an issue in California where widespread dissemination has occurred in many districts. Prior to signing up a school or teacher for the study we will ask again to make sure PBE is not in use already.

Our power analysis demonstrates that the proposed sample design provides adequate power to detect realistically attainable impacts on academic achievement. With 30 high schools per condition and 40 students within each school, we estimate the MDES to be 0.21. This estimate increases to 0.25 with as few as 10 students within each school. Assuming 2.5 teachers per school, the MDES for teacher outcomes is 0.44.

Intervention Strategy. The experimental condition requires teachers to attend the 2-3-day workshop during which they are provided with curriculum materials for PBE and training for using these materials, with possibly a third day to deal with study-specific issues. Workshop leaders are experienced teachers who have used the Problem-Based Economics curriculum extensively. Although workshop schedules may vary by site, some during the school year and others during the summer, according to the preferences expressed by partner organizations and participating schools, all professional development workshops will cover the same content and guide teachers toward replicating the same instructional treatment. Follow-up support will take the form of scheduled web-based coaching seminars and asynchronous email communications.

Participating teachers will agree in advance to teach core concepts in economics as identified by national economics standards, to provide information about this coverage, and to participate faithfully in the treatment or control groups, as required by the study.

Treatment teachers will receive a full set of curriculum materials. Three specific economics units content of these units is typically found in the largest variety of classrooms. These units are typically taught for four days up to three weeks. Teachers will be asked to spend at least five days on each unit. Instructional duration and intensity will be recorded by teachers, and used as a control variable. Variation in implementation will be reported by teachers using an end-of-unit implementation survey. Control group teachers will also be asked to report on the time and methods used to teach the same concepts, but without the PBE curriculum.

Assignment to Condition. Schools will be the unit of randomization for this study. We will identify 30 schools in Year 1 and 30 schools in Year 2 of the study. The recruitment of sites will be ongoing; that is, not all 60 schools will be the first 30 schools have been identified for the 2007 trial, assignment to condition will be by lottery. Each school will have a 50% chance of receiving the PBE curriculum. We hope to include all economics teachers in each high school with which we work, assuming that 2-3 teachers per school teach the course on a regular basis. We will provide a delayed treatment to the control group teachers at the conclusion of the study.

Data Collection. Data collection includes pre-post surveys of students and post-implementation surveys of teachers. The pre- surveys will collect background information and baseline data. The post-surveys will assess changes in attitudes for students and teacher background information. Teachers and students in the treatment group who use the curriculum will also provide data about their implementation, including timing of units and use of core practices. For schools implementing the BIE curriculum, teachers and students will be asked to complete a short survey after each unit is taught to assure implementation fidelity. Teachers will indicate which units were used and when. Both teachers and students will be asked to complete a one-page checklist outcomes in the past.^{E-SeePg61}

Student learning outcomes are designed for use in both PBE-implementing and non-implementing classrooms (i.e., none refer explicitly to the curriculum). As indicated previously, content tests offered nationally have been developed and validated independent of this proposal (TEL and NAEP). In addition, BIE has taken steps to develop and validate performance tasks rubrics for economics content and problem solving with UCLA/CRESST. Their rubric was developed using responses by over 300 students, but requires further validation that will be undertaken as part of the first year of the study.

Teachers and students from the control group, who do not use the curriculum will provide surveys about their use of various methods for teaching and learning key concepts and their

Clarification about the extent of differences among the intervention and control economics curricula, and how this varies across schools, will help make the findings more significant. We will try to gain an understanding of how each teacher emphasized different concepts and what their approach was.

Data collection from students is prioritized for the fall semester to avoid problems with data collection from high school seniors in the spring (Economics is often offered in 12th grade) including absences that result in missing data.

Data Analysis

We propose to use multivariate, multilevel regression models to analyze the outcome data for this study. These models will control for student, school, and teacher background characteristics, all collected prior to random assignment. To preserve resources and to minimize sample attrition due to missing data issues, we plan to use mostly school-level or grade-level covariates when analyzing student outcomes. Further technical details about the models are provided in the section on Impact Analyses on pages 7-9 of this proposal.

Challenges

Each participating teacher and school will agree to participation in the treatment or control group prior to their assignment. Formal letters of agreement and permissions will be provided in advance, including agreement not to use the curriculum if assigned to the control group: there may be concern about adoption of the curriculum by the control group through online download (without professional development) after learning about the curriculum. BIE can limit public (non-password protected) download access for IP addresses in participating states and districts.

Study E

Impact Study: Program for Infant and Toddler Caregivers (PITC)

Summary

This study will test the effectiveness of PITC across the region to build the connection between infant/toddler care and school readiness, consistent with NCLB. Programs from the PITC waiting list will be randomly assigned to treatment and control groups, including samples of both family childcare and group childcare centers. Child assessments will be completed two times for a cohort of students within a center. Because of the age of the children, the early childhood assessments will be primarily observational; later measurement will use a test of cognitive skill and school readiness.

Importance of Study

This study will estimate the effect of the Program for Infant and Toddler Caregivers

The PITC was developed by WestEd in 1985 in partnership with the California Department of Education. Since that time it has grown to be the major provider of infant and toddler training in the country, and is widely used throughout California. Over 1,000 early childhood trainers across 16 states have undergone intensive training in WestEd's Program for Infant and Toddler Caregivers. In turn, these trainers have trained over 10,000 caregivers. The program has been developed and fielded over two decades and has built strong connections with early childhood stakeholders in the western region. It has also been closely involved with Early Head Start (EHS) in the first eight years since its inception, having trained over 1,200 EHS trainers.

The PITC has been associated with significant increases in program quality, including improvements in caregiver-child interactions and language/learning activities. To date, these effects have been documented through pre-post comparisons of childcare environment and caregiving quality. For example, in a California-wide evaluation, the Caregiver Interactions subscale of the Infant/Toddler Environmental Scale (ITERS) was significantly higher for children in the program than for children in the control group. These findings are noteworthy in light of the stability of childcare quality in the absence of intervention as documented elsewhere (e.g., Clifford, 2004). An experimental evaluation of the PITC would provide a rigorous test of the program's impact on caregiver-child interactions, /toddler childcare quality and on child learning and development.

The PITC and the proposed evaluation are aligned with a pressing regional priority of improving the quality of childcare and better preparing children to enter school. The vast majority of infants and toddlers in childcare have caregivers who have not been trained in infant development or in the most developmentally and culturally appropriate caregiving routines. In a 1991 study of infant/toddler childcare throughout the United States, only 8% was seen as developmentally appropriate and 40% was actually seen as harmful to children (Cost, Quality & Outcomes Study Team, 1995). This level of quality must increase before school readiness interventions can have the impact hoped for with preschool age children. As school readiness programs for children aged four and older become more widely accessible and subject to quality standards, the poor quality of many programs for younger children is becoming a focus of concern, particularly since use of such programs by parents indicates a growing trend.

The evaluation is theoretically grounded in research that has found care to be correlated with later cognitive and language development and school readiness (Burchinal et al., 1996; Campbell et al., 2001; Duncan, 2003; Ramey & Ramey, 2004). The Program for Infant and Toddler Caregivers is research-based and is designed to promote responsive, relationship-based care. Caregivers learn to understand competencies, and to facilitate their cognitive, language, social, physical, and emotional development, within the context of the community, culture, and language. In addition, training is provided on program policy recommendations, program operation, and environmental arrangements. PITC training is delivered through multiple modalities including on-site training, which include both childcare and development content, and adult learning strategies delivered by nationally recognized experts.

The theoretical model that underlies the PITC intervention hypothesizes that caregivers who are specifically trained will exhibit improvements in these same domains of childcare quality, which will in turn mediate positive outcomes for children, including school readiness.

Key Research Questions

Following this theoretical model, the proposed evaluation would answer the following questions:

1. What is the impact of participation in PITC on the quality of childcare in childcare centers and family childcare homes?
2. What is the impact of the PITC on children's school readiness, especially on measures associated with school readiness?
3. What is the impact on children who are English language learners?
4. What are the implications of the findings for further replication of the program throughout the western region and elsewhere?

Research Design

The evaluation will use a cluster random-assignment design with childcare programs as the unit of random assignment. We will include samples of both family childcare homes and childcare network of access to both types of programs.

Design Overview and Timeline. The full study will require approximately three and a half years. The first six months will be devoted to design, site recruitment, and random assignment. Baseline program assessments will be administered at the end of this period, followed by 12 months of (staggered) training implementation. Follow-up program-level assessments will be administered six months post-completion of training. Child assessments will be administered six months after PITC training and 12 months after that. The assessment schedule will result in two waves of caregiver data and two post-implementation waves of child data. The experimental design and assessment schedule is depicted in Table 13.

PITC staff will recruit programs for the study in the states of Arizona, Nevada, Utah, and underserved, mostly rural, areas of California. In each state the study will target regions where demand for PITC services is high. Urban and suburban areas of California will be excluded from the study because of widespread diffusion of the program throughout these parts of the state,

making it difficult to maintain control group conditions. In the other three states and in underserved areas of California, emerging interest and lesser availability of the program will make it possible to recruit and assign applicants for PITC to treatment and control conditions, and to maintain those conditions with ongoing monitoring.

Table 13. PITC Experimental Design

	Baseline	Months 0-6	12-Months	24-Months
Program Assessments				
Treatment	O	PITC	O	
Control	O	TxU	O	
Child Assessments				
Treatment		PITC	O	O
Control		TxU	O	O

O = Observation or measurement points
 PITC = Program for Infant and Toddler Caregivers
 TxU = Treatment as usual

Representatives from each of these states have attempted to bring PITC initiatives to their states because of the great need for more training, but currently no large-scale training of trainers has occurred in these states. However, organizations from each of these states have sent professional trainers to the PITC Institutes in California or the Institutes conducted for Early Head Start Trainers so as to have local caregivers trained. Currently, PITC has 51 trained PITC trainers in Arizona, 33 in Nevada, and 30 in Utah. The program is well integrated into the early childhood training systems in California, but underserved areas continue to evince great demand.

Table 14. Study Characteristics and Data Collection Schedule

Study E Design	Cluster-randomized trial; single cohort, multiple ages		
Unit of Assignment	Childcare sites		
Sample Characteristics	(delayed Tx)		
Statistical Power Estimates	For Type 1 error = .05, 80% or higher power to detect MDES of 0.25-0.28 at child level and 0.41-0.53 at site level; assuming ICC of 0.20. Comparable research documents intraclass correlations ranging from 0.12 to 0.23 (Lee, Loeb, & Lubeck, 1998; Howard, 2003).		
Implementation begins	Winter 2006		
	Baseline	12-months	24-months
Global Outcome Measures			
Program Assessments	X	X	
Child Outcome Measures			
Child Assessments		X	X

Study Outcomes. Program quality is the direct focus of the intervention and a mediator of child outcomes; measuring both types of outcomes will ensure a test of the theoretical model underlying the PITC in which the enhancement of caregiver-child interactions is associated with positive child learning and development in multiple domains. Thus, the study is designed to test impact of PITC on both childcare program quality and child learning and development. We will

completion of training. We will measure more distal child outcomes, including early measures of

cognitive skills and school readiness, one year later when children reach the ages of three and four. Final choices of measures will be made with input from the Technical Working Group.

Program measures for consideration will include the *Infant Toddler Environmental Rating Scale (ITERS)*; Harms, Cryer, & Clifford, 1990) or the *Family Day Care Rating Scale (FDCRS)*; Harms & Clifford, 1989) as reliable measures of global quality (α s = .70-.93), as well as an additional program quality measure that focuses on the critical area of caregiver/child interactions and is more sensitive than the ITERS/FDCRS to changes in these interactions. In particular, we propose to use the *Program Assessment Rating Scale (PARS)*, developed by the PITC at WestEd to assess specific areas focused on in the training. It is an observation-based rating and contains five subscales: 1) *Family Partnerships* (α = .95); 2) *Cultural Responsiveness*, and *Inclusion of Children with Disabilities*; 3) *Relationship-Based Care*; 4) *Physical Environment*; and 5) *Routines and Record Keeping*. This instrument is in the process of being assessed for its psychometric properties. If this instrument does not meet psychometric standards, one of the other widely used assessments of caregiver interaction quality, such as the *Arnett Scale of Caregiver Behavior* (Arnett, 1989; α s = .81-.98) will be used.

Possible child measures include the *Bayley Scale of Infant and Toddler Development* (Bayley, 1993), which offers assessments of cognitive, language, and social development (α = .87 for total score), and for children aged three and older, the *Peabody Picture Vocabulary Test* (Dunn & Dunn, 1997) and certain subscales of the *Woodcock-Johnson Psycho-Educational Battery* (McGrew & Woodcock 2001), or other normed measures of language development and school *Test of School Readiness*). Appropriate instruments that assess child learning and development in both English and other languages (Spanish) will be used.

Sampling and Power Estimates. The study design is a cluster random-assignment design with a large number of relatively small clusters of 5-10 children each. Because of the small clusters, this is a relatively powerful version of such a design and we expect that the study will be able to reliably detect program effects both at the level of the childcare center (or family childcare provider) and at the level of the individual child. The research sample is designed in such a way that the study will have sufficient power to detect program effects separately for childcare centers and for family childcare providers.

For statistical power purpose, we assume that 5 and 10 children per center, respectively, will be included in the sample of family day care- and center-based day care centers. The actual number of children served by each provider will be somewhat higher, but some children will be dropped from the study because they are too old or too young to be assessed, others will be dropped because their parents refuse to participate, and others may be lost to follow-up. Altogether, these children represent approximately 80% of those served by the programs.

Empirical estimates of ICCs in childcare settings vary substantially from study to study, ranging from 0.12 (Lee, Loeb, & Lubeck, 1998) to 0.23 (Howard, 2003). Given the uncertainty about the expected ICCs in our study and about the ability of center- or child-level covariates to reduce them, we assume ICCs of 0.20 and that covariates used in the analysis will explain 20% of the within- and between site variance for child outcomes.

With 45 center-based childcare centers per condition, we estimate the MDES to be 0.28 with 10 children per center and 0.32 with 5 children per center. For family-based childcare settings, with

75 centers per condition, MDES estimates range from 0.25 with 5 children per center to 0.32 with 2 children per center. Although these MDES estimates are more pronounced than those calculated for the other designs in the portfolio, prior evaluations of the PITC program suggests that impacts of this magnitude are realistically attainable.

MDES are considerably larger for outcomes measured at the center level. Differences in childcare practice and quality have MDESs of 0.41 in family childcare centers and 0.53 in center-based childcare centers. We believe that to make significant impacts on child outcomes, provider-level proximal impacts would need to be larger. Impacts could be estimated more precisely if childcare centers and family childcare providers were pooled for some analyses. Pooling family- and center-based centers yields MDES estimates of 0.32.

Intervention Strategy. PITC directly targets improvement of childcare quality, and thus child outcomes, by training caregivers. The core curriculum consists of four modules: Social Emotional Growth; Group Care; Learning and Development; and Culture, Family, and Providers. The modules cover various aspects of infant/toddler learning and development, and also provide training on program policy recommendations, program operation, and environmental arrangements. PITC training is delivered through multiple modalities including institutes, on-site training, video, print and Web-based materials. Caregivers will receive modules, on-site coaching, and technical assistance from PITC-certified trainers. The training will involve at least 60 contact hours over a period of six months.

We will maintain the treatment/control contrast by monitoring program fidelity and potential crossover throughout the initial implementation of the PITC program. The PITC intervention will be specified, based on PITC staff experience of effective practice, to ensure consistency of implementation across sites. All caregivers and program staff at each site working with infants and toddlers will be included in the training. PITC program staff will conduct site visits and review training materials during the implementation period to document consistency of training quality and adherence to the program specifications.

Assignment to Condition. The study follows a cluster-randomized design, with sites being the unit of randomization for the following reasons: 1) the universe of caregivers within a site is small, 2) individual children come into contact with multiple caregivers at their site, and 3) the entire staff in a site tends to work together and environmental changes within a site. Working from the sampling frame of PITC waiting lists, or staff of caregivers who work directly with children and families will be randomly assigned to receive PITC training as the treatment condition, or to receive treatment as usual in the control condition. Control group programs will be offered future access to the program and donations of program toys and equipment.

Working with partner agencies who have implemented PITC training and the Health and Human Services Regional Office staff responsible for Early Head Start training in all states, PITC and the study directors will recruit and screen family childcare homes and centers, obtain consent from programs and families, and ensure that they meet qualifications for the study. Programs will be eligible for the study based on enrollment of a minimum number of children under the age of three — four children per family childcare home and eight per center. Both licensed and

unlicensed programs will be included since a great number of families utilize unlicensed care, which tends to be of the lowest quality and thus the target of state efforts towards improvement. Inclusion in the sample will require consent from both the programs and the parents of the children who will be followed up for the study. If a parent refuses to consent to the research, we will not conduct follow-up assessments with their children. Families of children in both treatment and control groups will receive a small gift for their participation in data collection.

Data Collection. Evaluation staff will work with program staff to identify the program elements and features to be monitored for consistency of implementation. Program staff will maintain records on the delivery of all training components including on-site, group-based, and video/print components and will submit these records to evaluation staff. PITC program staff will work with local instructors to monitor the consistency of training, the consistency of participation by childcare staff, the quality of the training provided, and provider engagement. In the post-implementation program survey, we will ask providers in the program group about the PITC support and training they received and about their satisfaction with these services. (We will also ask both program and control group providers about their participation in any non-PITC training and professional development.) This survey will be conducted online with telephone follow-up.

Observational quality assessments (discussed above) of both treatment and control programs will be conducted by evaluation staff at baseline (prior to implementation) and approximately six months post-completion of implementation. All observers will participate in a weeklong training session and inter-rater reliability of .80 will be established.

At the time of program intake and random assignment, a consent process will be established for all eligible families that will obtain their agreement for both rounds of child assessments as well as contact information that can be used to locate the family in future years. A specialized survey research firm will carry out all the survey tracking and administration. The proposed Co-PIs for this study, Drs. Huston and Bos, have extensive experience in achieving response rates in excess of 80% for long-term follow-up of families and conduct of in-person child assessments.

Data Analysis

Data collection procedures described above will produce two distinct types of outcome data: 1) program-level data, and 2) child outcome data. The former will be collected during the program-level site visits. These data will capture detailed information on the quality of the childcare experiences of children in the centers and family childcare homes and the knowledge and experience of the providers and their staff. The purpose of the analysis of these program data is to be able to describe the full treatment contrast in detail as it was experienced at the program level. In addition to answering the question of whether a program like PITC can effectively improve the pedagogic quality of childcare services, these analyses are very important for the proper interpretation of subsequent program effects on children.

The second type of outcome data (child assessment data) is critical for analysis of more distal outcomes of the PITC intervention. These data address specific questions about the efficacy of program-level interventions in affecting improvements in child outcomes, as well as illuminate the relationships between childcare quality and child cognitive development. To carry out the impact analysis using both sets of data, we estimate multilevel regression models analogous to those described in the Impact Analyses section on pages 7-9 of this proposal.

Challenges

- ***Prevention of contamination in California.*** Since the program has enjoyed wide diffusion in California, additional sample exclusion criteria will be instituted in this state to ensure that caregivers and sites that are involved in both treatment and control conditions have not had exposure to any PITC training prior to entry into the study. Surveys of staff professional development will be conducted both before and after entry into the study to maintain an ongoing record of potentially contaminating effects.
- ***Crossover effects from caregivers or children moving between experimental and control sites.*** We are aware that both caregivers and children may move sites mid-stream, possibly between treatment and control conditions. We will undertake proactive measures to ensure that such crossover does not occur by, for example, offering a time-dependent incentive to staff who stay in their sites at least until the follow-up assessment is completed. We will also consider sampling and random assignment plans that geographically separate treatment and control sites while maintaining their comparability. Finally, we will collect data on staff and child movement to monitor and model crossover effects.
- ***Attrition of programs, caregivers, and children.*** It is possible that entire sites might drop out from the study or that children within sites might leave the area or otherwise exit the study altogether. Furthermore, we face a logistical challenge in the ballooning follow-up procedures for children after they leave sites and go on to preschool and elementary school. However, co-PIs Bos and Huston have significant experience in maintaining participation under these conditions. In addition to proactive measures to prevent dropout through the use of individual incentives and community buy-in, we will conduct intent-to-treat analyses. Except in the case of sites or staff dropping out before the six-month post-training assessment, we will make every attempt to follow participants who leave and obtain outcome measures on them. We will use imputation techniques to derive outcome data on those who are lost to measurement and conduct intent-to-treat analyses and sensitivity analyses to determine the impact of such attrition on explanatory models and evaluation findings.

Study F Impact Study: Lessons in Character Program (LIC)

Summary

This study examines the impact of the *Lessons in Character Program*

attendance, school motivation, and endorsement of universal values consistent with character education. The program comprises 1) core reading and writing curricula, and 2) support materials that reinforce the traits of good character and are designed to support language arts learning standards. Half of the recruited schools will implement LIC in their 4th and 5th grade classrooms, and half will implement in 2nd and 3rd grade classrooms.

Importance of Study

Partially in response to unacceptably high levels of student misbehavior and concern about the low levels of endorsement of values consist

education has become one of the fastest growing (Kousser & Galloway, 2000). The majority of states mandate or recommend some aspect of character education and such character education programs have high levels of support from parents, teachers, and school administrators. Relatively few prospective randomized trials have been conducted to examine the impact of character education programs on behavioral and academic outcomes of students.

The goal of this proposed study is to evaluate the effectiveness of a promising English Language *Lessons in Character Program*

student academic performance, school behavior and motivation, and endorsement of universal values consistent with character education among elementary students. Since 1995, the LIC program has been implemented in over 15,000 schools in every state except Alaska. The core of the LIC program consists of literature-based supplementary curricular material designed to integrate easily into the existing English Language Arts (ELA) curriculum. The lessons are aligned with state ELA standards. The infusion of LIC lessons into the ELA curriculum, and the resulting ease of implementation, distinguishes the LIC from other character education programs.

The primary rationale for character education is the promotion of the ethical, social, and personal integrity of students. Proponents of character education argue that the nation benefits when its citizens subscribe to the ideals of respect for others, fairness and justice, honesty, responsibility, and civic participation. Character education programs are also promoted as a partial solution to the growing problem of student misbehavior at school, and the effect of such misbehavior on student learning. Evidence drawn from years of research has shown that adolescent substance use, violence, crime, and antisocial behavior are closely connected with academic success and other school-related factors including reduced attention spans, lower investment in homework, more negative attitudes toward school, lower motivation, and increased absenteeism (see Hanson, Austin, & Bayha, 2004). Such factors also adversely affect academic performance by influencing teaching and learning processes in the classroom. For example, Lochman, Lampron, Gemmer, and Harris (1987) found that students who were disruptive and aggressive in the classroom had a negative impact on their classmate and reducing instruction time (*c.f.* Bowen & Bowen, 1999).

Because character education in general and the LIC curriculum in particular are logically and conceptually linked to a) knowledge, attitudes, and values related to good character; b) pro-social and anti-social behavior; and c) academic engagement, we expect to find significant effects in each of these dimensions in the impact evaluation.

Prior Empirical Evidence Supporting the Intervention. To date, one randomized-control trial has been conducted to investigate the short-term effectiveness of the Lessons in Character program. Based on a sample of 372 4th grade students in Louisiana and Florida, Dietsch, Bayha, and Zheng (2005) compared outcomes for 11 classrooms using the LIC curriculum for one semester with those from 10 randomly assigned control classrooms. Statistically significant results favoring the curriculum group were found on attendance, reading grades, and standard deviations. Item-level analyses of the student surveys found more favorable results for the curriculum group on character-related knowledge, attitudes, and values, but only a few differences were statistically significant. However, the anonymity of the pre- and posttest surveys necessitated that the survey data be aggregated at the classroom level prior to analysis, which reduced statistical power for detecting

program impacts. Item-level analyses of teacher perceptions of student knowledge and behavior generally favored the curriculum group, but only a few differences were statistically significant, most likely due to insufficient statistical power for detecting all but large program impacts. The results for academic performance are promising, while those for knowledge, attitudes, and values related to good character are inconclusive given the sampling and survey constraints.

Key Research Questions

The study is guided by the following specific research questions:

1. Is participation in LIC effective at raising student achievement, improving attendance, and reducing disciplinary referrals?
2. Do students who participate in LIC demonstrate more positive character traits and behaviors, and greater social skills, compared to control group students?

Research Design

Design Overview and Timeline. The LIC impact evaluation is a three-year study scheduled to begin in Spring 2006, when final recruitment of the sites, refinement of the design, and finalization of instrumentation are scheduled. Implementation will take place in the 2007/08 and 2008/09 academic years, with teacher professional development and coaching scheduled for early Fall 2007. The study population will consist of approximately 15,000 2nd-5th grade students in 50 schools in California and Arizona. No character education professional development activities or coaching will take place during the second year of implementation. The final six months of the study will be devoted to data analyses, manuscript preparation, and dissemination activities.

To maximize the student sample size available in the estimation of multiyear exposure impacts, all 2nd-5th grade teachers will be recruited in each of the 50 schools recruited. All potential participating schools will have to agree to the data collection activities described below and to make available routinely collected student data on standardized test scores, attendance, and disciplinary referrals. In addition, teachers randomly assigned to the control group must agree to refrain from implementing character education interventions.

Table 15 below depicts the research design. As discussed above, 50 schools will be randomly assigned to implement LIC in either Grades 2-3 (Group #1) or Grades 4-5 (Group #2). Schools will serve as the unit of randomization. As shown in the table, Grades 2-3 in the schools assigned to Group #2 serve as the controls for schools assigned to Group #1, and vice versa for Grades 4-5. Although this design will aid recruitment efforts, having treatment and control conditions *within* each school increases the risk of control group contamination. However, because the LIC program is so tightly infused into the English Language Arts curriculum, the risk of contamination is likely to be low. Moreover, with treatment and control conditions in each school, schoolwide aspects of the program, such as the integration of character education into the school discipline policy, will likely not be fully reflected in the impact estimates. As discussed above, the LIC program puts primary emphasis on the curriculum for effecting change, and it is the impact of the curricular materials that is the focus of the evaluation.

Table 15. Lessons in Character (LIC) Experimental Design

	2007/08			2008/09		
	Pre		Post	Pre		Post
Teachers						
2 nd Grade						
Group #1		PD+CharEd			CharEd	
Group #2		TxU			TxU	
3 rd Grade						
Group #1		PD+CharEd			CharEd	
Group #2		TxU			TxU	
4 th Grade						
Group #1		TxU			TxU	
Group #2		PD+CharEd			CharEd	
5 th Grade						
Group #1		TxU			TxU	
Group #2		PD+CharEd			CharEd	
Students						
2 nd Grade						
Group #1	O	CharEd	O	O	CharEd	O
Group #2	O	TxU	O	O	TxU	O
3 rd Grade						
Group #1	O	CharEd	O	O	CharEd	O
Group #2	O	TxU	O	O	TxU	O
4 th Grade						
Group #1	O	TxU	O	O	TxU	O
Group #2	O	CharEd	O	O	CharEd	O
5 th Grade						
Group #1	O	TxU	O	O	TxU	O
Group #2	O	CharEd	O	O	CharEd	O

O = Observations or measurement points

PD = Prof Development/Coaching Condition in *Lessons in Character*

CharEd = *Lessons in Character* implementation

TxU = Treatment as Usual Condition

Shaded areas correspond to student cohorts tracked/analyzed across two years of program exposure/non-exposure to *Lessons in Character*

The bottom panel of Table 15 depicts the design with respect to *students*. The design enables estimation of single-year program impacts for each grade, and estimation of multiyear LIC exposure impacts for students who were in the 2nd or 4th grade during 2007/08. Note that 3rd graders in 2007/08 cross conditions when they enter 4th grade in 2008/09, which will allow estimation of generative and concurrent curriculum impacts for this particular cohort. As discussed in more detail below, the study is powered to detect grade and cohort-specific small program impacts. The study relies on mixed-modeling procedures (see Statistical Analysis section below) to detect treatment effects on student outcomes.

Study Outcomes. The evaluation relies on school archival data, student surveys of 4th and 5th graders, teacher surveys, and teacher interviews to measure student outcomes and implementation fidelity.

Standardized Achievement Tests.

Mathematics achievement data from district-administered standardized tests for all students will be collected for the years *before* and *during* the intervention. Unfortunately, Arizona and California administer different tests to 2nd-5th grade students. Arizona administers the Terra Nova and Arizona Standards Test (AIMS) to its elementary school students, while the California

Standards Test (CST) is administered to elementary students in California, respectively. We will standardize test scores across states (see Study A in this section of the proposal).

Table 16. LIC – Study Characteristics and Data Collection Schedule

Study F Design	Cluster-randomized trial; single cohort w/comparison		
Unit of Assignment	Grade groups within schools		
Sample Characteristics	school will have either 2 nd -3 rd or 4 th -5 th grade group assigned to Tx; other to TxU		
Statistical Power Estimates	For Type 1 error = .05, 80% or higher power to detect MDES of 0.23 for academic outcomes and 0.17 for behavioral outcomes; MDES of 0.23-0.28 for subgroup analyses.		
Implementation begins	Winter 2007		
	2006/07	2007/08	2008/09
<i>Student Outcome Measures</i>			
Standardized Achievement Tests	Spring	Spring	Spring
Course Grades (ELA, Mathematics)	Spring	Fall/Spring	Fall/Spring
Attendance/Disciplinary Referrals	Spring	Spring	Spring
Character Traits Survey		Fall/Spring	Fall/Spring
Teacher SSRS		Fall/Spring	Fall/Spring
<i>Teacher Practice/Fidelity Measures</i>			
Teacher Surveys		Fall/Spring	Spring
Teacher Interviews		Spring	Spring

Course Grades, Attendance, and Disciplinary Referrals. School and district records on course grades, student attendance, and disciplinary referrals will be gathered across all sites.

Character Traits and Behavior Survey. A 35-minute survey assessing peer and teacher relationships, behaviors, attitudes, and values consistent with the goals of character education will be administered to all 4th and 5th graders at the beginning and end of both implementation years. The survey will assess school connectedness, pro-social and anti-social behavior, trustworthiness, respect for others, responsibility, fairness, citizenship, and other constructs consistent with the goals of character education. The survey will use items and subscales from existing validated instruments. The survey will be developed and piloted in Spring 2006.

Social Skills Rating System (SSRS). Teacher reports on the Social Skills Rating System (Gresham & Elliott, 1990) will be used to assess student social skills, problem behaviors, and academic competence. The SSRS-Teacher is a 57-item multidimensional instrument assessing student social and academic functioning. It has good psychometric properties, good change sensitivity, and has shown positive results in an evaluation of the Responsive Classroom character education program (Elliott, 1995). The SSRS assesses the sub-domains of cooperation, responsibility, empathy, self-control, externalizing problems, and internalizing problems.

Teacher Surveys. We also plan to survey all intervention and control group teachers at the beginning of 2007/08 (pretest) and in the spring of 2008 and 2009. The pretest survey will assess teacher education, professional development experiences in language arts and character education, and the language arts curriculum used. The posttest survey will also contain questions about additional professional development that the teachers participate in during the implementation year. Teachers in the intervention condition will be asked how they prepared and followed up with their lessons, and the frequency with which lessons were delivered.

Teacher Interviews. For a sample of 10-14 teachers in the treatment group, a semi-structured interview (by phone) will be conducted during the spring of each implementation year to assess implementation fidelity, including changes made and barriers encountered, and descriptions of the ways they and their students may have benefited (or not) from the program. For this sample of teachers, we will develop a set of case studies to document changes in practices resulting from program participation.

Sampling and Power Estimates. As discussed above, 50 schools will be randomly assigned to two conditions, with three teachers/classes per grade in each school and 25 students per class. We conservatively assume a student attrition rate of about 25% a year for power estimation purposes, leaving 20 students per class at the end of the 2nd implementation year available for analysis of the outcomes assessed with surveys and school records. SSRS data will be available for four students per class. For the purposes of the power analyses, we assume intraclass correlations of .15 and .07 for the academic and nonacademic outcomes, respectively. With 25 schools per condition and a minimum of 60 (75*.80) students per grade in each school, we estimate the MDES to be 0.23 for academic outcomes and 0.17 for behavioral and attitudinal outcomes. With as few as 10 students per school, the MDES only rises to 0.28 and 0.23 for academic and non-academic outcomes, respectively. Power is available for conducting analyses of student subgroups. For outcomes assessed via teacher reports on the SSRS, we estimate an MDES of 0.22. Precision is enhanced even more if we pool students across grades.

Intervention Strategy. LIC uses a collection of multicultural literature (lap books) and audiocassettes to teach lessons of character focuses on integrating the language of character into the English Language Arts curriculum. The curricula are aligned with California and Arizona education standards. Teachers randomly selected to be in the experimental condition will participate in a one-day training in the LIC program and will receive two days of coaching support for delivery of the curricular material during the fall semester. The curricular material is comprised of core and supporting sections.

LIC is the component of the program that focuses most directly on teaching for understanding and explicitly integrates the language of character into the curriculum. It is a literature-based, language arts program. LIC explicitly focuses on the key character traits of civility, respect, responsibility, trustworthiness, fairness, caring, loyalty, and self-control. The pedagogical approach relies on multicultural authentic literature, enrichment activities, cross-curricular activities, read aloud books, and questioning strategies to help instill habits of good character. A students in targeted activities. LIC consists of 24 lessons to be delivered weekly during the course of the academic year. The program begins with an introduction to used throughout the year as a classroom management tool and reinforcement of the LIC lessons.

The DOL materials consist of sentence correction activities followed up by short writing assignments that emphasize decision-making, goal setting, civic responsibility, and several other character education components. DOL is designed to be used daily to augment the regularly taught language arts program. The WWC (grades 3-8) materials consist of 36 weekly writing assignments that allow students to practice character-centered composition and reading skills.

Although LIC is a comprehensive, schoolwide character education program, it is its integration into the curriculum that is critical to securing teacher support for program activities. The programmatic philosophy of LIC is that it is only through infusing character education into the weekly curriculum that teachers become engaged and proficient enough to implement program principles with rigor and fidelity. Teachers become expert in LIC through daily teaching, and this acquired expertise helps build strong support for schoolwide, comprehensive character education policies and practices. Because the LIC curriculum is so critical, the proposed evaluation focuses exclusively on the impact of the *curriculum* on character traits, behavioral outcomes, and academic achievement.

Assignment to Condition. Schools will be randomly assigned to use Lessons in Character, at no cost, either in Grades 2-3 (Group #1) or in Grades 4-5 (Group #2). Because 2nd-3rd grade teacher/students in Group #2 and 4th-5th grade teachers/students in Group #1 serve as controls, the design includes both treatment and control conditions in each school. This will likely enhance school buy-in and recruitment because control schools will not be denied services.

Data Collection. The evaluation relies on three sources of data: 1) routinely collected district and school archival standardized test scores, attendance, and disciplinary referrals data; 2) surveys administered to all 4th and 5th graders during both implementation years; and 3) teacher-reported Social Skills Rating System (SSRS) data collected from five randomly sampled students per class in all 2nd-5th grade classes. To enable longitudinal tracking, students will be sampled for the SSRS at the beginning of the 2007/08 academic year, with the exception of 2nd grade students in 2008/09. We will also collect data from teachers to monitor the fidelity of implementation and to monitor conditions in control-group classes.

Data Analysis

After stratifying the sample by 2007/08 grade cohort, adjusted posttest outcomes for students in treatment schools will be compared to outcomes for students in control schools. As with the other studies, the primary hypothesis-testing analyses will involve fitting conditional multilevel regression models. See the Impact Analyses section on pages 7-9 of this proposal.

Challenges

- **Control-group contamination.** Since both treatment and control conditions will occur *within* each school, there is a chance that control groups might be contaminated through unintended exposure to the intervention, or that control groups might experience compensatory equalization, thus diluting the impact of the intervention. However, since the intervention is well integrated with the English Language Arts curriculum, it is more likely to be seen as a grade-specific curriculum and not as a stand-alone program. This will reduce the risk of contamination.
- **Attrition.** As with any large-scale longitudinal study, attrition of both teachers and students is a challenge. However, the study is powered to detect small effect sizes in the event of even 25% attrition. Furthermore, intent-to-treat and sensitivity analyses will be conducted to determine the effect, if any, of attrition on final impact estimates.
- **Validity of self-report.** Although self-report of traits, behaviors, and skills is prone to validity

large-scale surveys of very similar measures with great success, and have found that data so generated are valid across multiple surveys. In addition, this particular evaluation relies on multiple sources of data that can be used to validate each other. For example, student achievement is measured using standardized achievement scores, course grades, and student self-report of effort and performance. Similarly, student behavior is measured through attendance and disciplinary referral records, and through teacher report of student behavior.

Study G

Assessment Accommodations for Special Student Populations

Summary

Over the course of the contract, a series of experimental studies will investigate the effects of assessment accommodations on standardized test scores and test score validity for English language learners (EL). During Year 1, we propose to examine the effects of two types of test accommodations: *linguistic modification* (or linguistic simplification) and *modular administration*.⁴ In subsequent years, additional accommodations that are theoretical extensions to this accommodation will be studied. Using what is learned about linguistic modification and modular administration in Year 1, the investigation of accommodations will focus on computer-based testing in Year 2. Each study will examine both *incremental validity* an accommodation yields a more accurate measure of what the targeted students know and can *differential validity*, or the degree to which the accommodations have differential effects on accommodation-targeted students and general education students.

Importance of Study

Large-scale, high-stakes assessment programs are increasingly attempting to incorporate test accommodations to improve the access to and validity of assessments for various student populations. In order to be valid, accommodations must address the specific needs of the students for whom they are provided without altering the construct being tested. A key concern related to the use of accommodations is providing necessary support to students with special needs without influencing what is actually being measured or yielding scores that are not comparable to those of other students taking the test without accommodations. Indeed, for the purposes of this research, an *accommodation* is defined as a condition of test format or administration that yields results comparable for targeted students as the unaccommodated test is to the general student population.

Although research has been conducted on a limited number of accommodations to verify that they do not alter the tested construct (Abedi, Hofstetter, & Lord, 2004; Rivera, Stansfield, Scialdone, & Sharkey, 2000), there is a critical need for more research on the effects of specific accommodation practices on the psychometric characteristics of assessments. States are increasing their reliance on student assessment results to determine rewards and sanctions for schools and individual students. The increased stakes associated with the test results of special

⁴All decisions regarding the accommodations studies will be finalized after consultation with IES staff, state assessment directors, psychometricians, and special education research specialists.

needs students heighten the urgency for investigations of the validity of assessment accommodations provided to these students.

Two experimental studies are proposed for the first year of the contract, one focusing on the effects of *linguistic modification* (or linguistic simplification) of test forms administered to EL students, and another examining the combined impacts of linguistic modification and a modularized administration schedule (i.e., taking the test over multiple days). Linguistic modification involves reducing the semantic and syntactic complexity of the English used in the text of a test, including directions, items, and response options. It is intended to simplify language without changing the content of the test. Focusing on this linguistic modification in Year 1 is a good place to begin sequential re

growing interest in exploring this option for students with disabilities and English language learners. Moreover, superior methods for simplification of language already exist (Sireci, Li & Scarpati, 2003; Abedi, Courtney & Leon, 2001). Similar to simplifying linguistics, providing extended time on a test is a common modification. However, modular test administration (also ts a less frequently used variant of an extended time accommodation. As such, less is known about the potential differential effects of this accommodation across populations. A potential advantage of modular administration is that it involves administration over two (or more) sessions, thereby avoiding the potential fatigue or frustration that some students (especially students who are not English proficient) may experience with an extended single test period (Rabinowitz et al. 2005).

Using what is learned about linguistic modification and modular administration in Year 1, the investigation of accommodations will focus on computer-based testing in Year 2. As more states move towards computer-based testing for all of their students, it is critical that we understand the differential validity effects across student populations. Furthermore, there are features of computer-based testing (e.g., pop-up glossaries, text features) available that could improve both student performance and test validity. For example, a recent study by Abedi, Courtney & Leon (2003) found that computer testing that incorporated several distinct features was the most effective of four different accommodation strategies that were investigated for ELs.

In later years of this accommodations research study, we will be exploring variations of the Year 1 and Year 2 designs and incorporating new accommodations, as research and usage suggest.

The study focuses on students classified as English Learners (EL) because they represent a large and rapidly increasing segment of the student population requiring assessment accommodations in the region. Enactment of NCLB, which requires this growing population of students to participate in state assessment systems, has increased the need for research on accommodations involving EL students. The studies focus on EL students who score at intermediate or advanced levels on English language development tests because such students are required to take the same standardized assessments as general education students.

More generally, state accountability mandates and NCLB have made research on accommodation an active and responsive area of study. Several REL proposals contain contributions to this research area. If these studies are supported, the grantees will have an opportunity to collaborate through the National Laboratory Network to pool their collective work in this area, and develop a solid experimental research base in this area of education policy.

Key Research Questions

The studies will examine the following research questions during the first year of the contract:

1. What are the impacts of linguistic modification and modular administration scheduling on test performance and the psychometric characteristics of tests?
2. To what extent do the effects of linguistic modification and modularization on test performance and test validity differ between EL and general education students.
3. Do the effects of linguistic modification and modularization vary across different subject areas tested, grade levels, and population groups?

Research Design

Design Overview and Timeline. The sequential set of experimental studies will extend for five years beginning Winter 2006. The first six months of the contract will be devoted to recruiting study sites and developing and piloting English Language Arts (ELA) and Mathematics tests. These tests will be consistent with state standards in the region. Upon completion of test development and site recruitment, testing will take place at individual sites. Generally, each year and new accommodations, grades, and content areas will be added. Because we are not evaluating the effects of any particular instructional intervention, we will be able to report results within the limited amount of time available in Year 1 of the contract.

As depicted in Table 17, each study relies on a two-group post-test only experimental design. Accommodation effects are examined for EL- and general education students to examine *incremental validity* and *differential validity*. Incremental validity will be investigated by examining treatment/control group differences in test performance and test validity *within* the EL group. Differential validity will be examined by investigating differences in accommodation effects between EL students and general education students. For an accommodation to be compensatory, treatment/control group differences in test scores should be present among EL students but non-existent among general education students.

Table 17. Assessment Accommodation Experimental Designs

Study A:	English Learner Students		
	Treatment	LINGMOD	O
	Control	No LINGMOD	O
	General Ed Students		
	Treatment	LINGMOD	O
	Control	No LINGMOD	O
Study B:	English Learner Students		
	Treatment	LINGMOD+MOD	
	Control	No LINGMOD & No MOD	
	General Ed Students		
	Treatment	LINGMOD +MOD	O
	Control	No SIMPLANG & No MOD	O

O = observations or measurement points

LINGMOD = With linguistic modification assessment accommodation

MOD = With modular test administration assessment accommodation

The inclusion of both accommodation-targeted students (EL) and their general education counterparts is of significant value to this study. It allows for the measurement of the differential effect of potential accommodations across the full range of student populations tested in state assessment programs. It also allows us to investigate whether these accommodations alter the construct being assessed more completely, a key aspect in the determination of appropriate accommodations. The research design is as rigorous as the designs in comparable research on alternative testing modalities, and more rigorous than many (see Sireci, Li, and Scarpati 2003).

Site recruitment and testing will take place at different times within a given year (i.e., rolling recruitment). Sites (schools and districts) will be purposively selected based on the characteristics of the students they serve, with those serving large numbers of EL students given priority. Within each site, students will be randomly assigned to treatment or control conditions.

Study Outcomes

Student Performance Tests. An ELA and Mathematics test will be administered to student study participants. This 30-item test will be developed to be consistent with the ELA and math standards across the states included in this study and built to support the accommodation being studied. Evidence from state assessment programs and from the use of survey-form norm-referenced tests (NRTs) suggests that tests of this length are sufficiently reliable to provide results that are comparable to the longer forms most states use for high-stakes assessments at the total score level and, more importantly, at item-specific levels. Since many states are moving towards unlimited testing time for their accountability assessment programs, 30 item test forms administered in an hour can be viewed comparably to a typical section of a longer state test.

Table 18. Assessment Accommodations – Study Characteristics and Data Collection Schedule

Study F Design	Randomized trial; multiple cohorts		
Unit of Assignment	Students		
Sample Characteristics	275 students per group, 550 per experiment; Year 1 sample will be comprised of (1) English language learner students who are required to take standardized assessments and (2) general education students across multiple sites; students within each group will be randomly assigned to conditions; in subsequent years of the study, the English language learner characteristics may be more narrowly defined in order to appropriately examine the validity of a particular accommodation or set of accommodations; teachers implement the treatment within one 60-minute class period.		
Statistical Power Estimates	For Type 1 error = .05, 80% or higher power to detect MDES of 0.21 within each group and general education/targeted group accommodation effect differences of 0.30.		
Implementation begins	December 2006		
	2006/07	2007/08	2008/09
Student Measures			
Standardized Assessment	X	X	X
Student Background Survey	X	X	X
Teacher Practice/Fidelity Measures			
Teacher Surveys	X	X	X

Sampling and Power Estimates. Within each group, we estimate that approximately 275 students per experimental condition (or 550 total for each experiment) will be necessary to detect realistically obtainable accommodation impacts on test scores and treatment/control group differences in test validity. Such a sample size yields an MDES estimate of 0.21, assuming that

other covariates explain 20% of the student-level variation in the outcome measure. Sufficient statistical power is available to detect EL/general education group differences in accommodation effects of 0.30 standard deviations.

Intervention Strategy. We will work with state testing directors, comprehensive center staff, and local assessment directors to finalize the selection and contexts of accommodations (e.g., type, grade/grade range, etc.). Their applied expertise will be buttressed with that of psychometricians as well as researchers studying the effects of accommodations on special education and EL student populations. Both treatment and control students will be administered a 30-item assessment comprised of mostly multiple-choice items with some constructed-response items, either taken from state standardized assessments (e.g. released items) or developed by WestEd. Items will be consistent with standards across the grades and states in the study and will be specifically selected to test the targeted accommodation(s). Each testing session will not exceed one hour.

Recruitment. We will recruit for this series of studies by initially contacting school districts throughout the region. Our strategy is to contact the Director of Assessment at the district level to discuss the nature of the research and the burden on students and test administrators (usually teachers). Virtually all schools have students who are classified as English learners or are high functioning special education students. As a result, ultimately working with site principals, we hope to identify groups of students within a particular school, and many schools within districts who could provide rosters of students who meet the criteria for participation in the study. Our test administration protocols will be consistent with those typically used and will not require a special setting or substantial training for administrators. Students from both the treatment and control groups will receive t-shirts for participating in the study.

Assignment to Condition. Students will be randomly assigned directly to the treatment (accommodations) or control (no accommodations) conditions within purposively selected sites. The study coordinator will obtain rosters of all eligible students for the study. Students will be randomly assigned to accommodation and non-accommodation conditions based on a computerized algorithm.

Data Collection. Study participants will be recruited from each state in the region. Materials (e.g., booklets, manuals) will be sent either directly to teachers or through either the SEA or regional CC. Each set of experiments will rely on 3 sources of data: (1) brief student surveys asking students about socio-demographic background characteristics, performance in school, and academic competence; (2) teacher surveys asking about modes of instruction, familiarity with student test score data (see above). Student surveys will be integrated with test score booklets to ease administration burdens.

For their participation, teachers will receive estimates of their state content standards prior to the administration of the actual state accountability assessment. They and their students will also benefit from the development of research-supported accommodations that provide more valid measurement of actual student achievement.

Data Analysis. The data analyses will address the degree to which assessment accommodation practices affect (1) what is being measured by the test (assessment validity) and (2) test score performance.

Test Score Measurement Validity. Exploratory and confirmatory factor analysis procedures will be used to examine construct validity and measurement equivalence across the random assignment condition and student subgroups (special education, EL, and general education students) (Lawley & Maxwell 1971, Meredith 1993, Muthén 1989, Sörbom 1974). Establishing this equivalency is important, as it informs us as to whether the accommodation alters what is being measured by the test and whether or not the scores obtained under accommodation conditions can be placed on the same measurement scale for all students. First, for each accommodation practice/student subgroup we will establish *descriptive* measurement models by fitting a series of exploratory a approach to factor analysis with dichotomous indicators. Exploratory factor analysis (EFA) models will be estimated to roughly determine the number of dimensions assessed by the test and the measurement structure of the latent factors. The EFA results will be used as a starting part for a series of nested confirmatory factor analysis models (CFA). Second, after identifying descriptive measurement models, we will perform CFA with covariates and multiple-group CFA to test for differences in measurement structure by student group and accommodation. Such models will be used to investigate differential item functioning (differences in measurement h captures the degree to which the abilities measured by a test item change in response to the accommodation. We also plan to use Item Response Theory (IRT) methods to evaluate the accommodation effects on item characteristic curves. Both multiple group CFA and IRT methods can be used to test for measurement invariance across accommodation conditions and to place scores obtained under accommodated and non-accommodated conditions on the same scale under conditions of *partial* measurement invariance (Muthén & Muthén 2001).

Test Score Performance. Because the study involves individual random assignment of EL and general education students *directly* to treatment and control conditions in purposively selected sites, we rely on fixed effects multivariate regression models to estimate accommodation impacts on test score performance. The following type of regression model will be estimated:

$$\text{Test}_{ij} = \alpha_0 + \beta_1 \text{EL}_{ij} + \beta_{2E} \text{Tx}_{ij} \text{EL} + \beta_{2G} \text{Tx}_{ij} \text{GE} + \sum \beta_{Ii} I_{ij} + \sum \beta_D D_j + \epsilon_{ij},$$

where *Test* represents the test score of student *i* in site *j*; *EL* and *GE* are dichotomous variables representing EL and general education students, respectively; *I* is a vector of student-level covariates (e.g., gender, self-reported academic competence); *D_j* represents a set of indicator variables for each of the *j-1* study sites; and ϵ is an error term for sample members. The pooled test accommodation impact estimates for EL and general education students are represented by β_{2E} and β_{2G} , respectively. These coefficients capture *incremental validity*. The extent to which the accommodation(s) in question is compensatory, that is, the degree to which the accommodation enhances that validity of the test score for the target population (*differential validity*), is represented by the degree to which β_{2E} exceeds β_{2G} . Note that temporally stable, unobserved differences across sites are accounted for by the β_D parameters. Simple extensions to this model will allow us to examine differential accommodation impacts across other student subgroups.

Challenges

A critical challenge in conducting these studies will be obtaining large enough samples across the various targeted populations. Each site likely will only have a small sample of EL students, and the degree of English language proficiency across this population may vary considerably. This complicates the interpretation of results and increases sample heterogeneity, thereby reducing statistical precision of impact estimates. To aid interpretation of results, we plan to work extensively with EL specialists to define well-represented groups meeting specific criteria.

Ensuring comparable and prescribed assessment administration conditions within and across sites and content areas is another critical challenge. To standardize assessment/accommodation conditions, the study coordinator will maintain frequent contact with test administrators and other site staff during recruitment and study implementation. Administrators and other staff will receive brief written descriptions of the study and assessment administration protocols. This will be followed up with phone calls from project staff reiterating the importance of the design and providing more details regarding the protocol.

We will also be exploring a revised perspective on how efficacy of an accommodation should be defined. An accommodation has typically been defined as one that increases the validity for the target population with no effect on other students who may be similarly assessed (Abedi, 2004; Abedi & Dietel, 2004). This viewpoint may be unnecessarily restrictive and may penalize all students (target and not-target). Increases in test scores across several student populations may in fact represent increased validity for each.

Task 2 General Approaches of Compliance and Consultation

Consultation and Coordination with Other Laboratories

The implementation of RCTs described in this section of the proposal will lead to a number of areas of consultation with researchers throughout the National Laboratory Network. In the areas of study design, recruitment, instrument selection, attrition and analysis, there will be a need for researchers to collaborate on techniques to maximize the integrity of the studies and their findings. WestEd and our research partners look forward to helping to convene these discussions and participating in them over the five year contract period. Additional information about the work of WestEd in the National Laboratory Network is described in Task 3 of this proposal.

Compliance with the Privacy Act and Ensuring Confidentiality of Data

All data collection activities will be conducted in full compliance with Department of Education regulations for maintaining the confidentiality of data collected and for protection of the rights and welfare of human research subjects. Research participants will sign written consent forms. The consent materials will inform respondents about the nature of the information requested, that the data will be confidential and used only for research purposes by researchers that have signed confidentiality agreements, and that the information will only be reported in aggregate form. Where data are collected through in-person interviews or observations, data collectors will remind respondents of the confidentiality protections provided, as well as their right to refuse to answer questions. All data collectors will be knowledgeable about confidentiality procedures, and each will be asked to sign a pledge to protect the confidentiality of respondent data.

Data collection forms (e.g., surveys) will contain no names but only an arbitrary, unique identifying number. We will assign all key informants a unique identifying number, and linked to their identification numbers will be kept in a secure location, separate from the databases used for statistical analyses. Access to hard copy documents is strictly limited. Finally, we will store and archive all survey and respondent record data on a dedicated data server separate from our public servers. Computer data files are protected with passwords, with access limited to specific users. This computer will be secured at all times that it is not being used for data entry and analysis.

Public Use/Restricted Use Data Files

For each study, WestEd or its subcontractors will produce carefully documented archival data files including all the data collected. These data files will contain student/child-level data, teacher/class-level data (if applicable), and site-level data. The data files will include labels, sample weights (if used), and well-identified flags for survey response, experimental condition (MRDT or control), site, etc. A set of files will be produced as public use files, which will not have individual and site identifiers. The public use files will be edited as necessary to eliminate small cells that might enable someone to identify individual students. The decision on what data to release for public use and what data to omit or mask will be based on a careful analysis of disclosure risk, for which we will seek guidance from our IRB.

Procedures for Reducing Participant Burden

The combination of IES review, TWG support, and OMB clearance will be essential in reducing the burden of our studies on participants. We will rely on each of these groups of colleagues to review protocols in advance of their use in the field. In all of the studies, WestEd researchers will be cognizant of the frequency of measurement and the time needed to complete instruments; no instrument will ever contain more items than is necessary to reliably conduct measurement. We realize that many of our studies require frequent visits to schools and classrooms. WestEd and its research partners are committed to the highest standards of professional conduct and will conduct all visits to minimize distractions for teachers, students and site administrators. IRB review will also cover participant burden related to instrumentation and study design.

Dissemination within National Laboratory Network and ED-Funded TA Providers

WestEd looks forward to collaborating across the REL network to deliver scientifically based research findings to a broad audience of practitioners and policymakers. All WestEd Task 2 study findings will be disseminated through the procedures put in place to coordinate dissemination activities across the REL network. These specific dissemination strategies are described in detail in both Task 3 and Task 5 of this proposal. As part of the deliverables of this contract, non-technical reports will be developed for each of the Task 2 studies that have been proposed. These non-technical reports, coupled with in-person and web-based events will allow for broad dissemination of the findings through the regional Comprehensive Center network.

A-SeePg61 November 21, 2005 Response to Technical Question #3 provides additional clarification on random assignment. (See Appendix D)

B-SeePg61 November 21, 2005 Response to Technical Question #6 provides additional information on handling potential cross over effects. (See Appendix D)

C-SeePg61 December 21, 2005 Response to Technical Question #1 explains contingencies for deciding an efficacy of MPP study. (See Appendix D)

D-SeePg61 November 21, 2005 Response to Technical Question #5 provides additional information on the use of observational data. (See Appendix D)

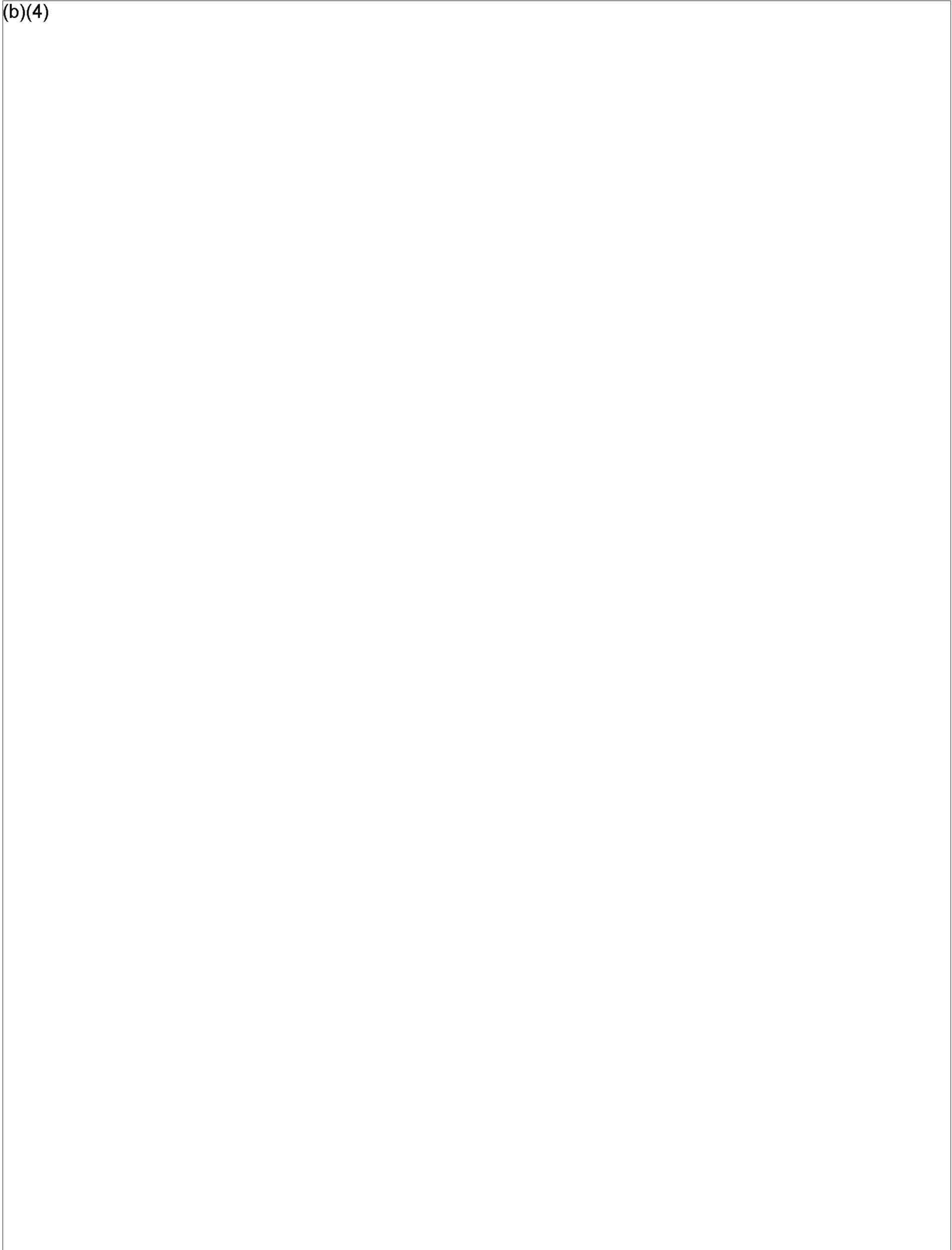
E-SeePg61 November 21, 2005 Response to Technical Question #4 provides additional information on assuring implementation. (See Appendix D)

Task 2: References

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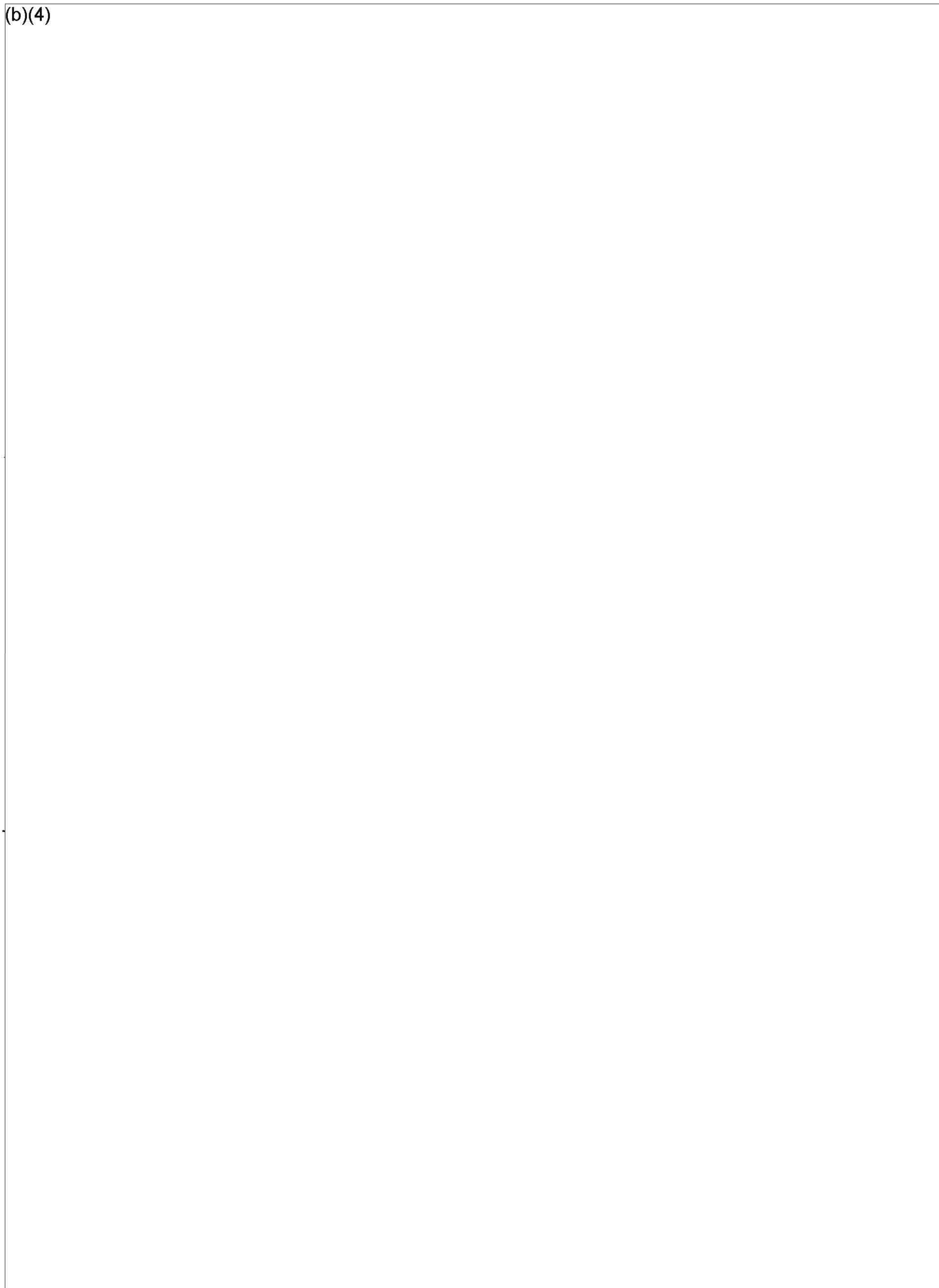
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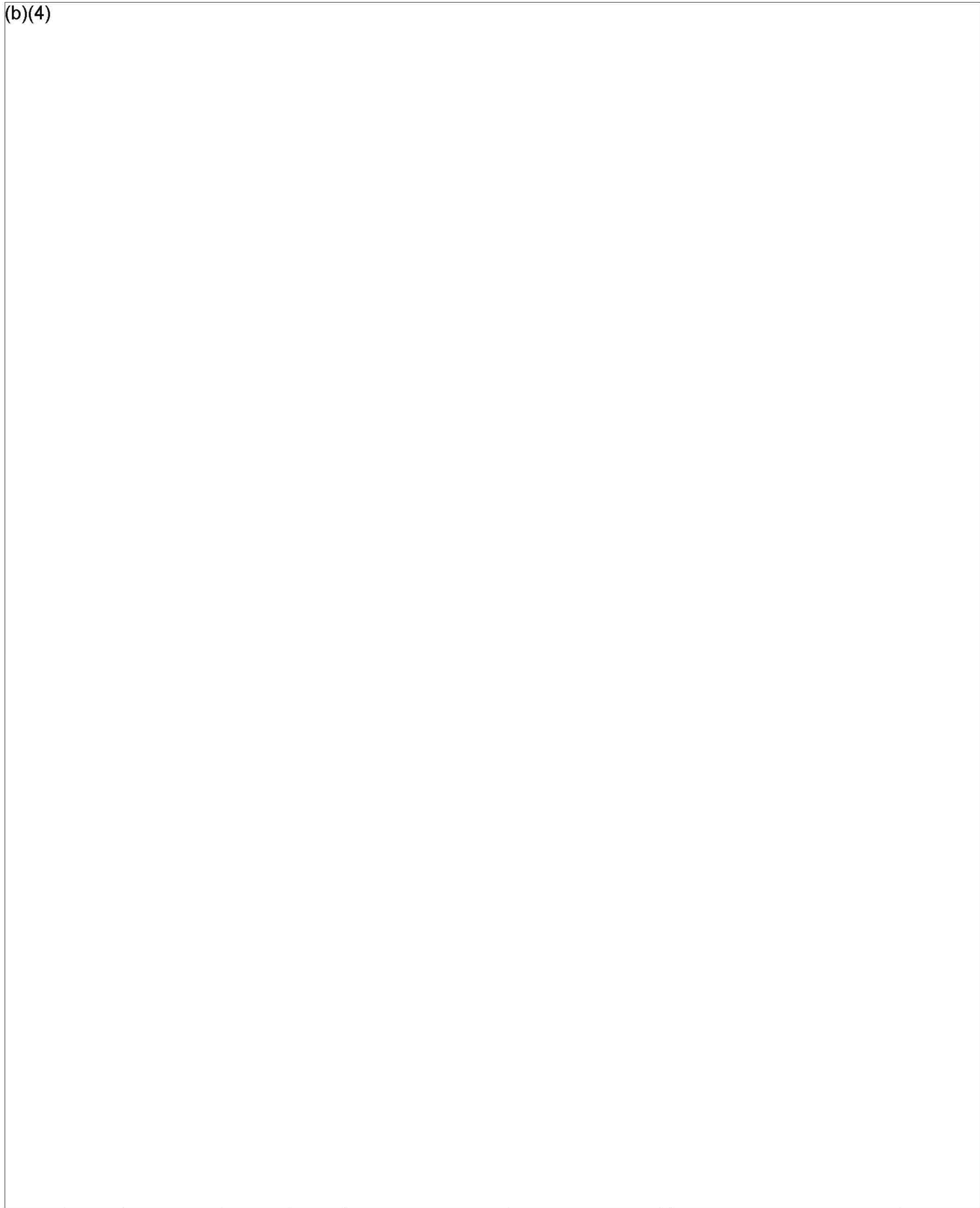


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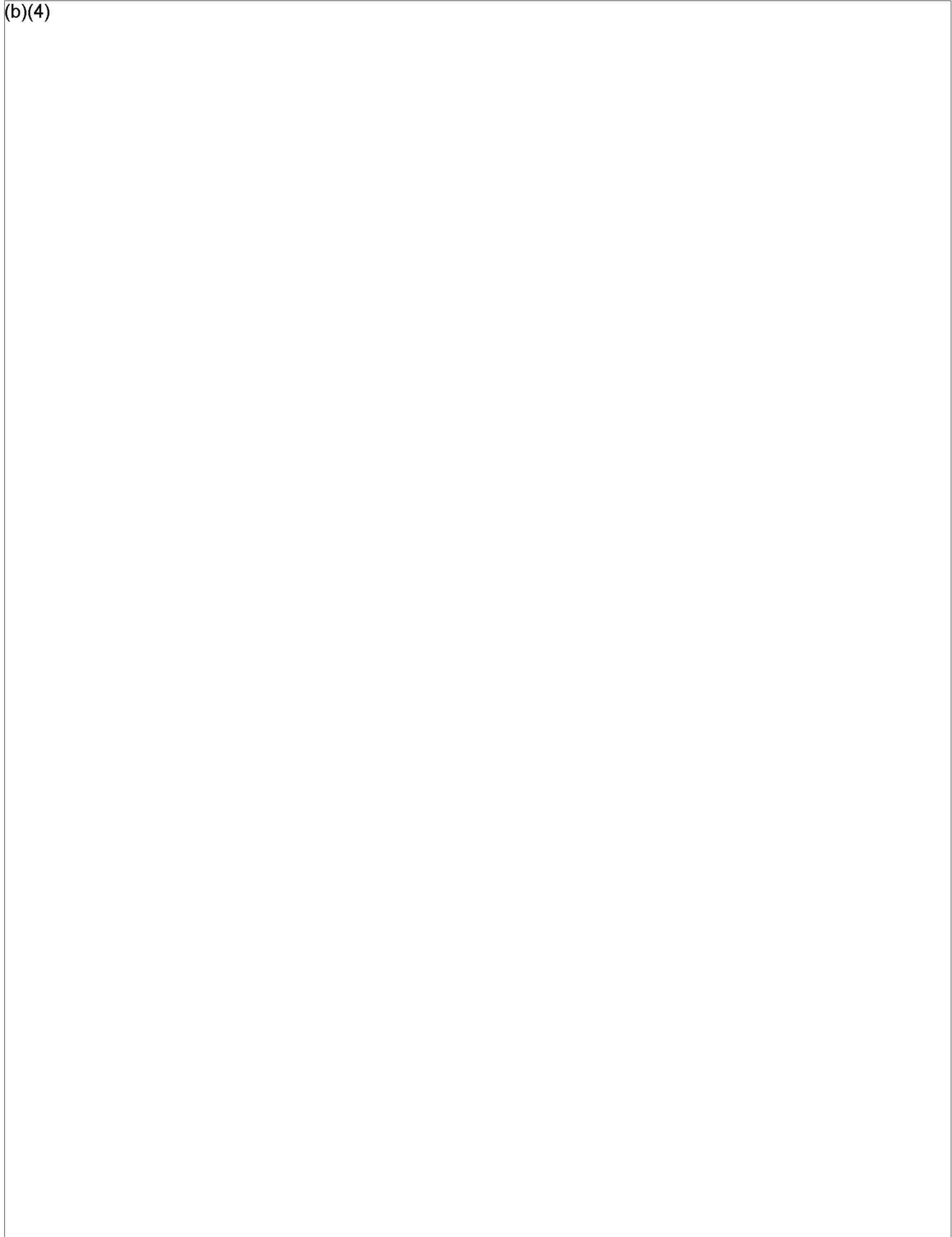


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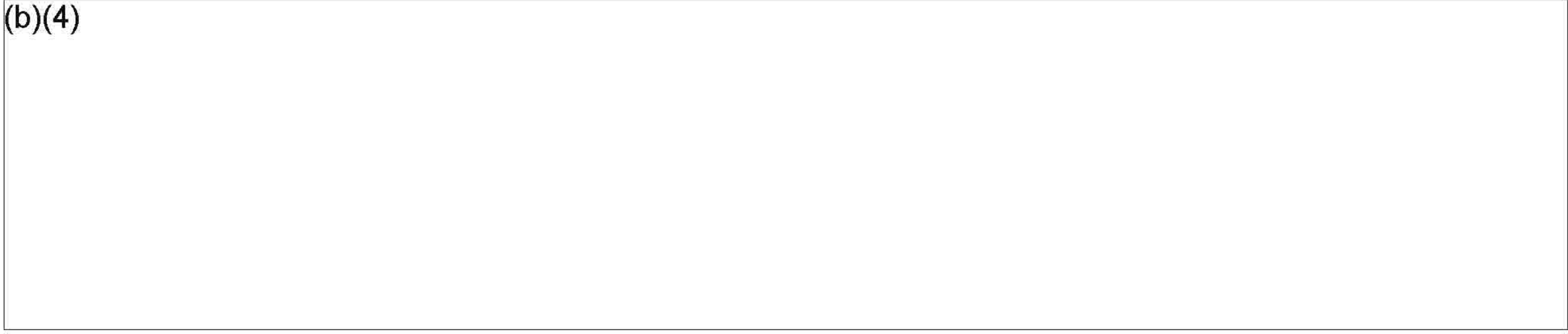
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WREL TECHNICAL PROPOSAL

TASK 2:

**TIMELINE &
SCHEDULE OF
DELIVERABLES/
MILESTONES**

(b)(4)

Task 2 Timeline (cont'd)

(b)(4)

Task 2 Schedule of Deliverables/Milestones

TASK	DELIVERABLE/MILESTONE	DUE DATE (from start of contract)
Task 2		
2.1	Detailed Research Plans for Rigorous Studies	
	Revised Detailed Research Plans and Schedules for each Rigorous Study	
2.1	Scaling MPP Science Cases QTEL	April 2006 January 2007 (2)
2.1	High School Economics PITC Character Education Assessment	May 2006
2.1	Monthly Progress Reports on All Studies	Monthly
2.1	Updated Plans for Rigorous Studies	July 1, annually
2.2	External Technical Working Group	
	Draft TWG Plan	
2.2	Scaling MPP Science Cases	July 2006
2.2	QTEL High School Economics PITC	June 2006
2.2	Character Education Assessment	January 2006
	Final TWG Plan	
2.2	Scaling MPP Science Cases	October 2006
2.2	QTEL High School Economics PITC	September 2006
2.2	Character Education Assessment	February 2006

(2) Revised Detailed Research Plans will be submitted to IES for studies A, B, and C by April 2006. These will be preliminary in nature and will not yet reflect the feedback from the Technical Working Group or revised protocols. We would like to resubmit Final Revised Detailed Research Plans to IES that do incorporate these components in January 2007. We anticipate that staggering the review process for these studies with studies C, E, F and G (April 2006) will allow for a thorough and comprehensive planning and review process for all seven Task 2 studies.

Task 2 Schedule of Deliverables/Milestones (cont'd)

TASK	DELIVERABLE/MILESTONE	DUE DATE (from start of contract)
Task 2		
2.2	External Technical Working Group	
	Draft & Final Agenda	
2.2	Scaling MPP Science Cases	October 2006
2.2	QTEL	September 2006
2.2	High School Economics PITC Character Education Assessment	February 2006
	TWG Review	
2.2	Scaling MPP Science Cases QTEL	November 2006
2.2	High School Economics PITC Character Education Assessment	March 2006
2.2	Draft & Revised Minutes of TWG Meeting	Draft to ED 1 wk after meeting. Revised to ED after 3-wk review of Draft Minutes
2.3	Forms Clearance	
	Draft OMB Forms Clearance Pkg	
2.3	Scaling MPP Science Cases QTEL	March 2007
2.3	High School Economics PITC Character Education Assessment	July 2006
	Revised OMB Forms Clearance Pkg	
2.3	Scaling MPP Science Cases QTEL	May 2007
2.3	High School Economics PITC Character Education Assessment	December 2006

Task 2 Schedule of Deliverables/Milestones (cont'd)

TASK	DELIVERABLE/MILESTONE	DUE DATE (from start of contract)
Task 2		
2.3	Forms Clearance	
	Documentation of IRB Approvals	
2.3	Scaling MPP Science Cases QTEL	March 2007
2.3	High School Economics PITC Character Education Assessment	July 2006
	Preparation of Privacy Act System of Records Notice (if required)	
2.3	Scaling MPP Science Cases QTEL	July 2006
2.3	High School Economics PITC Character Education Assessment	March 2007
2.4	Planning for Data Collection, Site Selection & Site Visit	
	Draft Data Collection Instruments	
2.4	Scaling MPP Science Cases	November 2006
2.4	QTEL High School Economics	October 2006
2.4	PITC Character Education Assessment	March 2006
	Revised Data Collection Instruments	
2.4	Scaling MPP Science Cases QTEL	January 2007
2.4	High School Economics PITC Character Education Assessment	May 2006

Task 2 Schedule of Deliverables/Milestones (cont'd)

TASK	DELIVERABLE/MILESTONE	DUE DATE (from start of contract)
Task 2		
2.4	Planning for Data Collection, Site Selection & Site Visit	
	Proposed List of Sites with Explanation	
2.4	Scaling MPP Science Cases	November 2006
2.4	QTEL High School Economics	October 2006
2.4	PITC Character Education Assessment	March 2006
	Final List of Participating Sites	
2.4	Scaling MPP Science Cases QTEL	January 2007
2.4	High School Economics PITC Character Education Assessment	May 2006
	Draft Protocols	
2.4	Scaling MPP Science Cases	November 2006
2.4	QTEL High School Economics	October 2006
2.4	PITC Character Education Assessment	March 2006
	Revised Protocols	
2.4	Scaling MPP Science Cases QTEL	May 2006
2.4	High School Economics PITC Character Education Assessment	January 2007

Task 2 Schedule of Deliverables/Milestones (cont'd)

TASK	DELIVERABLE/MILESTONE	DUE DATE (from start of contract)
Task 2		
2.4	Planning for Data Collection, Site Selection & Site Visit	
	Task 2.4 Study Implementation Periods (3)	
2.4	Scaling MPP	July 2008 - June 2010
2.4	Science Cases	May 2008 - Oct. 2009
2.4	QTEL	Aug. 2007 - June 2010
2.4	High School Economics	July 2007 - Dec. 2008
2.4	PITC	Dec. 2006 - March 2009
2.4	Character Education	Jan. 2007 - May 2009
2.4	Assessment	Dec. 2006 - Dec. 2009
2.5	Data Analysis & Report Preparation (including ERIC submission)	
	Draft Technical Reports	
2.5	Scaling MPP	July 2010
2.5	Science Cases	November 2009
2.5	QTEL	July 2010
2.5	High School Economics	February 2009
2.5	PITC	April 2009
2.5	Character Education	June 2009
2.5	Assessment	January 2010
	Revised Technical Reports	
2.5	Scaling MPP	September 2010
2.5	Science Cases	January 2010
2.5	QTEL	September 2010
2.5	High School Economics	April 2009
2.5	PITC	June 2009
2.5	Character Education	August 2009
2.5	Assessment	March 2010

(3) Study implementation in this table refers to the period from which the program intervention begins until the final measurement period ends. Collection of historic data (measurement from past periods) is not reflected in this table. These data will be collected during the course of the implementation period. Please see the Experimental Design and Data collection schedules in the proposal narrative.

Task 2 Schedule of Deliverables/Milestones (cont'd)

TASK	DELIVERABLE/MILESTONE	DUE DATE (from start of contract)
Task 2		
2.5	Data Analysis & Report Preparation (including ERIC submission)	
	Final Technical Reports	
2.5	Scaling MPP	November 2010
2.5	Science Cases	March 2010
2.5	QTEL	November 2010
2.5	High School Economics	June 2009
2.5	PITC	August 2009
2.5	Character Education	October 2009
2.5	Assessment	May 2010
	Draft Non-Technical Reports	
2.5	Scaling MPP	July 2010
2.5	Science Cases	November 2009
2.5	QTEL	July 2010
2.5	High School Economics	February 2009
2.5	PITC	April 2009
2.5	Character Education	June 2009
2.5	Assessment	January 2010
	Revised Non-Technical Reports	
2.5	Scaling MPP	September 2010
2.5	Science Cases	January 2010
2.5	QTEL	September 2010
2.5	High School Economics	April 2009
2.5	PITC	June 2009
2.5	Character Education	August 2009
2.5	Assessment	March 2010

Task 2 Schedule of Deliverables/Milestones (cont'd)

TASK	DELIVERABLE/MILESTONE	DUE DATE (from start of contract)
Task 2		
2.5	Data Analysis & Report Preparation (including ERIC submission)	
	Final Non-Technical Reports	
2.5	Scaling MPP	November 2010
2.5	Science Cases	March 2010
2.5	QTEL	November 2010
2.5	High School Economics	June 2009
2.5	PITC	August 2009
2.5	Character Education	October 2009
2.5	Assessment	May 2010

WREL TECHNICAL PROPOSAL

TASK 3:

TASK 3: NATIONAL LABORATORY NETWORK^{A-SEEPG3}

The power of the regional laboratories to serve regional and national needs is dramatically increased by operating as a coordinated network. WestEd recognizes this potential and the WREL will participate fully and actively in the national network, taking a leadership role as appropriate. We anticipate significant opportunities to coordinate and collaborate on both R&D work and dissemination/technical assistance. In addition, we believe that the network must assist all members in building capacity and solving some of the challenges of rigorous field research.

Subtask 1.2 Fast Response projects are one area for coordination. We expect that some of the same issues will arise across the country. For example, WestEd is proposing a review of research on teacher change through professional development strategies. This topic includes a number of subtopics, and the work could be divided and strengthened based on factors such as specific regional priorities and individual laboratory areas of expertise or access to regional partners. Through sharing the work in this way, a more complete and useful set of research reviews could be accomplished.

A more ambitious area for collaboration would be What Works Clearinghouse (WWC) replication/implementation studies. All laboratories will be working to help regional educators use the WWC, including identifying programs that fit their needs, determining the implementation requirements and assessing local capacity to meet those requirements, and then adopting the programs and evaluating results. As more evaluations are posted on the WWC, WestEd would like to engage in systematic studies to examine the generalizability of results to the context of the western region. For example, if a program has proven effective with a largely white population in the Southeast, will it also be effective with English language learners in the West? What implementation issues may arise, and will these be similar in urban and rural contexts (and how might they be addressed)? Sharing this kind of information across the REL and Comprehensive Center system would support more informed and successful use of the WWC, and could lead to rigorous studies that would extend the evidence base.

To illustrate how the system might start to work in an area of common interest like this, WestEd could take the lead for an ad hoc group of REL staff that wanted to support the implementation of I CAN LEARN, a math program that is supported by positive evidence from a randomized controlled trial, as posted on the WWC. As a collaborative technical assistance activity, the REL group could host a meeting — face-to-face or virtual — with staff from sites implementing I CAN LEARN, or considering its implementation. This event would enable everyone to learn more about what it takes to implement successfully, and could also identify opportunities for further systematic research.

Similarly, WestEd welcomes cooperative relationships with the IES research centers. The English Learner Center, for example, will be engaged in research that is highly relevant to the western region. We already have professional connections with a number of the staff in the EL Center, and look forward to learning more about the Center's research agenda. If there were an opportunity to assist with research in our region, or perhaps to coordinate with our Task 2 studies through conceptual overlap or common instrumentation, we would welcome it.

Dissemination of research-based information will also be strengthened by network coordination. Certainly, educators in the western region will benefit from the research findings and products from other regions, and other parts of the nation will benefit from ours. One of the advantages to a more coordinated REL network is the streamlining and systematizing of this information dissemination.

The Digest that we described in Task 4 is one suggestion for a practical product based on this coordination. Systematic study abstracts or highlights would be written by the experts conducting the study, screened by the Task 6 coordinator, and selected by WREL for dissemination based on our knowledge of the immediate needs of our region. By placing the information in the context of regional initiatives or issues under consideration, we can increase the likelihood that readers will make the connection and apply the information appropriately.

Research Advisories are another product that could become a REL network collaborative activity, if there were interest. Included in the WREL Task 4 proposal, Research Advisories are intended to bring to the attention of the research community gaps in the research base that should be filled. These gaps might be specific content issues that have not been fully addressed, or areas where a research review indicated conflicting findings, or suggestions for generalizability studies. By looking across the REL system's R&D, more complete Advisories could be devised.

National events are another natural type of collaborative dissemination. There are many possible models, from cosponsored conferences or symposia to national events for which one laboratory takes the leadership role. One of the most successful examples over the past five-year WREL contract has been the series of Reading Forums sponsored by PREL. They brought together leading researchers with state literacy leaders in a small invitational setting in which the participants could interact closely and dig deeply into the research. The state participants appreciated this chance to engage directly with the researchers. The positive response of California participants led to their request to hold a similar state event — the California Vocabulary Forum, which has initiated an ongoing network. The California Vocabulary Forum was cosponsored by the WREL, providing the research input, and the Comprehensive Centers, providing the logistical support. We expect this kind of laboratory-CC collaboration to increase, and our experience with the Forum provides one example of a successful model.

Virtual events provide an efficient and cost-effective way to support national dissemination. We look to the Task 6 contractor to help clarify IES expectations around Web dissemination and provide the technological backbone, if that is required. WestEd's experience with Webcasts has been particularly positive. In this arrangement, participants can sit at their own computers, view a PowerPoint presentation, and engage in a conference call with an expert speaker. REL staff who have completed a research study would be logical speakers for national as well as regional Webcasts.

The Web is also a logical vehicle for some forms of needs assessment. Online surveys, for example, are increasingly common and provide an efficient way for regional educators to respond. WestEd makes considerable use of online surveys, and sees great value in developing this strategy as a system tool.

Finally, we see the REL Network as a problem-solving community. As we engage in common kinds of work, we will face common challenges. We should learn together about how to do this work well. For example, in the current laboratory contracts, the network has on several occasions brought methodological experts to speak to us, and engage with us in discussions of core issues, such as how to recruit sites for randomized controlled trials.

WestEd is poised to take a leadership role in cross-REL work groups on research methods, or some of the other forms of collaboration described above. We expect the WREL Director and Associate Director, along with other key staff, to be directly engaged in the formation of the REL Network under this contract. Their considerable experience with cross-organizational projects can boost the speed and efficiency with which the new structures are formed. In addition, we have allocated resources that can be used flexibly to engage in collaborative projects as they are defined.

^{A-SeePg3} November 21, 2005 Response to Technical Question #7 provides additional information on how WestEd will work with IES, RELs, and WWC to contribute to generalizability of research findings. (See Appendix D)

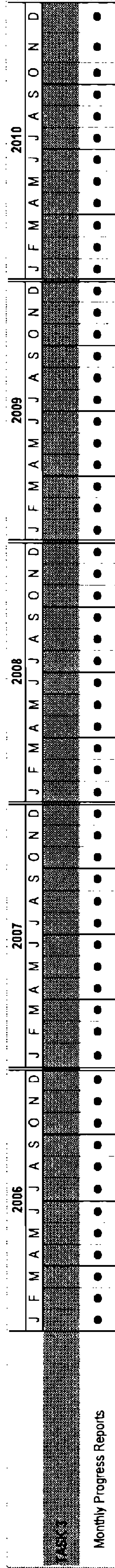
WREL TECHNICAL PROPOSAL

TASK 3:

**TIMELINE &
SCHEDULE OF
DELIVERABLES/
MILESTONES**

Task 3 Timeline

Key
● **Project**
● **Deliverable/Milestone**



Task 3 Schedule of Deliverables/Milestones

TASK	DELIVERABLE/MILESTONE	DUE DATE (from start of contract)
Task 3	Monthly Progress Reports	Monthly

WREL TECHNICAL PROPOSAL

TASK 4:

TASK 4: REGIONAL DISSEMINATION

Producing reliable knowledge that addresses timely and relevant pK–16 education challenges is essential but insufficient for improving teaching and learning in the western region. Equally important is dissemination: getting the information into the hands and heads of those who need it and, to the extent practical, helping them understand and apply it in their own role and context.

Our approach to dissemination is informed by research on knowledge utilization as well as our own practical experiences. We draw on the literature from what Backer calls the “second wave” of research on dissemination and knowledge utilization, from 1960 through 1980, when the federal government sponsored a number of large-scale dissemination and implementation studies (Backer, 1991; Glaser, Abelson, & Garrison, 1983; Paisley & Butler, 1983; Hamilton et al., 2003). We also draw on more recent work, such as a major review of the literature on dissemination and knowledge utilization by the National Center for the Dissemination of Disability Research (NCDDR, 1996) and a review of research and evolving knowledge utilization paradigms by WestEd’s senior researcher, Paul Hood (2002).

One early discussion of dissemination identified four purposes: spread, exchange, choice, and implementation (Dissemination Analysis Group, 1977, as cited in Klein & Gwaltney, 1991). *Spread*, defined as “one-way diffusion or distribution of information,” tends to be most useful for building awareness and seeding interest. *Choice* describes dissemination tasks that are geared toward encouraging users to “seek and acquire alternative sources of information and learn about their options.” *Exchange* and *implementation*, respectively, describe the more interactive (e.g., convening) and personalized (e.g., technical assistance) dissemination efforts that are generally needed to effect “knowledge utilization,” that is, changed attitudes and behavior. While there are more complex and nuanced definitions and theories of dissemination, for discussion here, this four-purpose system suffices.

The more personalized and interactive dissemination activities of these latter categories — the kind that Fullan had in mind when he noted that “the primacy of personal contact in the diffusion of innovations has been known for years” (Robinault, Weisinger, & Folsom, 1980) — will be carried out primarily by WREL conveners and technical assistance providers under Tasks 1 and 2. Those related more to *spread* and *choice* are addressed primarily under Task 4.

4.1 Dissemination System

Dissemination starts with our needs-assessment process, and continues through formal distribution and informal networking. As WREL staff work closely with stakeholders to identify, discuss, and more specifically define the challenges they face, staff will also be establishing the relationships to support use of research-based information when it is ready. Increasingly, as Subtask 1.2 and Task 2 work progresses, WREL will put in place a comprehensive set of strategies to ensure that a variety of regional audiences know about the information and can apply it in their contexts.

Tailored Dissemination Plans

In planning dissemination, it is essential to recognize that different audiences need information distilled and presented in different ways. It is also important to understand that different kinds of information require different approaches to dissemination. For example, the more complex the information, the more intensive the dissemination needed in order to arrive at knowledge utilization (Hood, 2002). Thus, once a Task 1 topic is identified or Task 2 research is underway, the project staff, including a communications specialist, draw on data from the needs-sensing activities and on their experience-based understanding of regional stakeholders to identify key audiences and their specific informational needs. From this discussion, a project's preliminary dissemination plan is developed, such as those included in Subtask 1.2 project descriptions. Once findings are available, the project team, in consultation with any stakeholder advisors, will revisit and revise the plan if needed, based, among other things, on the complexity of information yielded by the research.

Some plans will call for WREL staff to convene representative groups of education change agents and/or researchers to discuss the findings and how they can be applied in participants' respective education contexts. Some of these evidence- and problem-focused discussions will also serve to inform future research or further dissemination. The interaction between WREL staff and stakeholders and, equally important, among stakeholders themselves will serve to reinforce participants' understanding of the findings and lead to more concrete discussion of how to apply them in diverse circumstances.

In some instances, WREL staff may work directly with a particular SEA or, more rarely, with a local district, advising or providing technical assistance. But we expect to be working most often with and through other technical assistance providers, especially the nation's Regional Comprehensive Centers and Content Centers, our sister RELs, and state education agencies. As projects yield results, WREL staff will assemble the most appropriate combination of these providers, either face-to-face or electronically, to introduce findings and facilitate discussion about their applicability for diverse audiences and contexts. Drawing on their collective expertise, WREL staff and these external providers will identify important next steps for dissemination and, in some cases, research. As appropriate, WREL staff will also provide targeted professional development to these providers. Most of these more interactive dissemination activities will be carried out under Task 1 and Task 2, while Task 4 will focus more directly on product development and activities related to *spread* and *choice*.

Strategies for Generating Interest and Awareness

We know that no matter how reliable the information or how clearly and coherently written, a publication alone is rarely enough to cause successful change. There are some exceptions. For example, school board members who have been pushing for full-day kindergarten may use a research-based policy brief outlining the benefits of a longer school day to persuade skeptical colleagues. Even then, some members may first wish to get more information, perhaps wanting to read a more in-depth review of the underlying research, discuss their own questions or concerns with the policy analyst, or explore first hand how other districts are implementing a full-day program. Either way, in most cases, especially with more complex information, more intensive support is needed (e.g., technical assistance, professional development). As noted

earlier, to the extent practical, we will provide it, either directly or indirectly by supporting other providers. But because such support is costly, without the kinds of broadcast-oriented activities detailed below, new research findings would be available to a much more limited number of policymakers and practitioners. By generating awareness of and interest in our publications and the findings on which they are based, we expect to prompt decision makers at all relevant levels to consider and seek whatever support is needed to fully implement new knowledge in their particular context.

Alert Audiences to New WREL Products on REL Network Web Site

All WREL reports and other publications will be posted in an easily downloadable format on the National Laboratory Network Web site, as well as submitted to ERIC. Thus, they will be readily available to those who seek them out. The challenge is to ensure that those who need them know to look for them. Key aspects of our dissemination activities are designed to either directly or indirectly alert members of a product's intended audience that the product is available. Precisely how we do that may vary somewhat by product and its intended audience. But by and large, the effort will entail the following tasks.

Send and post media releases. As new products are posted on the cross-Laboratory Web site, we will produce media releases and distribute them nationally to online, print, and broadcast (television and radio) media. Based on our existing relationships with education writers and broadcast producers as well as our knowledge of each one's particular interests and audiences, we will tailor media outreach as appropriate. We currently have an up-to-date house media list of more than 1200 reporters and producers across the country, as well as a subscription to Bacon's media database which provides us with comprehensive national and regional media contacts.

Send product announcements. We will send an email announcement, with a product description, to all Regional Comprehensive Centers, relevant Content Centers, and other such organizations providing information or services to each product's target audiences. In some instances, these organizations themselves may be part of the target audience; in other instances, the expectation is that, as appropriate, they will communicate to their own constituents about the product or the research findings on which it is based.

We will send a similar product announcement to a set of key influencers for the product's intended audiences. This list, tailored for the product, may include, for example, some combination of state governors, members of legislative education committees, members of Congress, foundations, members of state boards of education, education advisory boards, executive directors of state parent organizations, library associations, college library acquisitions managers, education academicians, and other research organizations. The point is to target individuals and organizations that, should they find a product or its findings sufficiently compelling, are in the position to further its dissemination through their own work and word-of-mouth, which can be a powerful dissemination medium when coming from a trustworthy source.

Leverage professional organizations. We will also develop short product-related articles tailored to particular role groups in a product's target audience (e.g., district superintendents) and submit these articles to the relevant membership organizations in the region (e.g., Association of California School Administrators, Arizona School Administrators Association) and at the

national level (e.g., American Association of School Administrators). Here, too, the expectation is that if an association finds the product useful for its membership, it will promote the product through its Web site, in its blog, or in its newsletter, or perhaps by inviting the author to speak or otherwise participate in its annual conference. It has long been recognized that individuals are more likely to act on information received from those they already know and trust — in this case, the organization considered to represent their professional interests — than on unsolicited information from someone they do not know. Where appropriate for individual products, we will also work to make them available at national and regional meetings of these professional associations.

Submit to Peer-Reviewed Journals and Conferences

Communications staff will work with project teams to craft articles appropriate and of interest to peer-reviewed journals and for presentation at peer-reviewed conferences. The technical reports of Task 2 studies, in particular, will be written for possible submission to a peer-reviewed journal in original or condensed form. Some Subtask 1.2 studies will also be targeted for publication, as appropriate. WestEd staff have always participated actively in the American Educational Research Association, as well as regional peer-reviewed research conferences, and will continue to do so.

Publish Hard-Copy Versions of Selected Products

Depending on the length and complexity of a product and depending on the target audience, some end users may prefer to have a hard-copy version rather than downloading and printing a PDF from the Web. The project lead and a Communications specialist will evaluate every publication in its early development stages for the likelihood that a significant portion of its intended audience will want — or respond more positively — to a traditional print document. If a hard copy version is deemed important, we will produce it and either distribute it gratis (e.g., mailing short policy briefs to members of a state legislature’s education committee) or, for longer documents that are more costly to produce, make it available at cost.

Publish Semiannual Research Digest

Because Task 1 work will be driven by the needs of the respective region served by each REL, some work will be so region-specific that it’s unlikely to be of great interest outside its home region (e.g., an assessment of Nevada’s achievement and graduation rates). Other REL work may be of interest in virtually all regions (e.g., a policy brief on full-day kindergarten). In between is work that yields information of interest to more than one region, but not all. Drawing on the results of our own needs sensing, we will regularly review all publications developed by other RELs to determine which would be helpful to some significant portion of WREL constituents. We will then excerpt a descriptive summary of the product and its findings, placing it in the context of the western region. Beginning in November of Year 1 and then in April and October in subsequent years, these summaries will be collected in *R&D Digest*, a publication that will point readers to the National Web site as the main source for these products. When additional product-specific dissemination of WREL-developed research findings is warranted, they, too, may be summarized in the digest. This semiannual digest will be mailed to key WREL constituents, including local schools and districts, county offices and other cross-district service

providers, state-level policymakers (e.g., state offices of education, state boards of education, key legislators), parent-teacher organizations, and others who request the digest.

Capitalize on Dissemination Opportunities

In addition to the kinds of product-specific tasks mentioned above that are carried out when a product is ready for release, we will also conduct opportunity-driven dissemination over the course of the contract. Specifically, Communications staff will track education publications that produce theme-based issues and help WREL program staff draft a submission based on the research findings of a relevant Task 1 or Task 2 research project that has already resulted in an IES-reviewed product. Similarly, Communications staff will track the need for conference speakers and propose WREL program staff to talk about relevant Task 1 or Task 2 findings/research.

Produce Interactive Web-Based Conferences

One advantage of disseminating information at conferences is the opportunity for interaction either through discussions or presentations followed by a question-and-answer session — an interaction that moves dissemination a notch or two closer to knowledge utilization than does a print product by itself. Working through the Task 6 coordinator, we will produce periodic Web-based conferences featuring new knowledge that has emerged from Task 1 or Task 2 research. Virtual interaction formats like a Webcast or Webinar are increasingly popular because they provide many of the advantages of interactivity while eliminating the cost and time associated with travel.

In producing Web-based events, we will draw from the experience of WestEd’s school improvement group, which regularly hosts 90-minute Webcasts in which a presenter gives a presentation using a combination of oral remarks conveyed via a conference call while simultaneously broadcasting PowerPoint slides over the Web. Audience members, sitting at their own desks (or in group settings), can see the PowerPoint slides, enter questions or “chat” on the Web, and simultaneously listen and ask questions on the conference call. Quick-polls and other devices are also incorporated and allow the presenter to quickly gauge the background and understanding of the audience. Evaluations are routinely conducted at the end of a 90-minute Webcast. Consistently, these evaluations show that this format is not only efficient, but is considered very informative. The entire Webcast, including audio, PowerPoint, and associated resource links, is archived and posted on the Web site for general access and re-use. Minimally, Webcasts will be announced to and through Regional Comprehensive Centers and Content Centers, with targeted mailings to other organizations that serve members of the Webcast’s intended audience (e.g., professional membership organizations, parent-teacher organizations) who would, in turn, be expected to notify their memberships.

4.2 Dissemination of Research-Based Reports

WestEd’s Communications staff has extensive experience working with project staff to define a target audience and assess its needs, tailoring and packaging products to meet those needs, and efficiently delivering the best and most appropriate information. In recent years, for the agency as a whole (including, but not limited to, WestEd’s WREL), the staff develop and produce an

average of 30 publications and other products each year. Under Tasks 1 and 2, we will draw on expertise honed by long experience to develop a number of different types of evidence-based publications, which are described briefly below.

Research briefs (15-30 pages) will report the results of data analysis projects. They will describe study questions, methods of analyses, relevant statistical charts, findings, and implications. Target audiences will be policy analysts and other researchers.

Research reviews (varying lengths) will report the results of projects summarizing research to identify evidence-based information. They address methods for conducting the review, summaries of studies included in the review, findings, and policy implications. Their length will be determined by the extent of the literature base. Target audiences are researchers, trainers, and technical assistance providers.

Policy briefs (2-20 pages) will also report results of the projects summarizing research, but they will distill the results for policymakers and other education decision makers, focusing more on the policy and/or practical implications of a research review.

Proceedings (varying lengths) are associated with projects to apply research findings and will document the outcomes of meetings with regional educators and researchers.

Guides (varying lengths) will be developed for practitioners, to help them apply evidence-based solutions in their settings.

Research critiques (10-20 pages) will be based on discussions at research symposia and will focus on the state of research in a new field of interest and recommend research topics and methods to strengthen the field.

Research Advisories (1-4 pages) will alert researchers to WREL studies as well as areas in which we have identified gaps in the research. The intent of such advisories will be to periodically connect with regional researchers and promote additional quality research.

Research digests (8 pages) will report on research findings from other RELs that are nonetheless relevant to the western region. If additional dissemination is warranted for findings from WREL work, they may also be included in the digest.

WestEd's extensive product development experience has prepared us to successfully develop products for the full range of purposes and audiences listed above.

Information Packaged for Diverse Purposes, Diverse Audiences

In product development, WestEd uses the term “packaging” to refer to translating information from research or technical reports into appropriate and useful form(s) for given audiences. All products — including Task 2 technical reports and any research or evidence-based reports developed under Task 1 — will be developed using the most appropriate user-friendly approach, language, and design for their primary audiences. But these longer reports will also serve as the foundation for other less technical publications targeted to other specific audiences in need of the information they embody. State legislators, for example, will want to know “what the research says” about a particular topic, but with rare exception will not have time or depth of interest to read a full research or technical report, no matter how well written. Instead, our experience tells us, the average legislative policymaker wants a short summary of the research findings presented

with related policy considerations. For this reader, a 2- to 4-page policy brief meets his or her informational needs, while for legislative staff, the depth and detail available in a full research report are often important. For districts' central office staff, on the other hand, action guidelines derived from the same research may be exactly what they need.

No matter what the topic, we know how to make dense, complex information accessible and useful. For example, in the category of research briefs, at the request of Nevada education leaders, WestEd staff recently evaluated the state's graduation rates and student achievement trends against the backdrop of current reform efforts. The resulting 48-page report — *Student Achievement and Graduation Rates in Nevada: Urgent Need for Faster Improvement* — was presented to the Nevada State Board of Education and to the wider public through the media by the State Superintendent of Public Instruction in August 2005. It has been widely reported in the media and is being used to focus dialogue about restructuring education policy in the state. We are also experienced in condensing information into much shorter documents to suit the needs of busy readers in the education community. For example, a recent brief on *Using Flexible Technology to Meet the Needs of Diverse Learners* explains in 12 pages how some commonly available classroom technology — Web resources, graphic organizers, and word processors — can be used to support more individualized instruction.

WestEd is also experienced in developing multiple products based on the same research but aimed at different audiences. For example, drawing from an earlier 18-page WestEd research report, *Improving Student Achievement by Extending School: Is It Just a Matter of Time?*, which describes the connections between time spent in school and student learning, the 2-page policy brief *Making Time Count* teases out the policy implications of that research and makes policy recommendations aimed at both the state and local levels.

The Importance of Being Clear

Underlying the high quality of WestEd products is an understanding of the research on how individuals and organizations access and put to use new knowledge and information. For example, research indicates that effective dissemination requires speaking the “users’ language” and communicating research findings in usable, comprehensive messages following guidelines such as these (NCDDR, 2000, p. 1): be as brief and clear as possible; avoid jargon; use repetition; define your terms; keep to a “low level of abstraction”; use analogies; and cite concrete examples and experiences.

Similarly, research on knowledge utilization indicates that a publication is more effective if it focuses directly and explicitly on a decision that the professional or manager must make (Glaser, 1968). Reports should capture the interest of their readers early, stating problems in forms the user will recognize as familiar and perhaps summarizing some main findings (Goldin, Margolin, & Stotsky, 1969).

At the same time, researchers caution against oversimplifying messages, and especially against jumping to concrete actions without communicating the “fundamental principles and ideas” (NCDDR, 2000, citing Kennedy, 1989). As the National Center for the Dissemination of Disability (NCDDR) synthesis concludes, it is “important to address the question of why as well as how” in order to build commitment and provide a robust understanding that will support

appropriate adaptation and problem solving in the local context. We've tried to take this tack ourselves in a toolkit, now under development, to support district-level school choice initiatives, for example, by describing not just *how* districts have expanded parental options as a strategy to improve but why they've undertaken this challenge. Our Communications Team puts it this way: "You've got to start by helping your readers understand why they should care about what you're giving them."

Quality Assurance Throughout

At the heart of WestEd's quality assurance process for research-based publications is a product profile that serves multiple purposes, chief among them, as a planning tool that leads authors to focus on audience, need and purpose, and review — both formative and summative. The profile also encourages authors to include representative users more actively in development of the product (e.g., utilize members of an advisory committee that may have been convened to help guide the research project). Except in rare instances, authors are required to enlist as reviewers some combination of content experts (including methodologists) *and* representatives of the target audience(s), who review it against such factors as clarity of language, accessibility of ideas, coherence, practicality, appropriate degree of background and detail, and usefulness. The result of this effort is a well-earned reputation for products that are considered both useful and of high quality.

Acknowledged for Quality and Utility

Irrespective of their format, WestEd's products are widely acknowledged for quality and utility. Increasingly in recent years, WestEd products, often co-written or developmentally edited and always polished and designed by our Communications Team, have won national and international awards. In its 2004 international competition, the League of American Communications Professionals gave WestEd seven awards for excellence in the development of print and Web public relations materials, including one for our *R&D Alert* newsletter issue focusing on student well-being (www.wested.org/cs/we/view/rs/717). In 2005, four WestEd products (in one case, a product developed for the U.S. Department of Education's Office of Innovation and Improvement), received top honors from the Association of Educational Publishers: Our *2003 Annual Report* (www.wested.org/cs/we/view/rs/741), the WestEd Web site (www.wested.org), *Rethinking High School: Five Profiles of Innovative Models for Student Success* (<http://www.wested.org/cs/we/view/rs/764>), and *Innovations in Education: Successful Charter Schools* (www.ed.gov/print/admins/comm/choice/charter/report.html). Three other products achieved finalist status.

More importantly, however, our intended audiences find our products useful: In an independent survey of users of regional laboratory products, 92% of respondents rated WestEd's products and services in the highest categories on both quality and utility. We make many of our products available online as PDF documents, and another indication of their appeal is that an average of 80,000 Web-site visitors download over 40,000 PDF documents from our site every month. Half of these visitors have come to WestEd.org for the first time; the rest are return visitors, which tells us that the content of the site is useful enough to warrant another visit.

Evaluation

WestEd plans to develop an evaluation system that provides both immediate and longer-term feedback on the products we disseminate. The purpose of our evaluation activities is to ensure that our products are of high quality, relevance, and utility. At the same time, we are sensitive to the need to balance intrusion into our clients' busy lives and our own desires to have in-depth feedback that can inform future product development.

The indicators of effective dissemination are the extent to which recipients view the products as helpful to them. In addition, we share IES's concern that the products present scientifically based research. The latter issue will be addressed through the advisory groups formed for each research and research synthesis project. Indicators of relevance and utility are:

- The extent to which clients report actual use;
- The areas in which they report use (e.g., for planning; for selecting among alternative curriculum or instructional approaches; and for developing or implementing policies); and
- The numbers and roles of people with whom the information was shared, a particularly important indicator given our choice to disseminate many products through key organizations and individuals.

Our evaluation system will have two dimensions: 1) cooperating with Task 6 activities to gather information about how laboratory networking makes scientifically based research both available to and used by clients; and 2) evaluation activities that are regionally based. Each of these is described in the following section.

It is particularly important to cooperate with Task 6 to avoid duplicative data collection efforts. Over the past 10 years, WestEd and the other laboratories have refined a series of indicators of quality, utility, and relevance. Working together, for example, they contracted with an outside agency to survey recipients of products. The sample included teachers, administrators, and policymakers. If the Task 6 leader decides to undertake a similar activity, WestEd will cooperate and urge the inclusion of parents, researchers, and others (e.g., key foundation leaders) concerned with school reform. As we found in the last contract (Management Information System FY05 Report), it is important to keep track of the use of the Web — Web page views and PDF downloads were overtaking print products as key mechanisms by which clients accessed laboratory products. In this case, we will need to track this information through the Task 6 leader based on downloads of WREL products from the cross-laboratory Web site, as well as downloads from the WestEd site if products are also posted there. We will work to develop a sample that includes sufficient numbers from the western region so that we can perform our own analyses and use the outcomes for management decisions about our dissemination.

In addition to a potential survey undertaken as part of Task 6, we will include a response card, or response Pop Up, with all products. The card will ask for feedback on relevance and utility. We recognize the limitations of this approach but have found comments and ratings useful. Typically respondents are either extremely thoughtful, positive, or negative about the product. All such feedback can help inform future product development.

Finally, we will integrate evaluation of our dissemination system with our ongoing needs assessment (Task 1). One element in the needs assessment will be to ask our clients how well we have been meeting their needs, with specific questions focused on the products we disseminate and the combined outcomes of laboratory networking.

Two specific objectives guide our work and will be evaluated over time, as summarized in the following chart.

Table 1. Objectives and Indicators

Objective 1: To provide research-based products and services that are viewed as relevant and credible by regional constituents.

<i>Indicator:</i>	<i>Measure and Target:</i>	<i>Data Sources:</i>
Information is judged by clients to be clear and comprehensible.	Clients surveyed will rate the quality of the communication as “high” 90% of the time or more.	Embedded product surveys; event feedback forms; client surveys
Information is judged to be relevant to addressing problems of regional significance.	Clients surveyed will rate the relevance of the communication as “high” 90% of the time or more.	Embedded product surveys; event feedback forms; client surveys
Information is judged by clients to be trustworthy.	Clients surveyed will rate the trustworthiness of the communication as “high” 90% of the time or more.	Embedded product surveys; event feedback forms; client surveys
Regional constituents seek out evidence-based information from WREL.	The number of requests WREL receives for products, services, or new studies will increase over time.	Regional database; NLN database
Results of using WREL information are consistent with the WREL product or research findings.	Users surveyed will rate the degree to which their experiences match expectations based on REL information.	Client survey; needs assessment focus groups

Objective 2: To provide research-based products and services that are used by regional policymakers and educators to improve policy and practice.

<i>Indicator:</i>	<i>Measure and Target:</i>	<i>Data Sources:</i>
The extent to which clients report use of the information.	Clients surveyed will report use of information in specific areas: policy decisions, program change, etc.	Client surveys
The extent to which clients report that their use of the information contributed to improvements in practice.	Clients surveyed will cite an increasing number of specific contributions to practice.	Client surveys; tracer studies
The extent to which clients share information with others.	Number and positions of individuals mentioned as those with whom information is shared.	Client surveys; tracer studies

Task 4: References

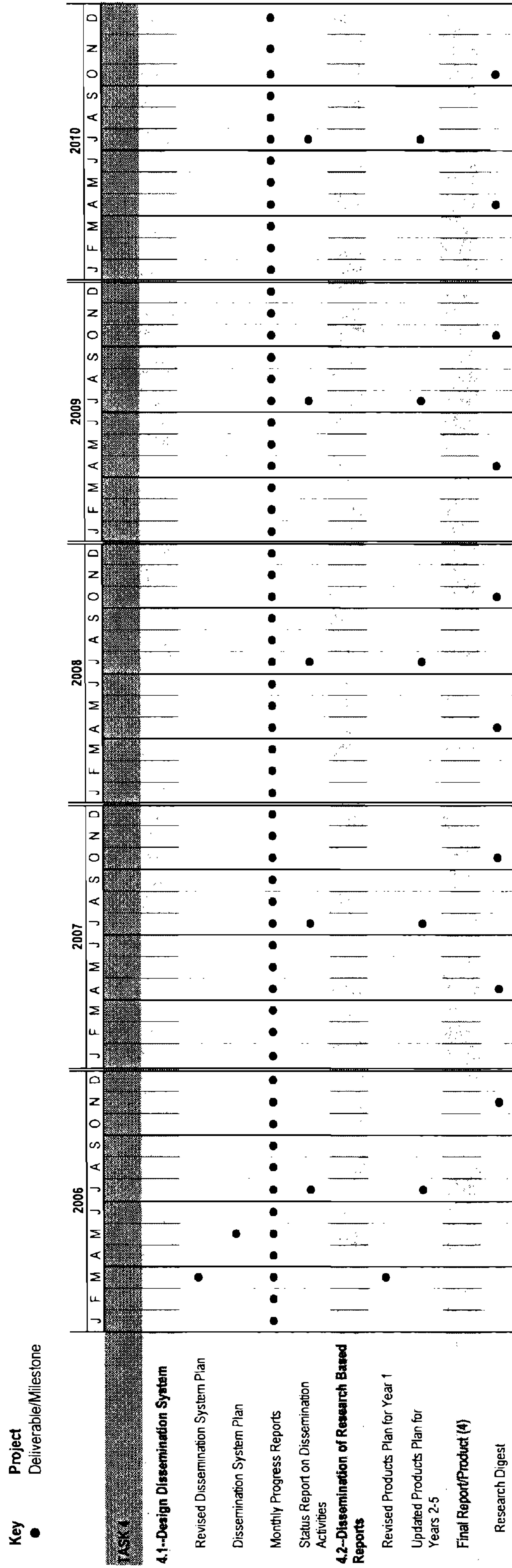
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WREL TECHNICAL PROPOSAL

TASK 4:

**TIMELINE &
SCHEDULE OF
DELIVERABLES/
MILESTONES**

Task 4 Timeline



(3) Timelines for delivery of Task 1 and Task 2 products and submission to ERIC database and the national REL Web site are included under those tasks

Task 4 Schedule of Deliverables/Milestones

TASK	DELIVERABLE/MILESTONE	DUE DATE (from start of contract)
TASK 4		
4.1	Design Dissemination System	
4.1	Revised Dissemination System Plan	12 weeks
4.1	Dissemination System Plan	17 weeks
4.1	Monthly Progress Reports	Monthly
4.1	Status Report on Dissemination Activities	July 1, annually
4.2	Dissemination of Research Based Reports	
4.2	Revised Products Plan for Year 1	12 weeks
4.2	Updated Products Plan for Years 2-5	July 1, annually
	Final Report/Product	November 2006
4.2	Research Digest	April & October, 2007-2010
4.2	Task 1 & 2 Reports/Products	within the timeframe specified in each subtask

WREL TECHNICAL PROPOSAL

TASK 5:

TASK 5: PLANNING, MANAGEMENT AND REPORTING

As an institution, WestEd recognizes that thorough planning, active management, and regular reporting are not just entries on a to-do list, to be dispatched as quickly as possible. Rather, these are essential underpinnings that enable and support our staff in conducting high-quality, high-value work. We know that even the most interesting research does not just happen to meet rigorous standards by accident; nor does a comprehensive needs assessment process just happen to result in responsive and effective technical assistance. Planning and re-planning and reviewing each others' plans; actually analyzing and using the needs data — not just collecting it; vetting a study design and re-vetting it after the school board votes to close half the schools in the control group; this is work we see as integral and critical to the leadership and successful management of a large-scale contract like the WREL. Frequent reporting requirements also work to the advantage of the WREL; the process of developing monthly reports will keep the Leadership Team working closely together, while the reports themselves will act as management and supervision tools for staff as well as keeping IES informed about our work. This section describes our approach to meeting the U.S. Department of Education's expectations around planning, management, and reporting on the WREL, and to using those expectations to serve and enhance the rigor, quality, efficiency, timeliness, and utility of WREL work throughout the course of this contract.

5.1 Updated Annual Plan

As required, by July 1st each year, WestEd will submit an Updated Annual Plan (UAP) to the Department that summarizes the work accomplished that year, and provide updated plans for work proposed for the coming year.

The UAP provides an excellent opportunity to step back from the more detailed view that is needed in monthly reporting and daily management and take stock of the bigger picture. We will use the processes of developing and reviewing the UAP, and responding to subsequent IES questions and responses, to bring the WestEd Board, the WREL Leadership Team, and WestEd's senior management "onto the same page" and ensure we are fully aligned with IES's priorities as the contract moves forward into new years.

For each Task, accomplishments and progress will be highlighted, and we will report on the year's deliverables, milestones, targeted outcomes, and key events. In order to facilitate IES's monitoring and to support the work of the Task 6 contractor, we will use a common research abstract format to report on the studies that have been or are still being conducted under Subtask 1.2 and Task 2; building on prior IES guidelines, these abstracts will efficiently capture the salient points about each study, including information on each study's purpose, target audience, design and methods, dissemination and outreach plans, and challenges and solutions. (If requested, we will work with the Task 6 lead to develop a specific format that all RELs can use consistently.) The process of developing the UAP, and particularly the research abstracts, will serve as an integral component of our overall quality assurance process as the rigor and quality of each research study will be re-examined and strengthened if necessary.

In addition to these highlights and progress reports on the current year's research and activities, the UAP will include all required information on expenditures related to rural areas, products and publications, and on the use of small business consultants. We will highlight any changes that have been agreed upon by WestEd and the Department and will include any other information that could assist IES and the Department in their oversight and monitoring roles. We will also submit, along with the UAP, summaries of all Research Advisories prepared during the year. (Research Advisories, described below in section 5.5, note the further research that could be done, arising out of Subtask 1.2 and Task 2 studies.) An updated budget for the coming year, reflecting any revisions necessary to carry out the agreed-upon work, will also be submitted with the UAP.

5.2 Formation and Functions of a Governing Board

As a public agency, WestEd is governed by a strong and committed Board of Directors that oversees and guides our work and sets direction and priorities for the agency. The Board actively and consistently urges us to attend to impact and utility, maintain high standards for quality and impartiality in our work, and focus on topics of critical importance to the western states. An external evaluation of the WREL in 1999 by Decision Information Resources concluded that: *"[WestEd] is supported by a knowledgeable and active Board of Directors . . . Extensive needs assessment procedures are in place, including a highly effective strategy of drawing upon first-hand knowledge of its Board."*

Directors are appointed to WestEd's Board in two ways. The WestEd Joint Powers Agreement, which provides the legal structure for governance, specifies the agencies and classes of agencies to be represented on the Board. Thirty positions are filled by appointment by the public agencies that signed the Joint Powers Agreement; up to 20 positions are filled with appointments made by the Board itself. Terms of appointment are for three years, with approximately one-third of the members beginning their terms in June of each year. The number of directors currently representing each designated agency or class of agencies is outlined in Table 1.

Table 1. Appointments to WestEd Board of Directors

State	Signatory/Appointing Agencies	Number
Arizona	Arizona State Board of Education Arizona State Superintendent's Office (2) Lay member of State Board (1) Local school administrator (1) Local school board member (1) District representative (1)	6
	Arizona Board of Regents	1

State	Signatory/Appointing Agencies	Number
California	California State Board of Education	5
	State Department of Education (1)	
	County Superintendent of Schools (2)	
	Public School Districts (2)	
	Regents of the University of California	3
	Trustees of California State University System	3
Nevada	Board of Education, San Francisco Unified School District	1
	Nevada State Board of Education	4
	State Department of Education (3)	
Utah	Board of Regents, University of Nevada	3
	Utah State Board of Education	2
	Utah State Office of Education (1)	
	Utah School District (1)	
	University of Utah Board of Trustees	2
	University of Utah and other Utah IHEs (2)	
Total number of appointments made by signatories		30
Business, Public, and other interests		8
Private Research Organizations		1
State Superintendent, California		1
Private Schools, preK–12		1
Private Universities or Colleges in AZ, CA, NV, UT		4
Classroom Teacher		1
Emeritus directors		4
Total number of appointments made by WestEd Board		20

This composition ensures that WestEd has a broadly representative Board, drawn from a variety of role groups and all four of the region's states. Private industry, community organizations, and the public sector are all well represented by leaders like foster care expert William Thorne, Jr., a judge on the Court of Appeals in Utah; Ricardo Valencia, a senior vice president at ING US Financial Services; Richard Jennings, the executive director of the Center for Fathers and Families; and Bernice Stafford, a vice president at PLATO Learning. Highly accomplished teachers, researchers, administrators, and policymakers also serve on WestEd's Board, including each of the WREL region's four chief state school officers who serve on the Board personally or send a regular designee. Two state chiefs have served as Board Chair in the past five years. (Current Board Officers are listed in Table 2.)

Table 2. WestEd Board Officers

- **Chair:** Guilbert Hentschke, Professor, Rossier School of Education, University of Southern California
- **Immediate Past Chair:** Wade McLean, Educational Liaison to Arizona Superintendent of Public Instruction
- **Chair-Elect:** Deanna Winn, former Associate Commissioner for Academic Affairs, Utah System of Higher Education

The WestEd Board recognizes that its role is broader than just representing the existing educational institutions in the WREL region. Professor Guilbert Hentschke, for example, focuses his research on emerging for-profit and non-profit educational enterprises and directs graduate programs that seek to enhance business expertise within educational organizations. With Directors from Clark County, Nevada (which includes Las Vegas) and Phoenix, Arizona, we have representation from some of the fastest growing urban areas in the nation. On the other end of the spectrum, the Board also has deep rural representation through Board members like Bill Todachennie, from the Navaho Nation’s TANF program. This breadth of representation helps the Board keep WestEd apprised and responsive to conditions in the region and aware of developments in other fields in addition to education and academic research. When new appointments are made, the External Relations Committee and Board officers strive to maintain this breadth, balance, diversity, and representation.

Roles and Responsibilities of the WestEd Board

As the governing body of WestEd, the Board of Directors sets policy, establishes priorities, and oversees the operations and programmatic work of WestEd; in compliance with past REL contracts, the Board has been actively involved in providing guidance and oversight to the WREL. In addition to carrying out their WREL duties at quarterly Board and Committee meetings (described below), Board members often participate in the WREL’s activities across the region and, as noted above, the Board will have an active and ongoing role in the development and monitoring of the UAP.

Because the WestEd Board of Directors is relatively large, with 40-50 active members at any given time, it has developed a strong committee structure that enables the Board to leverage expertise and function effectively and efficiently. Committee responsibilities are as follows:

Program Committee. For WestEd as a whole, the Program Committee reviews programs, oversees procedures for assuring program quality, and engages in program planning when appropriate or when called for by a contract. It reports to the full Board on programmatic matters that relate to WestEd’s mission, as well as overall quality in the work. This committee is typically the one most involved in the WREL contract. It has already reviewed preliminary plans for Subtask 1.2 and Task 2 research studies and will continue to play an important role in vetting research designs and reports. This committee will take primary responsibility for monitoring

performance and ensuring that WREL work meets high standards for evidence and rigor in its applied R&D and efficacy in its technical assistance work. In collaboration with the External Relations Committee and the State Delegations, the Program Committee is, and will continue to be, actively involved in assessing the region's educational needs, trends and conditions, and identifying clients, study participants, and professional collaborators. The Program Committee will take the lead in guiding the full Board through the various activities that support development and monitoring the Updated Annual Plan.

The Program Committee is also responsible for developing the Board's quarterly Program Sessions, which bring nationally noted researchers, educators, and community leaders to WestEd's Board meetings to present ideas and research and discuss issues with the full Board and senior staff. The Committee will use this Program Session framework to develop and engage the Board in an ongoing dialogue with the Commissioner of the National Center for Education Evaluation and Regional Assistance throughout the course of this contract.

External Relations Committee. The External Relations Committee reviews WestEd's outreach, communications, partnership, and dissemination activities. This committee routinely urges WestEd staff to continue developing new and innovative ways of sharing what the agency is learning about what works, what constitutes proven best practice, and what counts as rigorous, scientifically valid research. The External Relations Committee reports to the full Board and makes policy recommendations regarding WestEd's relationships with stakeholders and constituent groups served or affected by WestEd or WREL activities. Additionally, the Committee works with the Program Committee on the ongoing analysis of regional needs, trends, and issues that affect the ongoing work and the development of the WREL's Updated Annual Plan. In collaboration with the Program Committee and the State Delegations, the External Relations Committee will take the lead in ensuring that open hearings are conducted in the region to solicit views, perspectives, and priorities from school representatives and teachers, and that these hearings are well designed and implemented so as to involve as many individuals as possible (including those in remote rural or otherwise challenging locales.)

Human Resources and Institutional Development Committee. The Human Resources and Institutional Development Committee reviews and monitors WestEd's personnel policies, procedures, compensation, and institutional resource development practices. The Committee is responsible for ensuring that WestEd complies with all applicable laws and regulations and that the agency adopts and utilizes appropriate state-of-the-art personnel practices. This committee provides the full Board with information and policy recommendations regarding staff capacity and capability for fulfilling WestEd's mission, and pays particular attention to WestEd's recruiting, hiring, and retention efforts involving highly qualified program staff. In addition, the Committee advises the Chief Executive Officer on administrative or organizational issues that arise as new program work is developed and resources are identified to support that work. This Committee will play a key role in determining how to support increased coordination and resource sharing across REL regions, working, if appropriate, with the Task 6 leaders.

Management Committee. The Board has consistently been clear that it expects all of WestEd's operations, not just its program work, to meet high standards and use state-of-the-art practices, processes, and procedures. The Management Committee, in collaboration with the Human Resources and Institutional Development Committee, is responsible for oversight of the

infrastructure of the agency — the systems upon which high-quality program work can be built. The Management Committee is every bit as demanding of high-quality work in the arena of business practices and administrative activities as the Program Committee is in monitoring program work, ensuring that assets are managed, contracts administered, and funds accounted for using widely accepted modern practices and procedures. The Management Committee reviews and reports to the Board on WestEd's current fiscal capability for fulfilling its mission and for conducting contracted work. It also reviews WestEd's institutional budget and expenditures and serves as the Board's designated Investment Committee and Audit Committee.

Executive Committee. The Executive Committee, comprised of the Officers of the Board (Chair, Immediate Past Chair, and Chair Elect) and the Chairs of the four Standing Committees described above, is authorized to act on behalf of the full Board between meetings if needed. It also addresses and reports to the full Board on particular issues that do not fall within the scope of any Standing Committee and, with representation from all the Committees, the Executive Committee facilitates communication and collaboration between and across the committees. As it represents the leadership and all the domains of expertise on the WestEd Board of Directors, the Executive Committee will be directly involved in planning any joint activities with other REL regions or Boards.

State Delegations. In addition to quarterly Standing Committee meetings and full Board meetings, WestEd's Board often meets in State Delegations as well. Whenever deep knowledge of local conditions, issues, or individuals is needed, one or all four State Delegations may meet; they play a key role in the WREL's needs assessment process and will be particularly active in the development of the Updated Annual Plan. The State Delegations are particularly tasked with ensuring that the specific needs and priorities of the region's states, and of disadvantaged and rural and urban populations within the states, are taken into account and reflected in WREL's planning and resource allocations. In addition, State Delegations will play a critical role in designing and ensuring the success of open hearings around the region, working with WREL staff to solicit views from school representatives and practicing teachers from all corners of the WREL region.

Governing Board Meetings and Reporting

WestEd Board meetings are scheduled several years in advance in order to allow maximum attendance and participation by Board members; the first meeting of the Board within this contract period will be January 19-20, 2006. Prior to that meeting, WestEd will provide the U.S. Department of Education with a report that includes the Joint Powers Agreements which established and defined the Board of Directors, Governance Policies and By-laws, an updated list of Board members, and expected dates of Board meetings for the duration of the contract.

Board meetings follow a consistent format and address a number of issues on an annual cycle. At each meeting, the Program Committee will review the WREL's activities, with a special focus on reviewing the designs and monitoring the progress of research studies; over the course of the year, the Program Committee will coordinate the full Board's contribution to the development and monitoring of the WREL Updated Annual Plan. At its April meeting, for example, the Board will update the regional needs assessments that guide the development of updated plans. At each July meeting, the Board will review the UAP that was just submitted and at the fall meeting it

will review any questions or responses from IES or the U.S. Department of Education. Each January, when the Board reviews all of WestEd's work from the previous year, it will also review the WREL's full contract year. Throughout the year, maintaining focus on the quality and rigor of the research conducted under Tasks 1 and 2 will be the highest priority for Board attention. After each Biannual Meeting with the U.S. Department of Education, the Board member who participated will report on that meeting and share the perspective of the Department and IES with the Board. In the third year of the contract, Board meeting agendas will be designed to include any appropriate activities to support the Year 3 Evaluation and in the final year of the contract, the Board, like the Leadership Team, will take advantage of the opportunity to step back and review the full body of work of the WREL as it participates in and supports the development of the Final Report. Materials and meeting minutes will be submitted to the U.S. Department of Education after each meeting of the Board of Directors.

5.3 ED Performance Monitoring

WestEd regularly monitors the performance of large contracts and, increasingly, of all research projects. As an agency we have found that the process of gathering information, analyzing indicators, and reporting on performance (even just internally) strengthens our ability to design and produce high-quality work. WestEd has consistently been supportive of and served in leadership roles in the development of performance indicators for REL contractors. As in the past, the WREL will offer its full support to IES and the Task 6 lead in efforts to define and implement systems for collecting data on indicators that can be used to monitor REL performance.

Quality is one criterion we expect to monitor for all WREL tasks. Quality of the research studies and related tasks will be supported through a combination of procedures described in our management plan and our work with the Board of Directors. Quality will be measured in part by GPRA and other IES reviews of REL products and research. WestEd will also seek input and feedback on quality from Technical Working Groups for research studies, clients and intended users of products and services, and various experts in the respective fields.

Over time, the WestEd Board has also emphasized the importance of *utility and relevance* as important criteria for assessing WREL work, especially for products and technical assistance services. Client and user feedback on these criteria will be part of WREL's Information Management System. In addition, indicator data will be generated through questions to experts and targeted audiences on a) how information from studies, products, and services have contributed to the knowledge base; b) how information from these have been applied in policy formulation, systems design, and practice; and c) whether the outcomes of the application of information were consistent with the expectations of research reports, products, and services (i.e., was the information valid for applied uses).

In brief, WestEd will actively work with IES to supply all information requested by IES for GPRA and other uses (e.g., QASP), and will coordinate internal data collection with these uses, thus ensuring that WestEd's data collection efforts are aligned with IES's needs.

5.4 Meetings with ED

Four members of the WREL Leadership Team — the WREL Director, Associate Director, Director of the Fast Response Unit, and one Director of Research — will travel to Washington, DC to meet with U.S. Department of Education staff within two weeks after the contract award date for an initial contract kick-off meeting. If WestEd is selected as the Task 6 contractor, the lead for that Task will also be available to attend the kick-off meeting. The WREL Leadership Team, senior staff, the WestEd Executive Team, and Board members will be available to meet with the Department if requested throughout the course of the contract. The staff leaders of individual projects, studies, or subtasks will also be available as needed. In addition to participating in meetings and providing regular monthly and annual reports, WestEd will furnish the Department with any information needed or requested that may help the Department remain informed and up to date on key accomplishments, progress on research and in accomplishing tasks, major upcoming activities, actual or potential problem areas, and services and products completed. We will work with the Department over time to determine what information and what formats prove to be most useful; we also propose to conduct periodic conference calls with Department staff to supplement regular written reports. Within two weeks following any meeting or conference call, WestEd will submit a memo to the Department summarizing key issues and concerns and documenting how each issue will be addressed.

5.5 Biannual Meetings

Twice each year, for the duration of the contract, the WREL Director, Associate Director, and at least one representative of WestEd's Board of Directors will meet with the COR and other appropriate Department staff in Washington, DC, to brief the Department on the WREL and to discuss any issues as they arise. We expect to focus primarily on briefing IES staff and sharing information on the studies being conducted under Subtask 1.2 and Task 2, using the research abstract format to ensure consistency, facilitate sharing of information, and assist IES staff in their monitoring responsibilities. WREL staff will also develop, share and discuss Research Advisory briefs with IES at these Biannual Meetings. Research Advisories are brief descriptions of the further research that is needed as a result of current findings of the research studies underway. (University deans and professors on WestEd's Board of Directors have indicated that these would be particularly helpful for students seeking topics for doctoral dissertations.) Research Advisories could be used to define additional studies that might be carried out by IES or other research institutions, and depending on their utility and level of development, could form the basis of a common research effort across the REL system. At the Biannual Meetings, we will share the Research Advisories with appropriate IES staff and, if deemed advisable by IES, also with other RELs or the Task 6 contractor.

WREL staff will communicate with the COR before each meeting to ensure that all critical points are addressed, and follow up after each meeting as much as may be needed. As with all meetings with the Department, within two weeks after each Biannual Meeting we will submit a memo summarizing the key issues and concerns raised at the meeting and how each will be addressed; comments, responses, and recommendations from WestEd's Board of Directors will also be included in this follow-up memo.

5.6 Monthly Progress Reports

As noted above, the WREL Leadership team will take advantage of IES's monthly reporting requirements to impose a higher level of structure and rigor on the more general performance monitoring, management, and quality assurance processes. Monthly Progress Reports will be used as essential management tools. Within the first ten working days of each month, WestEd will provide a summary report, organized by task, on the past month's major activities and accomplishments. For each task we will also note significant findings and events, discuss any problems encountered and our resolution thereof, and delineate staff utilization. In the Monthly Progress Report, we will also indicate the extent to which the work is on schedule and within budget, and highlight key activities that are planned for the following month. Any significant departures from the Plan, in time allocations or activities, will be noted and discussed in detail, as will any exceptions, problems, or decisions that may be needed from the Department in the future. If there are no exceptions, we will indicate that in the monthly reports. After the UAP is submitted on July 1st of each year, the Monthly Progress Reports will reflect plans for both the current and the upcoming year and will highlight any new or evolving issues that may affect implementation of the next year's Plan.

5.7 Monthly Financial Reports

Just as WestEd recognizes that programmatic reporting is a useful tool for staff, not just funders or clients, we know that comprehensive financial reporting can be a useful way of tracking work, timelines, progress according to plan, and levels of effort. A good financial report can provide an early alert if something is off-track. Over 39 years and thousands of contracts, WestEd has developed comprehensive computerized financial accounting and reporting systems, designed for reporting to staff, funders, and clients in a variety of forms and formats. WestEd's standard procedure is to provide project directors, budget managers, and their supervisors with monthly financial reports on every individual contract. Monthly reports can be custom-designed to meet the requirements of a funder, and biweekly labor data can be made available to managers online, for closer management of tasks and funds. For the WREL, WestEd will submit Financial Reports to the U.S. Department of Education each month within the first ten working days of the subsequent month. The Monthly Financial Report will be organized by task and will include both summary and detailed information on expenditures in all categories stipulated in the RFP or in the future by the Department, including salaries, fringe benefits, consultants, travel, supplies, communications, publications, meetings, subcontracts, rural expenditures, indirect and direct costs. We will work with the Department over time to determine what level of detail or aggregation is most useful to the Department in carrying out its oversight and financial monitoring responsibilities and will design Monthly Financial Reports to meet the Department's needs. As stipulated in the RFP, a chart showing a running balance of funds will be included, as will any other financial information requested by the Department at any time.

5.8 Year 3 Evaluation

Like Annual and Monthly Reports, mid-contract evaluation is an activity that is welcomed by WestEd, offering yet another opportunity to step back and assess the work of the WREL at a different level and through a different lens. In the past, we have chosen to supplement

Department evaluations with our own external evaluations of the WREL and we have fully supported all Department evaluations of the RELs and the WREL. In this contract as well, WestEd will cooperate with and fully support the Department in its preparation for and conduct of the Year 3 Evaluation. WREL staff will compile and organize material, data, project descriptions, research abstracts, and research reports as needed, and will provide any other information and assistance requested by the Department or the external evaluation team. We will allocate staff time to review and act on any changes or refinements in the scope of work that may be recommended by the Department. WestEd's Board of Directors and Executive Team will also review the results of the Year 3 Evaluation, to ensure Department requests or recommendations are fully recognized and incorporated into the institution's support and oversight of the WREL contract.

5.9 Final Report

Just as the Updated Annual Reports and the Year 3 Evaluation provide opportunities to step back and take stock of the WREL, the Final Report on the contract will be an invaluable opportunity to review, reflect, and examine the entire portfolio of five years of research, technical assistance, dissemination, and other tasks. The WREL staff, WestEd senior management, and the Board of Directors will all participate in the process of gathering data, reflecting on the work, and developing the draft Final Report. The draft Final Report on the WREL contract will be submitted to the Department at least 16 weeks before the end of the contract in 2010. We will follow the Department's specifications for content and format, and will address accomplishments, results, and benefits of the WREL's work for the contract period. The impact of the technical assistance provided under Task 1, and the overall quality, rigor, and outcomes of the research conducted under Subtask 1.2 and Task 2 will be addressed in considerable detail. To assist the Department in its management of the overall REL program, the results of and subsequent responses to the Year 3 Evaluation will be summarized in the Final Report, as will any significant changes in work that have been agreed upon over the years in the UAPs. Following the Department's review of the draft and input, WestEd will incorporate Department comments into the Final Report. The Final Report on the WREL contract will be submitted on or before the last day of the contract period.

WREL TECHNICAL PROPOSAL

TASK 5:

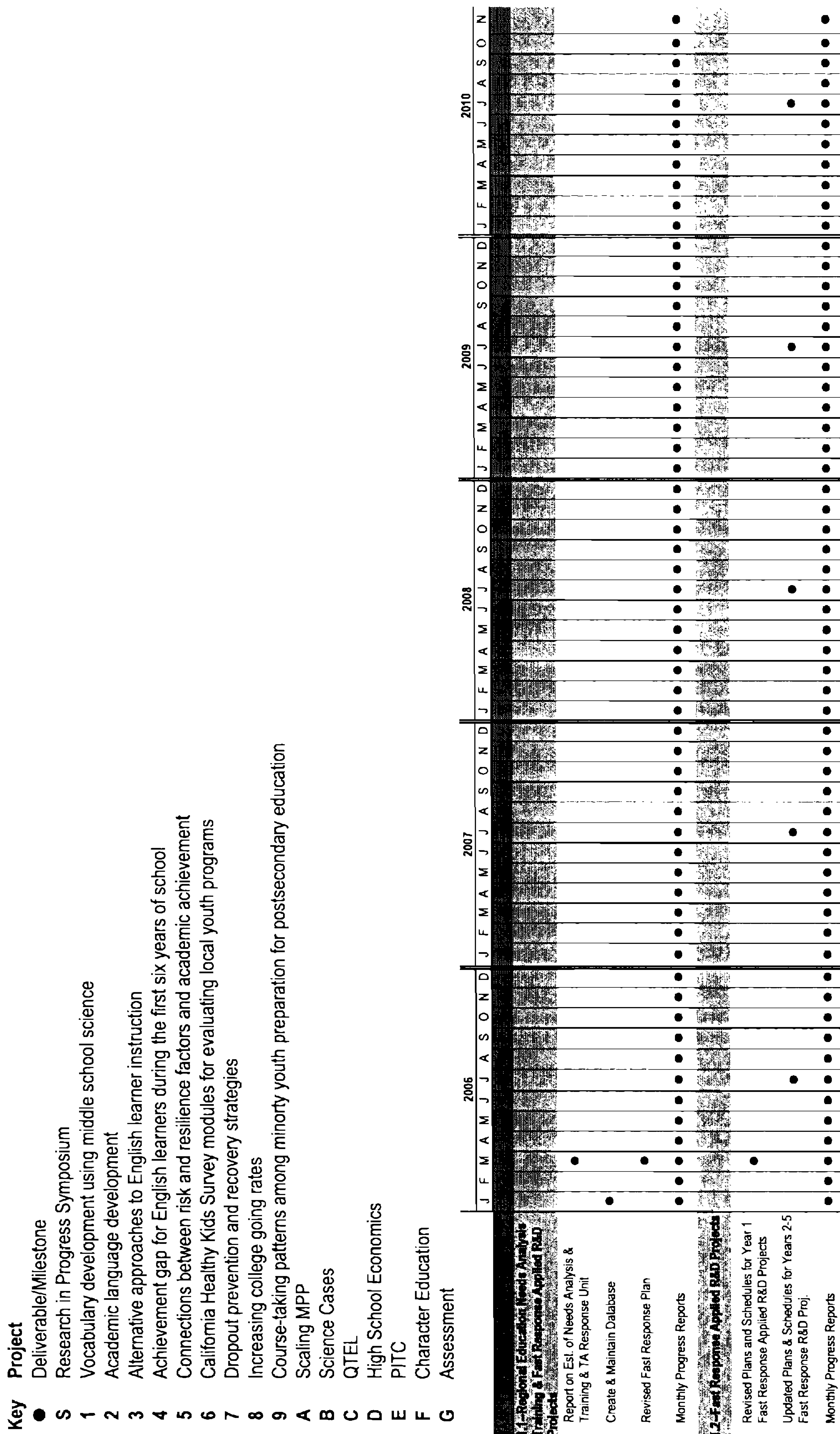
**TIMELINE &
SCHEDULE OF
DELIVERABLES/
MILESTONES**

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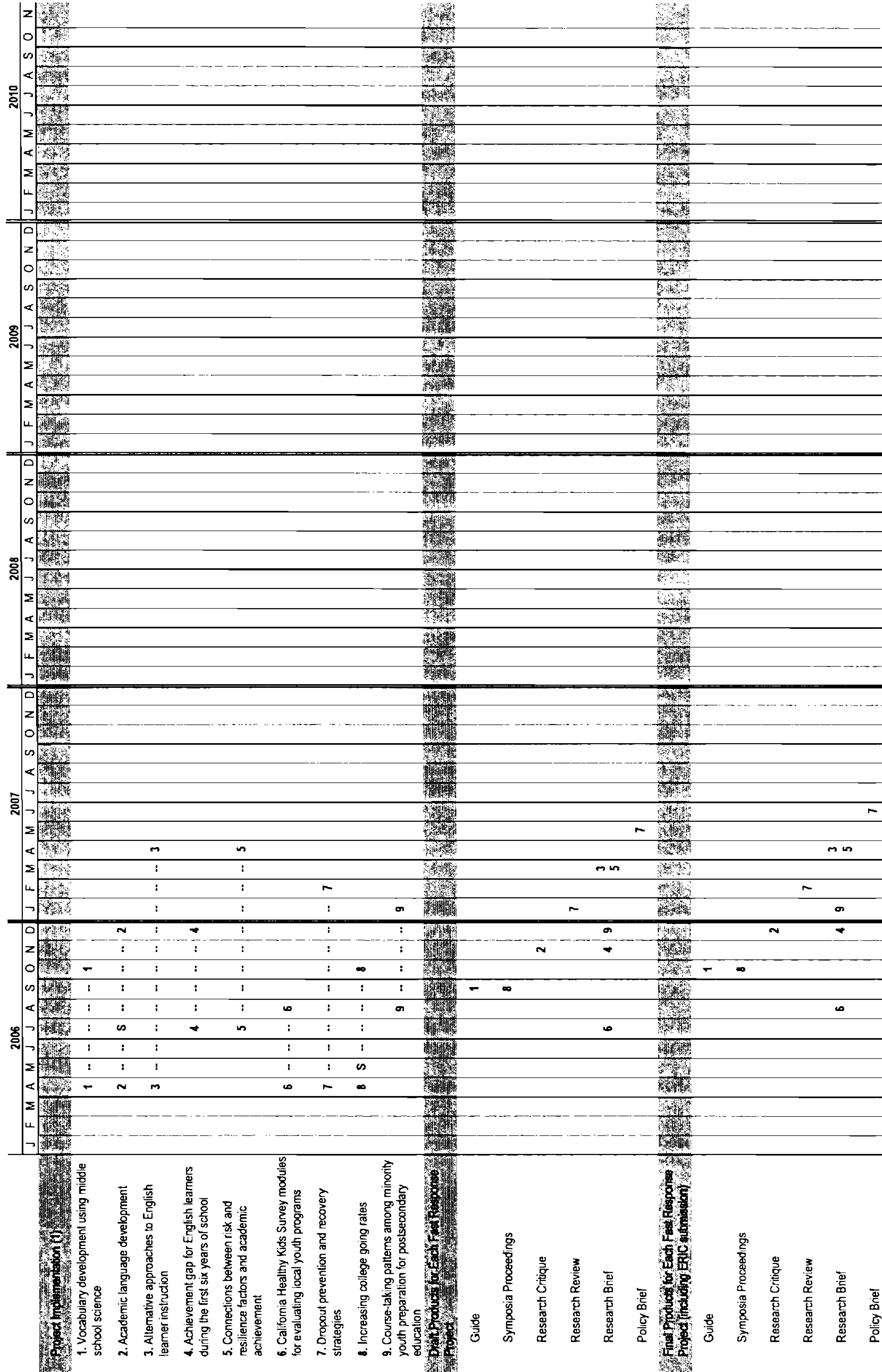
Task 5 Schedule of Deliverables/Milestones

TASK	DELIVERABLE/MILESTONE	DUE DATE (from start of contract)
Task 5		
5.1	Updated Annual Plan	
5.1	Updated Annual Plan	July 1, annually
5.2	Formation & Functions of a Governing Board	
5.2	Report on Forming a Governing Board, By-Laws, and Members	12 weeks
5.2	Board Meetings	1st meeting within 12 weeks of award, quarterly thereafter
5.2	Report on each Governing Board Meeting	After each meeting
5.3	ED Performance Monitoring	
5.3	Annual Performance Indicators Data Report	TBD
5.3	Additional Performance Data, if requested by ED	TBD
5.4	Meetings with ED	
5.4	Initial Meeting with ED	2 weeks
5.4	Other Meetings with ED	TBD
5.4	Meeting Summary Memos	2 weeks after each meeting
5.5	Biannual Meetings	
5.5	Biannual Meetings	Every 26 weeks
5.5	Issues Memos/Summaries	2 weeks after each meeting
5.6	Monthly Progress Reports	
5.6	Monthly Progress Reports by Task	Monthly
5.7	Monthly Financial Reports	
5.7	Monthly Financial Reports	Monthly
5.8	Year 3 Evaluation	
5.8	Cooperate as needed	Year 3
5.9	Final Report	
5.9	Draft Final Report	16 weeks before the end of contract
5.9	Revised Final Report with Electronic File	Last day of contract

Tasks 1-5 Combined Timeline



Tasks 1–5 Combined Timeline (cont'd)



(1) End dates do not reflect dissemination and training.

Tasks 1-5 Combined Timeline (cont'd)

Task Description	2006				2007				2008				2009				2010															
	J	F	M	A	J	J	A	S	O	N	D	J	F	M	A	J	J	A	S	O	N	D	J	F	M	A	J	J	A	S	O	N
2.1-Detailed Research Plans for Rigorous Studies																																
Revised Detailed Research Plans and Schedules for each Rigorous Study																																
Monthly Progress Reports																																
Updated Plans for Rigorous Studies																																
2.2-External Technical Working Group																																
Draft TWG Plan																																
Final TWG Plan																																
Draft & Final Agenda																																
TWG Review																																
Draft & Revised Minutes of TWG Meeting																																
2.3-Forms Clearance																																
Draft OMB Forms Clearance Pkg																																
Revised OMB Forms Clearance Pkg																																
Documentation of IRB Approvals																																
Preparation of Privacy Act System of Records Notice (if required)																																
2.4-Planning for Data Collection, Site Selection & Site Visit																																
Draft Data Collection Instruments																																
Revised Data Collection Instruments																																
Proposed List of Sites with Explanation																																
Final List of Participating Sites																																
Draft Protocols																																
Revised Protocols																																

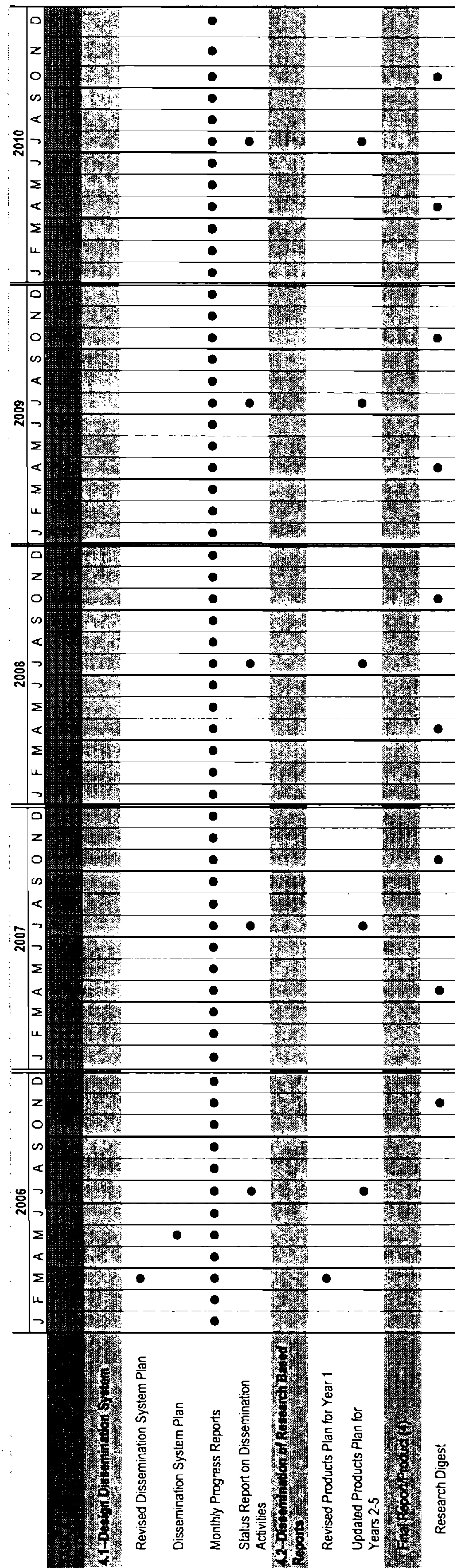
(2) Revised Detailed Research Plans will be submitted to IES for studies A, B, and C by April 2006. These will be preliminary in nature and will not yet reflect the feedback from the Technical Working Group or revised protocols. We would like to resubmit Final Revised Detailed Research Plans to IES that do incorporate these components in January 2007. We anticipate that staggering the review process for these studies with studies C, E, F and G (April 2006) will allow for a thorough and comprehensive planning and review process for all seven Task 2 studies.

Tasks 1–5 Combined Timeline (cont'd)

	2006			2007			2008			2009			2010		
	J	F	M	J	F	M	J	F	M	J	F	M	J	F	M
Study Implementation (3)															
A - Scaling MPP							A								
B - Science Cases							B								
C - QTEL															
D - High School Economics															
E - PITC															
F - Character Education															
G - Assessment															
2.1 - Data Analysis & Report Preparation (Including ERIC Submission)															
Draft Technical Reports															
Revised Technical Reports															
Final Technical Reports															
Draft Non-Technical Reports															
Revised Non-Technical Reports															
Final Non-Technical Reports															
Monthly Progress Reports															

(3) Study implementation in this table refers to the period from which the program intervention begins until the final measurement period ends. Collection of historic data (measurement from past periods) is not reflected in this table. These data will be collected during the course of the implementation period. Please see the Experimental Design and Data collection schedules in the proposal narrative.

Tasks 1-5 Combined Timeline (cont'd)



(4) Timelines for delivery of Task 1 and Task 2 products and submission to ERIC database and the national REL Web site are included under those tasks.

Tasks 1–5 Combined Schedule of Deliverables/Milestones

TASK	DELIVERABLE/MILESTONE	DUE DATE (from start of contract)
1.1	Regional Education Needs Analysis Training & Fast Response Applied R&D Projects	
1.1	Report on Est. of Needs Analysis & Training & TA Response Unit	10 weeks
1.1	Create & Maintain Database	3 weeks
1.1	Revised Fast Response Plan	10 weeks
1.1	Monthly Progress Reports	Monthly
1.2	Fast Response Applied R&D Projects	
1.2	Revised Plans and Schedules for Year 1 Fast Response Applied R&D Projects	10 weeks
1.2	Updated Plans & Schedules for Years 2-5 Fast Response R&D Projects	July 1, annually
1.2	Monthly Progress Reports	Monthly
	Task 1:2 Project Implementation Period (1)	
1.2.1	Vocabulary development using middle school science	April 2006 - Oct. 2006
1.2.2	Academic language development	April 2006 - Dec. 2006
1.2.3	Alternative approaches to English learner instruction	April 2006 - April 2007
1.2.4	Achievement gap for English learners during the first six years of school	July 2006 - Dec. 2006
1.2.5	Connections between risk and resilience factors and academic achievement	July 2006 - April 2007
1.2.6	California Healthy Kids Survey modules for evaluating local youth programs	April 2006 - Aug. 2006
1.2.7	Dropout prevention and recovery strategies	April 2006 - Feb. 2007
1.2.8	Increasing college going rates	April 2006 - Jan. 2007
1.2.9	Course-taking patterns among minority youth preparation for postsecondary education	Aug. 2006 - Jan. 2007

Notes:

- (1) End dates do not reflect dissemination and training.
- (2) Revised Detailed Research Plans will be submitted to IES for studies A, B, and C by April 2006. These will be preliminary in nature and will not yet reflect the feedback from the Technical Working Group or revised protocols. We would like to resubmit Final Revised Detailed Research Plans to IES that do incorporate these components in January 2007. We anticipate that staggering the review process for these studies with studies C, E, F and G (April 2006) will allow for a thorough and comprehensive planning and review process for all seven Task 2 studies.
- (3) Study implementation in this table refers to the period from which the program intervention begins until the final measurement period ends. Collection of historic data (measurement from past periods) is not reflected in this table. These data will be collected during the course of the implementation period. Please see the Experimental Design and Data collection schedules in the proposal narrative.
- (4) Timelines for delivery of Task 1 and Task 2 products and submission to ERIC database and the national REL Web site are included under those tasks.

Tasks 1–5 Combined Schedule of Deliverables/Milestones (cont'd)

TASK	DELIVERABLE/MILESTONE	DUE DATE (from start of contract)
1.2	Fast Response Applied R&D Projects Draft Products for Each Fast Response Project	
1.2.1	Draft Guide: Vocabulary development using middle school science	September 2006
1.2.2	Draft Research Critique: Academic language development research in progress symposium	November 2006
1.2.3	Draft Research Brief: Alternative approaches to English learner instruction	March 2007
1.2.4	Draft Research Brief: Achievement gap for English learners during the first six years of school	November 2006
1.2.5	Draft Research Brief: Connections between risk and resilience factors and academic achievement	March 2007
1.2.6	Draft Research Brief: California Healthy Kids Survey modules for evaluating local youth programs	July 2006
1.2.7	Draft Research Review: Dropout prevention and recovery strategies	January 2007
1.2.7	Draft Policy Brief: Dropout prevention and recovery strategies	May 2007
1.2.8	Draft Proceedings: Increasing college going rates	September 2006
1.2.9	Draft Research Brief: Course-taking patterns among minority youth and preparation for postsecondary education	December 2006
	Final Products for Each Fast Response Project (including ERIC submission)	
1.2.1	Final Guide Vocabulary development using middle school science	October 2006
1.2.2	Research in Progress Symposium: Academic language development	July 2006
1.2.2	Final Research Critique: Academic language development research in Progress symposium	December 2006
1.2.3	Final Research Brief: Alternative approaches to English learner instruction	April 2007
1.2.4	Final Research Brief: Achievement gap for English learners during the first six years of school	December 2006
1.2.5	Final Research Brief: Connections between risk and resilience factors and academic achievement	April 2007
1.2.6	Final Research Brief: California Healthy Kids Survey modules for evaluating local youth programs	August 2006

Tasks 1–5 Combined Schedule of Deliverables/Milestones (cont'd)

TASK	DELIVERABLE/MILESTONE	DUE DATE (from start of contract)
1.2	Fast Response Applied R&D Projects	
	Final Products for Each Fast Response Project (including ERIC submission)	
1.2.7	Final Research Review: Dropout prevention and recovery strategies	February 2007
1.2.7	Final Policy Brief: Dropout prevention and recovery strategies	June 2007
1.2.8	Final Proceedings: Increasing college going rates	October 2006
1.2.8	Research in Progress Symposium: Increasing college going rates	May 2006
1.2.9	Final Research Brief: Course-taking patterns among minority youth and preparation for postsecondary education	January 2007
Task 2		
2.1	Detailed Research Plans for Rigorous Studies	
	Revised Detailed Research Plans and Schedules for each Rigorous Study	
2.1	Scaling MPP Science Cases QTEL	April 2006 January 2007 (2)
2.1	High School Economics PITC Character Education Assessment	May 2006
2.1	Monthly Progress Reports on All Studies	Monthly
2.1	Updated Plans for Rigorous Studies	July 1, annually
2.2	External Technical Working Group	
	Draft TWG Plan	
2.2	Scaling MPP Science Cases	July 2006
2.2	QTEL	June 2006
2.2	High School Economics PITC Character Education Assessment	January 2006

Tasks 1–5 Combined Schedule of Deliverables/Milestones

TASK	DELIVERABLE/MILESTONE	DUE DATE (from start of contract)
	Final TWG Plan	
2.2	Scaling MPP Science Cases	October 2006
2.2	QTEL	September 2006
2.2	High School Economics PITC Character Education Assessment	February 2006
	Draft & Final Agenda	
2.2	Scaling MPP Science Cases	October 2006
2.2	QTEL	September 2006
2.2	High School Economics PITC Character Education Assessment	February 2006
	TWG Review	
2.2	Scaling MPP Science Cases QTEL	November 2006
2.2	High School Economics PITC Character Education Assessment	March 2006
2.2	Draft & Revised Minutes of TWG Meeting	Draft to ED 1 wk after meeting. Revised to ED after 3-wk review of Draft Minutes
2.3	Forms Clearance	
	Draft OMB Forms Clearance Pkg	
2.3	Scaling MPP Science Cases QTEL	March 2007
2.3	High School Economics PITC Character Education Assessment	July 2006

Tasks 1–5 Combined Schedule of Deliverables/Milestones

TASK	DELIVERABLE/MILESTONE	DUE DATE (from start of contract)
	Revised OMB Forms Clearance Pkg	
2.3	Scaling MPP Science Cases QTEL	May 2007
2.3	High School Economics PITC Character Education Assessment	December 2006
	Documentation of IRB Approvals	
2.3	Scaling MPP Science Cases QTEL	March 2007
2.3	High School Economics PITC Character Education Assessment	July 2006
	Preparation of Privacy Act System of Records Notice (if required)	
2.3	Scaling MPP Science Cases QTEL	July 2006
2.3	High School Economics PITC Character Education Assessment	March 2007
2.4	Planning for Data Collection, Site Selection & Site Visit	
	Draft Data Collection Instruments	
2.4	Scaling MPP Science Cases	November 2006
2.4	QTEL	October 2006
2.4	High School Economics PITC Character Education Assessment	March 2006

Tasks 1–5 Combined Schedule of Deliverables/Milestones

TASK	DELIVERABLE/MILESTONE	DUE DATE (from start of contract)
Revised Data Collection Instruments		
2.4	Scaling MPP Science Cases QTEL	January 2007
2.4	High School Economics PITC Character Education Assessment	May 2006
Proposed List of Sites with Explanation		
2.4	Scaling MPP Science Cases	November 2006
2.4	QTEL	October 2006
2.4	High School Economics PITC Character Education Assessment	March 2006
Final List of Participating Sites		
2.4	Scaling MPP Science Cases QTEL	January 2007
2.4	High School Economics PITC Character Education Assessment	May 2006
Draft Protocols		
2.4	Scaling MPP Science Cases	November 2006
2.4	QTEL	October 2006
2.4	High School Economics PITC Character Education Assessment	March 2006

Tasks 1–5 Combined Schedule of Deliverables/Milestones

TASK	DELIVERABLE/MILESTONE	DUE DATE (from start of contract)
2.4	Planning for Data Collection, Site Selection & Site Visit	
	Revised Protocols	
2.4	Scaling MPP Science Cases QTEL	May 2006
2.4	High School Economics PITC Character Education Assessment	January 2007
	Task 2.4 Study Implementation Periods (3)	
2.4	Scaling MPP	July 2008 - June 2010
2.4	Science Cases	May 2008 - Oct. 2009
2.4	QTEL	Aug. 2007 - June 2010
2.4	High School Economics	July 2007 - Dec. 2008
2.4	PITC	Dec. 2006 - March 2009
2.4	Character Education	Jan. 2007 - May 2009
2.4	Assessment	Dec. 2006 - Dec. 2009
2.5	Data Analysis & Report Preparation (including ERIC submission)	
	Draft Technical Reports	
2.5	Scaling MPP	July 2010
2.5	Science Cases	November 2009
2.5	QTEL	July 2010
2.5	High School Economics	February 2009
2.5	PITC	April 2009
2.5	Character Education	June 2009
2.5	Assessment	January 2010

Tasks 1–5 Combined Schedule of Deliverables/Milestones

TASK	DELIVERABLE/MILESTONE	DUE DATE (from start of contract)
2.5	Data Analysis & Report Preparation (including ERIC submission)	
	Revised Technical Reports	
2.5	Scaling MPP	September 2010
2.5	Science Cases	January 2010
2.5	QTEL	September 2010
2.5	High School Economics	April 2009
2.5	PITC	June 2009
2.5	Character Education	August 2009
2.5	Assessment	March 2010
	Final Technical Reports	
2.5	Scaling MPP	November 2010
2.5	Science Cases	March 2010
2.5	QTEL	November 2010
2.5	High School Economics	June 2009
2.5	PITC	August 2009
2.5	Character Education	October 2009
2.5	Assessment	May 2010
	Draft Non-Technical Reports	
2.5	Scaling MPP	July 2010
2.5	Science Cases	November 2009
2.5	QTEL	July 2010
2.5	High School Economics	February 2009
2.5	PITC	April 2009
2.5	Character Education	June 2009
2.5	Assessment	January 2010

Tasks 1–5 Combined Schedule of Deliverables/Milestones

TASK	DELIVERABLE/MILESTONE	DUE DATE (from start of contract)
2.5	Data Analysis & Report Preparation (including ERIC submission) Revised Non-Technical Reports	
2.5	Scaling MPP	September 2010
2.5	Science Cases	January 2010
2.5	QTEL	September 2010
2.5	High School Economics	April 2009
2.5	PITC	June 2009
2.5	Character Education	August 2009
2.5	Assessment	March 2010
	Final Non-Technical Reports	
2.5	Scaling MPP	November 2010
2.5	Science Cases	March 2010
2.5	QTEL	November 2010
2.5	High School Economics	June 2009
2.5	PITC	August 2009
2.5	Character Education	October 2009
2.5	Assessment	May 2010
Task 3		
	Monthly Progress Reports	Monthly
TASK 4		
4.1	Design Dissemination System	
4.1	Revised Dissemination System Plan	12 weeks
4.1	Dissemination System Plan	17 weeks
4.1	Monthly Progress Reports	Monthly
4.1	Status Report on Dissemination Activities	July 1, annually

Tasks 1–5 Combined Schedule of Deliverables/Milestones

TASK	DELIVERABLE/MILESTONE	DUE DATE (from start of contract)
4.2	Dissemination of Research Based Reports	
4.2	Revised Products Plan for Year 1	12 weeks
4.2	Updated Products Plan for Years 2-5	July 1, annually
	Final Report/Product	
4.2	Research Digest	November 2006 April & October, 2007-2010
4.2	Task 1 & 2 Reports/Products	within the timeframe specified in each subtask
5.1	Updated Annual Plan	
5.1	Updated Annual Plan	July 1, annually
5.2	Formation & Functions of a Governing Board	
5.2	Report on Forming a Governing Board, By-Laws, and Members	12 weeks
5.2	Board Meetings	1st meeting within 12 weeks of award, quarterly thereafter
5.2	Report on each Governing Board Meeting	After each meeting
5.3	ED Performance Monitoring	
5.3	Annual Performance Indicators Data Report	TBD
5.3	Additional Performance Data, if requested by ED	TBD
5.4	Meetings with ED	
5.4	Initial Meeting with ED	2 weeks
5.4	Other Meetings with ED	TBD
5.4	Meeting Summary Memos	2 weeks after each meeting
5.5	Biannual Meetings	
5.5	Biannual Meetings	Every 26 weeks
5.5	Issues Memos/Summaries	2 weeks after each meeting
5.6	Monthly Progress Reports	
5.6	Monthly Progress Reports by Task	Monthly

Tasks 1–5 Combined Schedule of Deliverables/Milestones

TASK	DELIVERABLE/MILESTONE	DUE DATE (from start of contract)
5.7	Monthly Financial Reports	
5.7	Monthly Financial Reports	Monthly
5.8	Year 3 Evaluation	
5.8	Cooperate as needed	Year 3
5.9	Final Report	
5.9	Draft Final Report	16 weeks before the end of contract
5.9	Revised Final Report with Electronic File	Last day of contract

Notes:

- (1) End dates do not reflect dissemination and training.
- (2) Revised Detailed Research Plans will be submitted to IES for studies A, B, and C by April 2006. These will be preliminary in nature and will not yet reflect the feedback from the Technical Working Group or revised protocols. We would like to resubmit Final Revised Detailed Research Plans to IES that do incorporate these components in January 2007. We anticipate that staggering the review process for these studies with studies C, E, F and G (April 2006) will allow for a thorough and comprehensive planning and review process for all seven Task 2 studies.
- (3) Study implementation in this table refers to the period from which the program intervention begins until the final measurement period ends. Collection of historic data (measurement from past periods) is not reflected in this table. These data will be collected during the course of the implementation period. Please see the Experimental Design and Data collection schedules in the proposal narrative.
- (4) Timelines for delivery of Task 1 and Task 2 products and submission to ERIC database and the national REL Web site are included under those tasks.

WREL TECHNICAL PROPOSAL

PERSONNEL

PERSONNEL

A capable and versatile staff has been brought together to carry out the proposed scope of work. As detailed below, the staff includes researchers with deep expertise in randomized experimental studies, quantitative and qualitative analysis; policy analysts; field agents with strong connections to the region; communicators with proven expertise in knowledge dissemination; and managers who have shown that they can successfully take charge of this kind of large, multi-faceted scope of work.

Two subcontractors, both small businesses, have major responsibility for some of the Task 2 studies. In addition, some of the Subtask 1.2 analytic studies are being carried out by subcontractors. The specific staff and their biographical information are included along with WestEd staff, in the relevant sections, in order to provide a more integrated presentation of staff capability by task.

We have been thoughtful not only in selecting personnel but also in assigning them to roles within WREL that best capitalize on their strengths. Each task includes staff with a complementary range of skills. Some “to be determined” space is left in the budget, both to expand our capability in core areas and to allow flexibility in responding to needs and opportunities as they emerge. WestEd as a whole has deep staff capability from which we can draw over time.

This Personnel section begins with the identification and brief biographical descriptions of all the professional staff in five clusters: overall leadership and management; Task 2 methodology and content leads; Tasks 1 and 4 leads; other staff, with major associate roles in one or more tasks; and the Technical Working Group. Following this text are the staffing tables that indicate the amount of time each of these staff is budgeted, by task, by year. At the end of this section are their resumes.

Leadership and Management (all tasks)

Five WestEd senior staff play leadership and management roles across the WREL contract. The assignments and areas of expertise of these five staff are summarized in the table below. Bios follow to provide further information.

Table 1. Leadership and Management Staff

	Estes	Filby	Finkelstein	Hanson	Walcott
Role in WREL	<i>Director</i>	<i>Associate Director</i>	<i>Co-Director of Research</i>	<i>Co-Director of Research</i>	<i>Director, Task 1 Fast Response</i>
Areas of Expertise					
Managing large, multifaceted R&D programs	X	X	X		X
Research design and methodology	X	X	X	X	
Randomized controlled trials	X	X	X	X	
Statistical analysis			X	X	
Policy analysis	X	X	X		X
Writing and product development	X	X	X		X
Regional assistance	X	X	X	X	X
Collaboration with regional and national organizations	X	X	X	X	X

Dr. Gary D. Estes will serve as WREL Director. Estes is Chief Program Officer (CPO) of WestEd and currently serves as Director of the WREL. As WestEd CPO, he oversees the management and quality of a multi-million dollar portfolio of work that includes research studies, development of research-based interventions, dissemination and technical assistance, as described in the Organizational Capability section. Estes' leadership and overall management of program operations have led to an expansion of the portfolio, an increase in the number of rigorous research studies, and hundreds of high-quality products and services that have benefited school, district, and state administrators, teachers, students, and youth in various areas of education and human development.

As current WREL Director, Estes leads the agency's participation in the Laboratory Network Program. He has served as chair of the directors' group, and for several years has been the directors' designated lead for collecting and reporting indicator data. In this role, he has worked closely with IES staff as well as the evaluators across the laboratory network to refine measures and report data, including a coordinated systemwide client survey.

Estes has over 35 years of experience in education. Prior to joining WestEd, Estes directed the Evaluation and Assessment Program and the Title I/Chapter 1 Technical Assistance Centers (TAC) at the Northwest Regional Educational Laboratory (NWREL). There, he conducted studies on item banking, criterion-referenced testing, and directed education and industry assessment projects. The TAC developed a school improvement model that was used in many of the districts across more than 13 states. He also developed a data system for tracking NWREL's institutional professional activities and obtaining client evaluations of agency work.

Coming to WestEd, Estes directed evaluations of beginning teacher support, including the development of teacher assessments. He contributed to the development of WestEd's Assessment and Standards Development Services (ASDS), a program that plans, develops, implements, and evaluates standards and assessment tools, methods, and systems. Currently, 15 states nationwide call on ASDS for assessment development assistance. Estes also initiated WestEd's technical assistance centers that support states and districts in Arizona, California, Nevada, and Utah with their reform efforts.

Prior to his work at NWREL, Estes served as District Evaluation Supervisor with the Union High School System in Phoenix, Arizona. There he developed assessment systems for evaluating English and native language proficiency of English learners, student writing, and conducted research on the effectiveness of the district's Title I, bilingual, migrant, Indian education, and special education programs. Estes also was an adjunct member of the Educational Psychology faculty, teaching statistics and measurement at Arizona State University, Tempe; a psychometrist in several school districts; and a math and Title I teacher. Estes received a B.S. in mathematics from Grand Canyon College, an M.A. in secondary education and mathematics, and a Ph.D. in educational psychology — both from Arizona State University.

Dr. Nikola Filby will be Associate Director. She has conducted large-scale research studies of classroom practice, in which she developed and implemented teacher observation protocols and student assessments. She has also carried out case studies of successful and innovative school and district programs, and evaluated regional and state policy initiatives. The results of these studies have been communicated in peer-reviewed journals and books as well as in casebooks, knowledge briefs, policy reports, and other practitioner-oriented publications.

Dr. Filby currently serves as Associate Director of the WREL at WestEd. This contract of over \$7,000,000 per year includes several types of R&D work, which she oversees along with the WREL Director. In four initiatives, staff has developed interventions to support school improvement, for example, modules for training secondary teachers of English learners. For three interventions that showed promise in early development, randomized experimental impact studies are now underway. In addition, several qualitative studies and two external evaluations of systems impact are being completed.

In 2003, WestEd took on, under Filby's leadership, a task order from the U.S. Department of Education's Office of Innovation and Improvement to develop a series of innovation guides on key topics. In the area of school choice, further work was commissioned to develop and pilot a face-to-face event at which district teams could hear from representatives of guide districts, carry out needs assessment, and do action planning with support from experienced district staff. This pilot event was very well received and has led to further work developing a multimedia toolkit

on choice for school districts, a project that is now underway. WestEd recently was awarded a task order to continue this R&D support capacity for the Office of Innovation and Improvement.

Dr. Filby's management role in WREL has also placed her in the cross-laboratory REL system leadership group. In that capacity she has served as chair of the program leaders group, managed collaborative projects such as the development of a Web site and a multi-site study of comprehensive school reform, and facilitated group activities. She plays a similar role for inter-organizational, collaborative projects within the western region.

Filby began her career at WestEd as a Research Associate on the Beginning Teacher Evaluation Study, and she has conducted research on classroom processes in literacy, instructional grouping strategies, and the classroom practice effects of reductions in class size. Filby received her B.A. in psychology from Wellesley College, and her Ph.D. in educational psychology from Stanford University.

Two senior WestEd staff will serve as Co-Directors of Research for the WREL: Dr. Neal Finkelstein and Dr. Thomas Hanson.

Dr. Neal D. Finkelstein, a Senior Research Scientist at WestEd, is responsible for the development of research and evaluation designs that study the impact of program implementation in K–12 public schools. He assures that evaluation designs feature high standards of evidence, and oversees the implementation of randomized field trials in educational settings, including site recruitment and data collection.

In the current WREL contract, he oversees three randomized field trials of interventions: one on Quality Teaching for English Learners, one on a Home Visiting Curriculum for Early Head Start home visitors, and one on the Local Accountability Professional Development Series. All three studies involve random assignment to groups, using a wait-listed control design; all require extensive data collection including both field observations and surveys. Overseeing instrument development and observer training has been a key part of his job. Approximately 200 Language Arts and ESL teachers and 5,000 predominantly low-SES English learner students from 38 middle schools are participating in the QTEL study.

Finkelstein has worked on large-scale program evaluations and policy analyses encompassing K–12 and higher education, and the bridge between them. He has worked extensively in the following areas: K–12 school finance, academic preparation programs for high school youth, school-to-work and early childhood education. All of his work involves the collection, management and analysis of large quantitative data sets. Questions of cost, cost-effectiveness and the marginal cost of policy decisions in education at the state and federal level are foremost in the analyses that he has conducted. Immediately prior to coming to WestEd, Finkelstein served as Director of Educational Outreach Research and Evaluation for the University of California Office of the President, where he implemented research and evaluation designs that studied the effectiveness of K–12 student and school academic programs initiated by the University of California on ten campuses throughout the state. Programs emphasized the connections between K–12 education and postsecondary educational opportunities for students.

Finkelstein also has expertise in reviewing research and providing information to policymakers and educators. He was a Senior Program Officer for the National Research Council, working to support the Committee on Education Finance in the investigation of equity, adequacy, and productivity considerations in the financing of American K–12 public education. He prepared research synthesis papers on a variety of topic areas to support Committee and staff deliberations, and drafted chapters of the final Committee report. Prior to this role with the National Research Council, Finkelstein served as Assistant Director of Policy Analysis for California Education (PACE), and Research Associate at the National Center for Research in Vocational Education (NCRVE). At NCRVE he focused on evaluation designs that had been used by programs to understand their effectiveness. Finkelstein received his B.A. in economics and psychology from Swarthmore and his M.A. and Ph.D. in education policy and management from the University of California, Berkeley.

Dr. Thomas L. Hanson, a Senior Research Scientist at WestEd, has served as lead researcher or consulting methodologist on many projects utilizing cluster-randomized trials to evaluate program efficacy, where teachers, schools, and/or school districts serve as the unit of randomization. He serves as Lead Statistician for WestEd’s *Evaluation of California’s SB19 Pupil Nutrition Act* (National Institutes of Health) — a group-randomized, experimental trial that examines the impact on student health of banning the sale of high-sugar foods/drinks in schools. Hanson also serves as chief methodologist for the *Algebraic Interventions for Measured Achievement Project*. Funded by IES, this experimental trial tests the efficacy of an intervention curriculum targeting specific algebraic learning trouble spots. Hanson also serves as methodologist on WestEd’s *Integrating Literacy and Science Instruction in High School Biology* (NSF) and *Efficacy of Reading Apprenticeship Professional Development for High School History and Science Teaching and Learning* (IES) studies, group-randomized trials aimed at testing the effectiveness of teacher training in the integration of reading instruction and subject-area content on teacher knowledge and skills, instructional practices and, ultimately, on student achievement. Each of these studies involves random assignment of approximately 50 schools to experimental and control conditions. Hanson is also the methodologist for the *Math Pathways and Pitfalls* study, funded by IES. This study uses a cluster-randomized design in which 40 teachers per grade (and their students) are randomly assigned to either one intervention or one wait-listed control condition (120 teachers total) to evaluate the efficacy of the instructional materials on student mathematics achievement and mathematical language development.

Hanson has served as senior evaluator for several intervention demonstration projects — including the *Iris Project* — a CSAP-funded project utilizing an experimental design to evaluate the effectiveness of the Strengthening Families Program in reducing substance abuse-related problems among children of substance abusing parents. He has served as Lead Statistician for WestEd’s statewide *Evaluation of the California In-School Tobacco Use Prevention Education Program* (California Department of Health and Human Services). He was Principal Investigator of the *Two Faces of Divorce Project* — a NIH-sponsored study that examined the antecedents and consequences of divorce from the perspective of mothers, fathers, and children. In addition, he directed the *Race/Ethnicity and Student Tobacco Use Study* (University of Southern California/NIH), the *Analysis of California Adolescent Tobacco Data Study* (California Tobacco-Related Disease Research Program), and the *Risk/Resilience and Student Academic Performance Study* (California Department of Education/Stuart Foundation). Across these research studies, Hanson has been responsible for developing survey instruments; conducting measurement

analyses such as estimation of item and scale reliabilities, exploratory factor analyses, single- and multiple-group confirmatory factor analyses, general techniques for validity assessment, and assessing measurement equivalence across groups; and conducting impact analyses. Hanson has extensive experience in the analysis of data collected from social surveys and other sources, including the latest advanced statistical techniques. He is particularly skilled at multi-level and mixed-modeling regression techniques. Hanson holds a B.A. in sociology from Old Dominion College and an M.S. and Ph.D. in sociology from the University of Wisconsin, Madison.

Catherine Jovicich Walcott will lead the Task 1 needs assessment and Fast Response activities, working closely with the Directors of Research on the conduct of applied R&D projects within Task 1. She brings to this role expertise in education policy analysis and implementation at all levels of government. Currently she serves as WestEd's lead strategist for policy and program development in California and agency responses to the No Child Left Behind Act.

Walcott previously worked for the U.S. Department of Education in a variety of policy analyst roles, ending as leader of the department's Standards, Assessments, & Accountability Team. As team leader, she managed a team of ten experts in standards-based education reform, developed legislative and communication strategies, and managed the development of state policy guidance on standards and assessments. She also created and implemented a plan for providing technical assistance to states through workshops, conferences, written materials, and the use of peer consultants. She represented the Department at national, regional, and international conferences.

At WestEd, in collaboration with the Chief Program Officer, she developed initiatives to strengthen the quality and effectiveness of WestEd's full portfolio of R&D and technical assistance projects. She has been responsible for managing several large, cross-agency projects, such as the development of a data-driven decision making toolkit for low-performing schools and a policy study of the governance and structural blocks to reforming the Los Angeles Unified School District. This work resulted in a policy report that catalyzed the creation of a network of charter schools in Los Angeles. Walcott holds a B.A. in psychology from Stanford University and an M.A. in public policy from Harvard University.

Task 2 Research and Content Leads

Strong methodological leadership for Task 2 is provided by the Co-Directors of Research identified above — Drs. Finkelstein and Hanson. In addition, we are fortunate to have two strong partner organizations (both small businesses): Berkeley Policy Associates (BPA) and Heller Research Associates. The principals of both organizations are leading specific studies in Task 2. Both have extensive experience conducting field evaluations, including randomized controlled trials. In addition to methodological leads, each study has content leads who are program developers responsible for recruitment and high-quality delivery of the intervention. These content leads have all spent years systematically developing and piloting interventions, and are acknowledged experts in their fields. Lead staff for each study are identified in the chart and described in the bios that follow. As discussed earlier, evaluation of interventions developed at WestEd is purposely assigned to one of the external subcontractors, to assure objectivity.

Table 2. Task 2 Lead Staff

	Research and Analysis	Intervention Delivery
A. Math Pathways and Pitfalls	Hans Bos, BPA	Carne Clark, Alma Ramirez, WestEd
B. Science Cases Professional Development: Understanding Science	Joan Heller, Heller Research Associates	Kirsten Daehler, Mayumi Shinohara, WestEd
C. Quality Teaching for English Learners	Hans Bos, BPA	Aida Walqui, Nanette Koelsch, WestEd
D. Problem-Based Economics	Neal Finkelstein, WestEd	(external)
E. Program for Infant and Toddler Caregivers	Hans Bos, BPA; Aletha Huston, University of Texas	Ron Lally, Peter Mangione, WestEd
F. Lessons in Character	Tom Hanson, WestEd	(external)
G. Assessment Accommodations	Stanley Rabinowitz, Edynn Sato Eichholzer, WestEd	

For biographical information on Finkelstein and Hanson, see the previous section on leadership and management of the WREL.

Dr. Johannes M. Bos will direct the three studies to be done by Berkeley Policy Associates (BPA). Bos is President, CEO, and Principal Analyst at BPA. Dr. Bos is nationally recognized for his experience and expertise in designing and conducting experimental and quasi-experimental evaluations and for his research on the impacts of social programs on children and families. Currently he is a Principal Investigator for the evaluation of the *SOURCE Demonstration Program*, a random assignment study funded by IES, that will assess the effectiveness of the provision of college admission and financial aid counseling on the college enrollment rates of disadvantaged high school students in the Los Angeles Unified School District. He has also worked on a number of Department of Education projects, including *Design of an Impact Evaluation of a National School-Based Violence Prevention Program*, for which he facilitated expert panel meetings, conducted statistical power analyses, and served as lead author of the design paper. Dr. Bos is also involved in a study of community college transitions for the Department's Office of Vocational and Adult Education, and a study of the implementation of experimental and quasi-experimental evaluations by Teaching American History Grantees for the Program and Policy Studies Service. He also has begun work on a new random assignment evaluation, *Evaluation of Explicit Literacy Instruction in Adult ESL Programs*. He recently co-authored a paper on the use of cluster random assignment in evaluating education programs, and a forthcoming book on alternative uses of random assignment in program evaluation.

As a Senior Research Associate at MDRC for ten years prior to joining BPA, Dr. Bos directed several large random assignment studies, including the *Evaluation of the Center for Employment and Training Replication*. Two additional random assignment evaluations, the New Chance and New Hope demonstrations (with approximately 2,300 and 1,300 sample members each) featured direct assessments of children and youth, and collection of a wide range of academic and behavioral child outcome measures from the children, their parents, and their teachers. He also

worked for eight years on the NEWWS evaluation, in which over 50,000 welfare recipients were assigned to 11 different programs. For this Department of Education study, he monitored the quality of random assignment, conducted impact analyses, and directed two large sub-studies, including an evaluation of adult education for welfare recipients. Dr. Bos received his Ph.D. in public administration from the Robert F. Wagner School of Public Service at New York University. He is a member of the National Advisory Board for the GED Testing Service, and served on the advisory boards for California's evaluations of CalWORKs and CalLEARN.

Dr. Joan Heller will direct the study to evaluate the *Understanding Science* Project. She has extensive experience directing educational research studies. In her current position as founder of Heller Research Associates, she serves as Principal Investigator of several studies, including a National Science Foundation-funded experiment studying the impact of teacher professional development on teaching and learning. Over the past decade, she has served as the external evaluator on two WestEd teacher professional development projects that incorporate subject-matter cases for mathematics and science teachers. In this capacity, Heller and her colleagues documented the projects' effectiveness for developing teachers' math and science content and pedagogical-content knowledge. Her previous experience includes teaching at the University of California, Berkeley, and directing research projects at Educational Testing Service, where she developed a California state portfolio assessment system in language arts, mathematics, science, and history/social science. Dr. Heller earned her M.A. and Ph.D. in educational psychology from the University of Pittsburgh, completing post-doctoral work at the Learning Research and Development Center.

Dr. Aletha Huston will co-direct the study of the PITC. She is the Priscilla Pond Flawn Regents Professor of Child Development and Associate Director of the Center for Population Research at the University of Texas at Austin. She is past president of the Division of Developmental Psychology of the American Psychological Association and president-elect of the Society for Research in Child Development. She specializes in understanding the effects of poverty on children and the impact of childcare and income support policies on children's development. Her current research examines the effects on children and families of parents' participation in a work-based program to reduce poverty. She has won numerous honors and research awards, including the prestigious Urie Bronfenbrenner Award for Lifetime Contributions to Developmental Psychology. She is a member of the MacArthur Network on Successful Pathways Through Middle Childhood and an investigator for the National Institute of Child Health and Human Development Study of Early Child Care and Youth Development, a longitudinal study following a national sample of children from birth through middle childhood. She has written several books and articles on subjects ranging from children in poverty and antipoverty programs to the role of television in society. She holds a B.A. in psychology from Stanford University and a Ph.D. in psychology and child development from the University of Minnesota.

Dr. Stanley N. Rabinowitz is Director of WestEd's Assessment and Standards Development Services, overseeing all program activities and consulting extensively with policymakers and assessment staff at the national, regional, and state levels. Dr. Rabinowitz has conducted research and published papers on issues related to NCLB accountability and assessment provisions, on the use of integrated standards and assessment systems in high-stakes state accountability programs, on high school exit exam policies for students with disabilities, and on assessment of ELLs on core academic content. Under WREL, he is currently completing a technical review of the

adequacy of high-stakes assessments for special populations. Previously, Dr. Rabinowitz directed the statewide assessment program for the New Jersey Department of Education. He received a B.A. in psychology from Brooklyn College and an M.S. and Ph.D. in educational psychology and statistics from the State University of New York, Albany.

Dr. Edynn Sato Eichholzer is a Senior Assessment Manager with WestEd's Assessment and Standards Development Services. Currently, she directs a study for the California Department of Education to determine alignment between California's English language development standards and the California English Language Development Test. She also directs assessment development work on Louisiana's alternate assessment for students with disabilities. Her previous work at WestEd includes providing technical assistance to state and district administrators as part of the Region XI Comprehensive Center. Prior to joining WestEd, her positions included Executive Editor at LeapFrog SchoolHouse, Director of Education and Management at eSCORE.com, and Assessment Development Supervisor at CTB/McGraw-Hill. Dr. Sato Eichholzer received her B.A. in multidisciplinary studies (elementary education) from Santa Clara University and her M.S. and Ph.D. in educational psychology from the University of California, Los Angeles.

Dr. Carne Clarke joined WestEd in 1989 and is the Director of the Mathematics Case Methods Project. She is the Principal Investigator of grants from the National Science Foundation and Stuart Foundation that aim to equip teachers with a stronger content knowledge base and to support the growth of teacher leaders. She is also the Principal Investigator of a National Science Foundation grant to develop materials to improve students' understanding of key mathematics concepts. Clarke's prior experience was a teacher in urban settings and teacher educator at the University of California, Berkeley, where her pioneering work with cases for teaching mathematics began in 1987. She is an author of K–8 mathematics supplementary materials and textbooks and has published journal articles and book chapters in the *Journal of Teacher Education*, *Teaching and Teacher Education*, the *Journal of Mathematics Teacher Education*, *The Case for Education*, and *Mathematics Teachers in Transition*. Clarke holds a B.S. in mathematics education from Kansas State University and an M.A. and Ed.D. in mathematics education from the University of California, Berkeley.

Alma Ramirez is Co-Director of the Mathematics Case Methods Project where she works with teachers to write, edit and field-test cases of mathematics teaching. Prior to joining WestEd, she was a middle school teacher, a mathematics methods instructor at the New College of California, a Family Math Mentor for the Lawrence Hall of Science, and a teacher-leader and case discussion facilitator for the Math Case Methods Project. Ramirez has presented at many professional meetings and conferences, and is the author and reviewer for a mathematics textbook series and editor of research-based materials for preschool students. Ramirez holds a B.A. in psychology and Chicano studies from the University of California, Berkeley, a bilingual credential from California State University, Hayward, and an M.A. in elementary education from California State University, San Francisco.

Kirsten Daehler is a Senior Research Associate in the Science and Mathematics Program at WestEd, where her work focuses on K–12 science education reform. She is the Co-Principal Investigator of the *Understanding Science* Initiative, a practice-based professional development project. In this role, she works with K–8 teachers to write compelling, real-life accounts about hard-to-teach and hard-to-learn physical science concepts. These professional development

materials help teachers learn challenging science, better understand the ways children think about and often misunderstand science, and develop the pedagogical reasoning to improve student achievement. Prior to joining WestEd, she was a high school chemistry and physics teacher and department chair. She holds a B.A. in chemistry from Wellesley College, and a teaching credential and an M.A. in secondary education from San Francisco State University. She received a scholarship from Columbia Teachers College to attend its Klingenstein Teacher Institute, and was honored by her students with the highest faculty award.

Mayumi Shinohara is a Senior Research Associate in the Science and Mathematics Program at WestEd, where her work focuses on K–8 science education reform with an emphasis on practice-based professional development and children’s thinking in technical domains. She is the Co-Principal Investigator of Science Cases for Teacher Learning. This project, funded by the Stuart Foundation and the U.S. Department of Education, develops a case-based professional development curriculum designed to help teachers think through the major ideas of K–6 science and examine the ways in which children develop and sometimes misunderstand those ideas. Shinohara also brings considerable expertise in online learning through her collaborative work with the Concord Consortium. Her publications include *Tales from the Electronic Frontier*, a widely used book and Web site of teaching narratives showing how students and teachers are using the Internet to learn science and mathematics. Prior to coming to WestEd, she taught at Lawrence Hall of Science, where she worked in a variety of capacities: teaching children ages 3–16 as an instructor in the chemistry education program, developing and implementing curriculum published in the Great Explorations in Math and Science (GEMS) series, creating and implementing professional development models and materials to facilitate classroom-based partnerships among scientists and teachers of science, and serving as science advisor on the production of various interactive exhibits and displays. She received a B.S. in physics from the University of Illinois, Champaign-Urbana, and an M.S. in physics from Brandeis University, where she received the David Falkoff Prize for Excellence in Undergraduate Teaching.

Dr. Aída Walqui is Director of WestEd’s Teacher Professional Development Program and the Quality Teaching Initiative at WestEd. She oversees program activities, the development of professional development materials and strategies, and consults on improving teacher quality and the academic and linguistic development of English learners at the school, district, state, regional, national, and international levels. She has more than 30 years of experience in the field of academic second language teaching and literacy development in elementary and secondary schools. Prior to joining WestEd, she taught at the University of California, Santa Cruz, Stanford University, and at universities in Peru, Mexico, and England. A member of several national and international teacher professional development advisory boards, and an author of many books, chapters, and articles, Walqui is frequently invited to speak on teacher growth in school contexts characterized by cultural and linguistic diversity. A native of Peru, Walqui received her Licenciatura in Literature from the Universidad Nacional Mayor de San Marcos, Peru. She holds an M.A. in sociolinguistics from Georgetown University, and a Ph.D. in language, literacy, and culture from Stanford University.

Nanette E. Koelsch is a Senior Research Associate in the Teacher Professional Development Program at WestEd. Her areas of expertise include teacher professional development for teachers of English learners, literacy education, and portfolio assessment. She provides research-based technical assistance to help educators improve schooling for diverse populations, manages

several district-level projects that focus on developing culturally relevant assessments for ethnolinguistically and culturally diverse students, and works closely with educators to develop curriculum-embedded assessments that inform instruction and meet state standards, including social studies pedagogy and curriculum. Ms. Koelsch holds an M.A. in language, literacy, and culture from the University of California, Berkeley, where she is currently completing her doctoral work. Previously, she was an Instructor in the Department of Bilingual and Multicultural Education at Northern Arizona University, teaching graduate courses addressing literacy and the education of linguistically and culturally diverse students. Ms. Koelsch has taught English language arts, social studies, and mathematics at the elementary and middle school levels in heterogeneously mixed classes of English language learners and monolingual English speakers.

Dr. J. Ronald Lally is an international expert on early childhood development, and serves as Co-Director of WestEd’s Center for Child and Family Studies, a program that improves the quality of childcare for children birth to three; helps children and families living in poverty; and influences national, regional, and local policies and practices that have an impact on young children and their families. In addition, Lally has directed WestEd’s Program for Infant/Toddler Caregivers (PITC) since 1985, and is executive producer of 17 infant/toddler PITC training videos that provide techniques to ensure secure and intellectually engaging group childcare. PITC is a widely used training system for infant and toddler caregivers in the U.S., training over 4,500 participants who care for over 42,000 children. The National Center for Children in Poverty in 2002 selected PITC as a model initiative to support infants, toddlers, and their families.

Lally is one of the founders and on the Board of Directors of ZERO TO THREE: National Center for Infants, Toddlers, and Families. He is on the national advisory committees of the Ounce of Prevention Fund, the Mailman Family Center at Nova/Southeastern University, and “Stop Crime: Invest In Kids.” He has participated in two White House Conferences on Early Childhood and Brain Development in the late 1990s and has authored numerous publications focusing on early childhood development. Prior to joining WestEd, he was a professor at Syracuse University and chair of its Department of Child and Family Studies. Lally received a B.A. in social science and an M.A. and Ed.D. in educational psychology from the University of Florida. He holds a postdoctoral certificate of Infant Testing from the Child Development Research Center in London.

Dr. Peter L. Mangione is Co-Director of WestEd’s Center for Child and Family Studies. He provides leadership in the development of a comprehensive training system for infant and toddler caregivers and the evaluation of early childhood programs and services. His contributions have helped make the Center’s Program for Infant/Toddler Caregivers a national model for training early childhood practitioners. He has also been a key contributor to the development of the document “Continuity in Early Childhood: A Framework for Home, School, and Community Linkages,” which is being used by policymakers and program planners throughout the country.

Previously, he served as a doctoral fellow at the Max-Planck-Institute for Psychiatry in Munich, Germany, where he specialized in infant development and the use of video technology to study social behavior. He has also worked extensively in the fields of child development, early childhood education, family support services, public policy, and research and evaluation design.

He received a B.A. in psychology from Oakland University and an M.S. and Ph.D. in education and human development from the University of Rochester.

Tasks 1 and 4 Lead Staff

Tasks 1 and 4 are reported together because of the integral connection between these two tasks. We know that effective dissemination requires the early involvement of communicators who can help shape products to meet user requirements, and that content experts need to be involved throughout the process, from outreach and needs analysis through dissemination and technical assistance. We have brought together a staff that can work together flexibly as a team.

This flexibility also extends to the interconnection between Task 1 and Task 2. A lead analyst is identified for Task 1 because we know the importance of having strong analytic capacity directly involved in the ongoing work of research review and reporting of analytic studies; another methodologist will also be hired. The Task 1 studies, however, are managed jointly by the Research Directors and the Fast Response Unit Director. This will further ensure quality, and enable us to deploy core analytic staff flexibly across the two tasks as needed.

Table 3. Tasks 1 and 4 Lead Staff

	Walcott	Chow	Koehler	Berliner	Wiese	Crane	Zimmerman
	<i>Lead, CA Liaison</i>	<i>NV Liaison</i>	<i>AZ, UT Liaison</i>	<i>Readiness, Systems</i>	<i>Curric. & Teaching</i>	<i>Analyst, Systems</i>	<i>Communicator</i>
Regional outreach and partnership building	X	X	X				
Research review	X	X	X	X	X	X	X
Policy analysis	X	X	X			X	X
Writing and product development	X	X	X	X	X	X	X
Regional assistance	X	X	X				X
Readiness to learn				X	X		
Curriculum & teaching	X	X	X		X	X	
Support systems	X	X	X	X		X	
English Learners					X		

Stanley H. Chow is a Senior Program Manager at WestEd and staff to the External Relations Committee of WestEd's Board of Directors. For more than 30 years he has directed research studies and managed support efforts to schools throughout the western region. For nearly a decade he directed the WestEd Rural Schools Assistance Program, assessing needs, developing research and assistance responses, and delivering services to schools and districts in isolated and under-resourced communities, as well as working with state departments of education. His recent publications include a set of evaluation reports from 1999 to the present on Nevada's regional professional development program, and tracer cases of the effects of Nevada's early literacy

training program on teaching and learning. He holds a B.A. in psychology from San Francisco State University and an M.S. in special education from the University of Wisconsin.

Dr. Paul Koehler is Director of the Policy Center at WestEd. He is responsible for providing information and services to the policymakers in the four-state western region. Current policy topics he has addressed include student achievement and graduation rates in Nevada and California, full-day kindergarten, accountability improvement strategies, school-college partnerships, and education issues on the U.S.-Mexico border. Koehler also serves as the Policy Advisor for Education to the Office of the Governor in Arizona. In this capacity, he provides consultation, assistance, advice, and research to the governor on matters relevant to improving the effectiveness of Arizona's K–12 public education system. Prior to joining WestEd, Koehler served as Associate Superintendent of the Arizona Department of Education (ADE) and was a District Superintendent in one of the five largest school districts in Arizona. Overseeing 175 personnel and over \$125 million in state and federal funds at ADE, he was responsible for K-12 curriculum, instruction, and federal programs, including special education, Indian education, migrant and bilingual programs as well as the Arizona Student Assessment Program. He holds a B.S. in business management from C.W. Post College, an M.S. in elementary education from Brooklyn College, and a Ph.D. in elementary education and curriculum development from Arizona State University.

BethAnn Berliner, a Senior Research Associate and Project Director at WestEd, currently manages The Community Laboratory Project, a communitywide reform effort in Bay Point, California, involving a feeder system of low-performing elementary, middle and high schools, several youth development interventions, and a partnership of government officials and education, health, and social service providers. This work has resulted in several school and community reforms intended to increase academic performance and improve student developmental outcomes, targeting students at risk of health-compromising behaviors, dropping out of school, and limited pathways to postsecondary educational and vocational options. Additionally, she directs the research support for Santa Rosa, California's Measure O efforts, a 20-year citywide initiative to reduce youth gang activities, increase school completion, and improve the quality of youth development and health supports to high-risk families. As an expert in the area of homelessness, she serves as a U.S. Department of Education monitor for federal Title I Part D and Title X programs for homeless, neglected and delinquent students. Berliner has also directed several evaluation studies, including studies that address recovery efforts for students who dropped out of school, teen pregnancy prevention efforts in 14 rural school districts, after-school interventions for failing students, school violence prevention efforts, and the supervision of pre-service teachers. Prior to coming to WestEd, Berliner directed a number of community-based educational programs for assault victims, youth offenders, hearing and visually impaired youth, and battered women and their children. She received her B.A. in history from the University of California, Santa Barbara, M.A. in educational and social history from the University of Colorado, and M.P.A. in policy and evaluation from San Francisco State University.

Dr. Ann-Marie Wiese, Research Associate in the Teacher Professional Development Program at WestEd, is Project Director for a national study of the impact of National Board Certified teachers in low-performing schools. She is also evaluator for a study that builds on National Board for Professional Teaching Standards as a lever for school change in high-priority schools.

Prior to coming to WestEd, Wiese taught required Cross-cultural Language and Academic Development (CLAD) courses at the University of California, Santa Cruz, and courses on culture, bilingualism, and literacy instruction at the University of California, Berkeley. She has been a bilingual elementary school teacher, and served as a Fellow at the U.S. Department of Education's Office of Bilingual and Minority Languages Affairs. Wiese received her B.A. in psychology from the University of California, Santa Cruz, and M.A. and Ph.D. in education from the University of California, Berkeley.

Eric Crane is a Senior Research Associate with Assessment and Standards Development Services at WestEd with expertise in applied statistics, item response theory, and psychometric work. Prior to joining WestEd, Crane managed the Research and Analysis Unit at the California Department of Education, where he provided technical and policy support during two different cycles of development of accountability systems in California. Previously, he worked as a private consultant, where his projects included test equating studies, program evaluations, and large-scale data analyses. Crane holds an A.B. in economics from Princeton University, an M.A. in education and statistics from the University of California, Berkeley, and has completed doctoral work in Quantitative Methods in Education at the University of California, Berkeley.

Joy Zimmerman is a Senior Communicator responsible for ensuring the quality, relevance, and usefulness of WestEd's products. She works with writers from the early stages, using a Product Profile to guide planning focused on the needs of the target audience. She also oversees internal and external review of draft products. She was the editor for four of the six innovation guides produced for the U.S. Department of Education's Office of Innovation and Improvement. For these and other major products, she does developmental editing and enlists other Communications staff or outside editors to ensure high quality writing, editing, and proofing. Having spent a decade as a journalist, earning four writing awards from the California Newspaper Publishers Association, she is especially skilled at clear writing for general audiences.

Other Associate Staff

A strong contingent of talented staff will carry out the scope of work under the direction of the lead staff listed above. These staff will often work across projects, as their specialized skills are needed. For example, research analysts will work across Task 1 and Task 2 studies. Skilled communicators will edit products as they are created. Staff are listed alphabetically, and their primary assignments are summarized in the table that precedes the bios.

Table 4. Associate Professional Staff

Name	Agency	Primary Assignment
Cerna, Rebeca	WestEd	T2: Lessons in Character
Connolly, Brooke	WestEd	T2: Problem-Based Economics
Derby, Kenwyn	WestEd	T1: Database Management
Dietsch, Barbara	WestEd	T2: Lessons in Character
Farr, Beverly	Rockman, Et Al.	T2: Science Cases
Feldman, Sarah	WestEd	T1: Research Associate
Furgiuele, Chris	BPA	T2: Quality Teaching for English Learners
Hale, Sylvie	WestEd	T1: Database Development
Hamburger, Leslie	WestEd	T2: Quality Teaching for English Learners
Harrison, Tenley	WestEd	T1: Dropout Prevention Review
Headington, Kerry	WestEd	T2: Assessment Accommodations
Hiebert, Elfrieda	UC, Berkeley	T1: Science Vocabulary Analysis
Holden, Christian	WestEd	T4: Graphic Designer
Huebner, Tracy	WestEd	T1: High School Reform
Johnson, Jim	WestEd	T1: Editor
Makkonen, Reino	WestEd	T1: Research Assistant
McPherson, Cynthia	WestEd	T1: Database Development
McReynolds, Brian	WestEd	T2: Lessons in Character
Montell, Frances	WestEd	T2: Problem-Based Economics
Parrish, Tom	AIR	T1: Instructional Strategies Analysis
Perez, Maria	AIR	T1: Instructional Strategies Analysis
Rumberger, Russell	UC, Santa Barbara	T1: Preschool Analysis
Sanchez, Raquel	BPA	T2: Math Pathways and Pitfalls
Schmida, Mary	WestEd	T1: Academic Language Symposium
Socias, Miguel	AIR	T1: Instructional Strategies Analysis
Thomas, Vanora	BPA	T1: Math Pathways and Pitfalls
Tushnet, Naida	WestEd	T4: Evaluation
Valvano, Vince	BPA	T1: Math Pathways and Pitfalls
Weinstock, Phyllis	BPA	T2: Quality Teaching for English Learners
Weiss, Steven	WestEd	T2: Quality Teaching for English Learners
Zheng, Cindy Hong	WestEd	T2: Lessons in Character

Rebeca Cerna is a Research Associate with the Health and Human Development Program at WestEd with expertise in survey administration and coordinating data collection efforts. Her current work involves coordinating the data collection and process evaluation activities for a *Safe Schools/Healthy Students* program and directing a need assessment for an alcohol management project at two local universities. She has served on the research teams of many studies that examine interventions to reduce risk factors associated with substance use and violence and increase protective factors. Additionally, she helped develop the Web-based *Consent Management System* for managing survey consents and tracking surveys and the *Student Assistance Program Software*. Prior to coming to WestEd, she was nominated and served as a Civic Entrepreneur for the Pew Partnership for Civic Change where she worked with a youth collaborative to expand youth leadership opportunities. She is a certified Health Education Specialist from the National Commission for Health Education Credentialing and holds a B.S. in health science from California State University, Long Beach, and an M.P.H. in community health from the University of California, Los Angeles.

Brooke Connolly, a Research Associate in the Evaluation Research Program at WestEd, specializes in research study design, instrument development, data collection and statistical analysis. She currently provides research assistance to numerous studies, including the Longitudinal Assessment of Comprehensive School Reform Program Implementation and Outcomes, evaluations of mathematics education technology, and evaluations of local district initiatives. Prior to joining WestEd, she worked at the American Institutes for Research, providing statistical analyses of data published by the National Center for Education Statistics. She holds a B.A. in psychology from Dickinson College and an M.A. in education from the University of Michigan.

Kenwyn Derby is a Research Associate with WestEd's Office of the Chief Program Officer. She provides research and coordination support on special projects, assists in strategic planning and quality control efforts, and facilitates communication across the organization. She is a member of the leadership team of SchoolsMovingUp, WestEd's school improvement Web site, and serves as its primary contact person. Prior to coming to WestEd, she managed recruiting, employee relations, and organizational development for a San Francisco internet start-up, worked for the City of Oakland as a Human Resource Analyst, and held various positions in print and online editing and psychology research. She holds a B.A. in political science and Spanish from Amherst College and an M.S. in organizational psychology, focusing on organizational change, from San Francisco State University.

Dr. Barbara Dietsch is a Senior Research Associate in the Health and Human Development Program at WestEd. She has more than 15 years of experience developing, implementing, and evaluating programs targeting health behaviors of adolescents, with an emphasis on the predictors of substance use, early sexual activity, and other associated high-risk behaviors. She currently directs several studies, including an in-school tobacco prevention program, a character education program, and a large-scale school district health program. She is also studying the impact of SB19, a California law that removes vending machines with non-nutritious foods and drinks from schools. As a trainer and technical assistance provider, she provides trainings on tobacco prevention to district and county Title IV coordinators, and moderated the California Healthy Kids Survey listserv for three years, providing support to subscribers. In addition to her

work at WestEd, she is a registered dietician and adjunct professor in the Department of Preventive Medicine at the University of Southern California. Prior to joining WestEd, she worked in tobacco prevention and comprehensive health programs at Los Angeles Unified School District. She received a B.S. in home economics from California State University, Northridge, an M.A. from California State University, Long Beach, and a Ph.D. in Preventive Medicine, Health Behavior Research from the University of Southern California.

Dr. Beverly Farr is the Director of Research at Rockman Et Al., where she directs several research and evaluation studies. Prior to this, she worked for several years as Managing Research Director at the American Institutes for Research, where she directed major research projects on school reform, accountability systems, professional development programs, and teacher credentialing projects. Farr also spent 15 years of her professional career evaluating or providing technical assistance to local, state or federal programs across 20 states as the Director of federally funded technical assistance centers. This work allowed her to capitalize on her expertise in effective instructional practices and comprehensive accountability systems. Her knowledge of second language development has also allowed her to focus a significant amount of her work on the needs of English language learners. She has published several books, articles, and chapters about educational reform, and recently has released two books that focus on assessment and instructional practices designed to meet the needs of English learners. She holds a B.A. in Spanish linguistics from Florida Atlantic University and a Ph.D. in reading education from Indiana University.

Sarah Feldman is a Senior Research Associate in the San Francisco office at WestEd. She is working on the Guide to Charter High Schools for the U.S. Department of Education's Office of Innovation and Improvement. Two years ago, she supported the process of researching and writing the guide to Successful Charter Schools. Prior to working at WestEd, Sarah trained principals for urban schools and was a public middle school assistant principal. She has experience as a school administrator, teacher, and professional development trainer and is completing her dissertation on middle school students who struggle with reading for her doctorate in education at Mills College.

Chris Furgiuele is a Research Analyst at Berkeley Policy Associates (BPA) who has conducted extensive research in the field of education and workforce development. He currently directs the Los Angeles SOURCE Project, a multi-year random assignment demonstration project that links low-income high school students in Los Angeles to college students who will help them navigate the college and financial aid application process. He also directs the San Francisco Care Not Cash Caseload Decline Study, which assesses the current whereabouts and economic well-being of more than 1,800 homeless individuals who left the city's General Assistance program in the past year. His areas of expertise include project management, instrument development, data collection and analysis. Past work includes evaluation studies of the state of Louisiana's TANF welfare-to-work program. He holds a B.A. in economics from Syracuse University and an M.P.P. from the University of California, Berkeley.

Sylvie van Huesden Hale is Director of WestEd's Application Development Group, whose expertise includes the use of multimedia technologies to solve complex data management problems in education. She is currently working on several projects that integrate interactive online tools and activities with field-based coaching strategies. She has extensive experience

working directly with high-poverty, low-performing schools — particularly in providing technical assistance on data analysis, reform planning, and implementation, as well as leadership-building strategies. She is the author of *Comprehensive School Reform: Research-Based Strategies to Achieve High Standards*, a set of materials that includes a guidebook and two videos. She is also one of the primary authors of *Schoolwide Programs: A New Outlook* and *Focus on School Improvement*. She received her B.A. in international relations from San Francisco State University and her M.A. in international development and administrative policy analysis from Stanford University.

Leslie Hamburger, Research Associate in the Teacher Professional Development Program at WestEd, develops tools and processes in English and Spanish for the teaching of mathematics to secondary English learners. She also designs and conducts professional development in English and Spanish to enhance the expertise of secondary mathematics teachers with English learners, including the role of literacy in mathematics classes. Prior to her employment at WestEd, she was an assistant principal whose duties included planning and coordinating a schoolwide testing program promoting mathematics reform, curricular alignment, implementation of content standards, and increased student achievement. As a mathematics resource teacher and curriculum specialist, she designed mathematics curricula and conducted professional development and coaching for mathematics teachers with a focus on linguistically diverse student populations. She has experience teaching and developing curriculum for bilingual, sheltered, transitional, mainstream, and gifted and talented students in secondary mathematics. She received her B.S. in business administration from Westbrook College and her M.A. in educational administration from San Jose State University.

Tenley Harrison works as a Research Associate for the Western Regional Educational Laboratory and brings expertise in the areas of survey design, data collection and analysis, program and curriculum design, and report writing for a variety of research studies and service projects. She has provided research and technical assistance support to The Community Laboratory Project, the Evaluation of the Regional Professional Development Program of Nevada, and the Laboratory Network Project: Low-Performing Schools Web Site. She has coauthored several policy briefs and research reports, including *Voices from La Frontera: Study of School Districts Along the United States/Mexico Border*. Prior to working at WestEd, she taught sheltered literature and history to high school students in the Bay Area as well as English to high school students in Japan. Harrison received a B.A. in psychobiology from Yale University and an M.A. in international and comparative education from Stanford University.

Kerry Sherman Headington is a Research Associate in WestEd's Assessment and Standards Development Services program. Her responsibilities include project management, the development and implementation of standards and assessment materials, research and alignment studies, and evaluation of programs. Previously, she worked with the Language and Cultural Diversity Program, Northern California Comprehensive Assistance Center, and the Policy Support and Studies Program at WestEd. Before coming to WestEd, she taught 3rd grade on the Jicarilla Apache reservation in New Mexico and English as a Second Language in the Czech Republic, and conducted ethnographic research in schools. She holds a B.A. in psychology and multicultural education from the Catholic University of America and an M.A. in international comparative education and policy analysis from Stanford University.

Dr. Elfrieda Hiebert is currently an Adjunct Professor at the University of California, Berkeley. Previously she was a Professor at the University of Michigan, where she served as Director of the Center for Improvement of Early Reading Achievement (CIERA). She is the author of over 100 published research articles and chapters on how instructional and assessment practices influence literacy acquisition, especially among low-income children. She recently authored a volume with Michael Kamil, *Teaching and Learning Vocabulary: Bringing Research to Practice*. For the PREL, she planned and facilitated a highly successful series of national Reading Forums that brought together leading researchers and literacy leaders from the 50 states. She is currently engaged in research investigating the effects of texts, particularly informational texts, on the fluency and vocabulary development of students, especially English learners. Hiebert has herself been a teacher of primary-level students in central California. She received her Ph.D. in educational psychology from the University of Wisconsin, Madison.

Christian Holden is WestEd's primary graphic designer for both print and Web materials. With a degree in production for electronic media from the Newhouse School of Public Communications at Syracuse University, Holden has created a number of award-winning publications for WestEd. For example, the *2003 WestEd Products and Services Catalog* that he designed won two awards in the League of American Communications Professionals competition: a Platinum Award in the overall Best Narrative category and a Gold Award in the Toolkits, Mailers, and Related category. He created the designs for two reports that won top honors for interior design in 2005. He received his B.S. in electronic media from Syracuse University.

Dr. Tracy Huebner is a Senior Research Associate specializing in studying complex programs for schooling and children. Her areas of expertise include qualitative design and analysis, research and evaluation, implementation and assessment of whole school change efforts, and pre-service teacher education. She currently directs research studies that examine ways districts support low-performing schools and high school reform efforts, including the profiling of small high schools supported by the Gates Foundation that show early positive gains from their reform efforts. Prior to joining WestEd, she was at Harvard's Children's Initiative where she was a lecturer and researcher, and an evaluation consultant to schools, districts, and reform initiatives, such as the National Center for the Accelerated Schools Project. She holds a B.A. in English and French literature from Cornell University and an M.A. and Ph.D. in education from Stanford University.

Jim Johnson is a Senior Communicator at WestEd. He has extensive experience as a writer, editor, teacher, and program developer, both at WestEd and in the academic community. He served for nine years as Director of Communications at WestEd, overseeing the development and dissemination of products for the agency. He has been a writing instructor at the college level in both the community college and state university systems, as well as an instructor in film media. He is particularly skilled at working with staff to improve their writing skills as they carry out projects. He is a regular editor of cases for professional development and descriptions of promising practices to be published in print or Web formats.

Reino Makkonen is a Research Assistant with the Policy Center at WestEd, and brings expertise in data collection and analysis, literature-based research, and synthesizing complex data for multiple audiences. He has authored several policy briefs and research summaries for legislators,

governors, and state boards of education. Prior to joining WestEd, he was a middle and high school substitute teacher, and worked in educational publishing at Houghton Mifflin and Straight Line Editorial Development. Additionally, he helped craft the content for a best selling educational toy, and has written research articles for the *Harvard Education Letter* and *Horace Magazine*. Makkonen received a B.A. in journalism from the University of North Carolina, Chapel Hill and an Ed.M. in education policy from Harvard University.

Cindy McPherson is an Information Designer and Project Manager with 10 years of experience improving programs in education — from developing curriculum and training programs to designing Web sites. As Project Manager in WestEd’s Application Development Group(ADG), she coordinates development teams to produce high-quality interactive Web sites, writes documentation and delivers training to help clients and developers use CS software, and contributes to the strategic development of ADG. She has conducted qualitative research on school reform efforts. A strong communicator with a background in education, she understands education reform issues and is adept at translating client needs into technical specifications.

Brian McReynolds is a Program Coordinator with the Health and Human Development Program at WestEd with expertise in large-scale survey administration. He currently works on multiple health and education studies that involve surveys, including California’s statewide Healthy Kids Survey, Student Survey, and Student Tobacco Survey. He brings experience and expertise in survey coordination, database management, and analysis of survey data. He holds a B.S. in economics from the University of Utah.

Dr. Frances Montell is a Research Associate in the Science and Mathematics Program at WestEd where she provides research support to evaluation studies of the California Mathematics Professional Development Institutes and a National Science Foundation-funded teacher induction program. Previously, Montell was a Researcher and Project Manager at the Stanford Learning Lab at Stanford University, where she conducted evaluations of education technology projects and developed and assessed online learning modules. She also designed and conducted evaluations of science education programs at the University of California, Santa Barbara. Montell holds a B.A. in sociology from the University of California, San Diego, and an M.A. and a Ph.D. in sociology from the University of California, Santa Barbara.

Dr. Tom Parrish is Co-Director of the Center for Special Education Finance at American Institutes for Research (AIR), which is involved in research addressing the national agenda for special education finance and in conducting state and federal studies on the impact of special education finance reform. His major area of expertise is fiscal policy in public education with a specialty in special education. He has directed and participated in numerous cost analysis, education policy, and evaluation projects for federal, state, and local agencies over the past 25 years. He has addressed numerous committees, conferences, and legislative bodies on education finance policy, and has written extensively on these issues. Currently, he is involved in a study documenting the related services being received by a large sample of special education students and an evaluation of the implementation of California Proposition 227, which specifies instructional program provisions for English learners. He also spent five years teaching students from diverse ethnic and cultural backgrounds. He received his Ph.D. in educational policy and administration from Stanford University.

María Pérez, Senior Research Scientist at AIR, is Co-Project Director on the forthcoming independent evaluation of the *Effects of the Implementation of Proposition 227 on the Education of English Learners, K-12*. At the American Institutes for Research, Ms. Perez has been instrumental in high-level processing and analysis of complex data from national and state departments of education, school districts, and schools; recent work has focused extensively on the achievement and inclusion of English learners and students with special needs in standardized testing. Outside of her role on the Proposition 227 evaluation, she also directs achievement analyses for the California Department of Education (CDE)-contracted *Intermediate Intervention/Underperforming Schools Program (II/USP) Evaluation Study* and *High Priority Schools Evaluation Study*. She has a Master's degree in macroeconomic programming in developing countries, and has extensive experience with statistical programming software (SQL, SAS, STATA) and statistical analysis of quantitative data. Previous to working at AIR, she was an assistant instructor in Pontificia Universidad Católica de Chile's Economics department.

Dr. Russell Rumberger is Professor of Education and Director of the University of California Linguistic Minority Research Institute (UC LMRI), a University of California multi-campus research unit established in 1984 to foster interdisciplinary research and to improve academic achievement of children from diverse language backgrounds. A faculty member at the University of California, Santa Barbara, he teaches research methods and policy courses, and has published widely in several areas of education: education and work; the education of disadvantaged students, particularly school dropouts; and education policy. His research in the area of education and work has focused on the economic payoffs to schooling and on educational requirements of work. His research on at-risk students has focused on the causes and consequences of dropping out of school. His research on education policy has focused on school performance, school segregation, and, most recently, student mobility. Rumberger has published in leading journals in the fields of economics, sociology, and education, including *Economics of Education Review*, *Sociology of Education*, *American Educational Research Journal*, and *Educational Evaluation and Policy Analysis*. He currently serves on the editorial boards of four journals: *Economics of Education Review*, *Sociology of Education*, *American Educational Research Journal*, and *Teachers College Record*. Rumberger teaches courses in research methodology and education policy. He holds a B.A. in electrical engineering from Carnegie-Mellon University, and an M.A. in economics and a Ph.D. in education from Stanford University.

Raquel Sanchez, a Research Analyst at Berkeley Policy Associates (BPA), currently provides research and program development support to several projects, including the National Office of Job Corps Workgroup developing strategies and materials to serve language minority students, a U.S. Department of Education study of the implementation of experimental and quasi-experimental evaluations of an American history grant program, and a study of the relationship of language, identity and academic risk in Latino middle school students. Prior to coming to BPA, she contributed to the development of a multimedia and online professional development course for teachers earning CLAD certification, and taught at the pre-K, elementary, middle and college levels. She holds a B.A. and M.A. from California State University, Los Angeles, and is expected to complete her Ph.D. from Stanford University in 2006.

Dr. Mary Schmida is a Research Associate with the Teacher Professional Development Program at WestEd, and brings years of experience teaching writing and developing educational

materials for English learners. She currently provides content expertise to the development of professional development modules that help teachers to use rigorous and challenging content with English learners. Prior to joining WestEd, she worked for a decade as a writing instructor at the University of California, Berkeley, and several years in the Peace Corps teaching high school in Africa. She holds a B.A. in linguistics, an M.A. in education, and a Ph.D. in education from the University of California, Berkeley.

Dr. Miguel Socias, is a research scientist at AIR. Dr. Socias is a key leader of the achievement analysis component of the *Evaluation of the Effects of Proposition 227 on the Education of English Learners in California*. In this project, he contributes expertise in statistical analysis to help design and conduct analyses of the academic and linguistic performance of English learners (ELs) in California. In addition, he conducted a “survival analysis” (also known as event history analysis) to analyze the time it takes ELs across the state to be redesignated to fluent English proficient status. Dr. Socias also works on the Study of Measure the Delivery of Services in Accordance with the Individual Education Programs of *Students with Disabilities in the Los Angeles Unified School District* (LAUSD). In this project his responsibilities include database management, statistical analysis and final report writing. Dr. Socias served as an analyst for the Evaluation of the Immediate Intervention/Underperforming Schools Program (II/USP), conducted under contract to the California Department of Education. In this role, Dr. Socias led the sample selection process for the qualitative data collection efforts, and conducted analyses of student achievement data to detect the impact on test scores of a school’s participation in II/USP. Dr. Socias has Ph.D. in Education and an M.A. in Economics from Stanford University.

Vanora Thomas is a Junior Analyst at Berkeley Policy Associates (BPA) who provides research support on a number of studies. She brings experience in large-scale survey and Web-based survey management, conducting interviews and site visits, and collecting field data. She currently provides support to studies that examine the transition from adult basic education to postsecondary education options at community colleges and California’s welfare time limit policy. Previously, she was part of a research team that evaluated Louisiana’s TANF program. She holds a B.A. in anthropology from the University of California, Santa Cruz, and an M.A. in anthropology from George Washington University.

Dr. Naida C. Tushnet has over 35 years of experience in education. She currently directs the Evaluation Research Program for WestEd, which houses evaluations of mathematics and science programs at the elementary, secondary, collegiate, and graduate levels; studies of school reform; and evaluations of community- and school-based projects for children who are placed at risk. Earlier in her career, she taught high school and worked in two other regional laboratories, a state education agency, and the federal government, where she was responsible for studies of programs designed to improve schools through the application of research. She has directed a number of projects, including the R&D Interpretation Service, which synthesized research in ways that were useful for teachers; the Documentation and Evaluation of the Educational Partnerships Program; and the evaluation of the Star Schools Distance Learning Program. Tushnet received her B.A. in history from Grinnell College, M.A. in history from Columbia University, and Ph.D. in education policymaking and administration from Washington University.

Dr. Vince Valvano is a Principal Research Analyst at Berkeley Policy Associates (BPA), bringing extensive experience leading multi-method program evaluations and conducting quantitative analysis of program outcomes using a variety of statistical techniques. He has directed several social and educational research and evaluation studies using cohort analysis, subgroup comparisons, multivariate regression analysis, and duration analysis. He is also an experienced field researcher and has developed surveys and interview and administrative document review protocols. Currently, he directs several studies, including *The Community College Transitions Project*, which will produce case studies of 16 exemplary programs in four states to highlight the factors that contribute to their success at transitioning students from adult basic education to community colleges. He also directs the evaluation of the *SOURCE Demonstration Program*, a random assignment study that will assess the effectiveness of the provision of college admission and financial aid counseling on the college enrollment rates of disadvantaged high school students in the Los Angeles Unified School District. Previous work includes directing welfare-to-work studies for the states of Louisiana and Colorado. He holds a B.A. in community studies from the University of California, Santa Cruz and a Ph.D. in economics from the University of California, Berkeley.

Dr. Phyllis Weinstock is a Principal Analyst at Berkeley Policy Associates (BPA) with 20 years of experience in evaluation research, project management, and social policy analysis, focusing on child and youth development and educational programs and policies. She currently directs the U.S. Department of Education's Improving State Accountability Systems for the Even Start Family Literacy Program, and recently completed a statewide evaluation of the Child Development Facility Accreditation Project. This study involved a survey of a stratified random sample of 200 participating programs; interviews and focus groups in selected counties; and observational assessments of a sample of 40 childcare programs in five counties. She has directed several other community childcare studies, and evaluations of after-school programs, welfare-to-work initiatives, and school-based violence prevention programs. She holds a Ph.D. in city and regional planning from the University of California, Berkeley.

Steven Weiss is a Research Associate with the Teacher Professional Development Program at WestEd. He currently develops tools and processes for the teaching of academic Spanish to native Spanish-speaking students and English as a Second Language for newcomers. He designs and conducts teacher professional development in the area of disciplinary academic language development, including social studies. Prior to joining WestEd, Weiss was a K–8 assistant principal and an English language and bilingual resource teacher. He holds a B.A. in political science from Vassar College, an M.Ed. in bilingual, cross-cultural language and academic development emphasis from the University of California at Los Angeles, an M.A. in Spanish from Middlebury College, and an M.S. in education administration from San Francisco State University.

Cindy Hong Zheng is a Research Associate with the Health and Human Development Program at WestEd, and brings expertise in the areas of evaluation methods, survey design, statistics, and data analysis. Her research interests are adolescent risk behaviors, youth development, parental divorce, and adult well-being. Prior to joining WestEd, Zheng provided statistical support to a team of social researchers at the University of Southern California. She holds a B.S. in economics from Jiangnan University in China and an M.P.H. in epidemiology and biometry from the University of Southern California.

Technical Working Group

The following bios are of the nine national experts who will serve as our Technical Working Group, providing feedback and guidance to ensure the scientific merits and quality of our work. Each has agreed to serve in this role, and a letter of commitment is included in the Appendix. They represent strong methodological expertise in research design, analysis, and instrumentation, and also span content areas relevant to the proposed work.

Dr. Jamal Abedi is a Professor of Education at the University of California, Davis, and Director of Technical Projects at the University of California, Los Angeles National Center for Research on Evaluation, Standards and Student Testing (CRESST). His research interests include psychometrics and test and scale development. His work includes validity studies for the National Assessment of Educational Progress (NAEP) focusing on the impact of language background on students' performance. Recent work includes the application of latent-variable modeling in assessing validity and reliability of performance-based assessment measures, studies on the validity of accommodations for English learners, and research on the opportunity to learn for English learners. He has developed a culture-free instrument for measuring creativity, which has become translated into a number of languages and administered in several countries.

Dr. Lloyd Bond is a Senior Scholar at the Carnegie Foundation in Palo Alto. Prior to working at the Foundation, Bond held professorships in the Department of Educational Research Methodology at the University of North Carolina, Greensboro and in the Psychology Department at the University of Pittsburgh. He is a specialist in measurement and assessment, known for his research on test bias, cognitive processes underlying test performance, the assessment of teaching performance and, most recently, assessment in higher education. Bond has been an associate editor and member of the editorial boards of the leading journals in educational and psychological measurement, and consults with school districts, state departments of education, testing organizations, research and development centers, and other organizations. A Fellow of the American Psychological Association, he served on both the 1985 and 1999 national education research committees to revise the standards for educational and psychological testing, and from 1997 to 2002 was senior advisor to the National Board for Professional Teaching Standards.

Dr. Geoffrey Borman is an Associate Professor at the School of Education at the University of Wisconsin, Madison. He is a Senior Researcher with the Consortium for Policy Research in Education, and Lead Analyst for the Center for Data-Driven Reform in Education at Johns Hopkins University. His research interests revolve around social stratification and the ways in which schools can overcome inequality. His primary methodological interests include the review and synthesis of research evidence, the design of quasi-experimental and experimental studies of educational innovations, and the specification of school-effects models. Borman recently completed a research synthesis of the achievement effects of 29 nationally disseminated comprehensive school reform models. He trained as a quantitative methodologist through the University of Chicago's Measurement, Evaluation, and Statistical Analysis program and received the National Academy of Education/Spencer Postdoctoral Fellowship Award, the 2004 Raymond Cattell Early Career Award from the American Educational Research Association, and the 2004 American Educational Research Association Review of Research Award.

Dr. Brian Flay is a Distinguished Professor of Community Health Services at the University of Chicago and Professor of Public Health at Oregon State University. His research interests include health promotion and disease prevention research, smoking and drug abuse prevention, violence prevention, youth HIV/AIDS prevention, positive youth development, comprehensive school reform, prevention research methods and theory, and prevention research training. He currently has an IES grant to study a character education program. He writes on research methods as well as individual studies. Among his honors, he received a Research Laureate Award from the American Academy of Health Behavior

Dr. Thomas Good is a Professor of Educational Psychology and Education Leadership at the University of Arizona, Tucson. His research focuses on classroom instructional process, including whole class and small group learning environments, communication of expectations in social settings, analysis of instructional behavior, teacher-student communication, teacher behavior and student achievement, and mathematical learning. As the Editor of the *Elementary School Journal* he frequently addresses issues related to at-risk learners. His interests include issues of educational assessment spanning conceptions of effective teaching, particularly in schools with large populations of students coming from low-income homes.

Dr. Joan Herman is Co-Director of CRESST and the University of California, Los Angeles Center for the Study of Evaluation. Dr. Herman has done extensive research on the effects of testing on schools and on the design of information systems to support school planning and improvement. She has wide experience as an evaluator of school reform projects, recently focusing on the assessment of the effects of technology and school reform.

Dr. Heather Hill is an Assistant Research Scientist at the University of Michigan. Her primary work focuses on the development of measures of content knowledge for teaching mathematics, and using such measures to evaluate public policies and programs intended to improve teachers' facility with mathematics. Her other interests include the measurement of instruction more broadly, instructional improvement efforts in mathematics, and the role that language plays in the implementation of public policy. She received a Ph.D. in political science from the University of Michigan in 2000 for work analyzing the implementation of public policies in law enforcement and education.

Dr. Roger Levine is a Managing Research Scientist at American Institutes for Research (AIR). He has been actively involved with social science data collection and analysis for over 30 years. He created the AIR Cognitive Survey Laboratory and is Director of AIR's Palo Alto Cognitive Survey Laboratory. In addition to pilot-testing survey items, this facility has been used to investigate the questionnaire response process in fourth and eighth grade students, students with learning disabilities, and English learners. Procedures employed in this Laboratory have also been employed in field investigations of how principals and school district personnel respond to specific data items (such as staffing intensity, wage, and benefits) that are crucial for modeling the cost of education and to investigate how teachers answer questions about their background and their instructional practices. Levine has directed U.S. Department of Education studies of magnet schools and the Magnet Schools Assistance Program, the organizational structure of high schools (and the relationships between state and school district policy and organizational practices) and was the country's national study director for an international study of the organizational structure of elementary schools. He directed an evaluation of the Department of

Defense's ASVAB Career Exploration Program for the Department of Defense's Defense Manpower Data Center, designed to assess the impacts of participation in a program to help students make better career and college choices. He also directed analyses of large, longitudinal and large, cross-sectional data files for the National Center for Education Statistics.

Dr. Jason Snipes is the Deputy Director of Education, Children and Youth for Manpower Demonstration Research Corporation (MDRC). He is Co-Principal Investigator for the Closing Achievement Gaps project, Lead Quantitative Analyst for the national evaluation of Project GRAD, and Impact Analyst for the Career Academies evaluation. He was the Lead Analyst for the Adult Basic Education component of the National Evaluation of Welfare-to-Work Strategies. Snipes has developed specialized experimental analysis methods for defining student risk groups and estimating the impacts of programs on different student populations. He has also developed and employed innovative experimental and non-experimental methods for measuring the effects of education interventions on education and labor market outcomes, including achievement on standardized tests.

WREL TECHNICAL PROPOSAL

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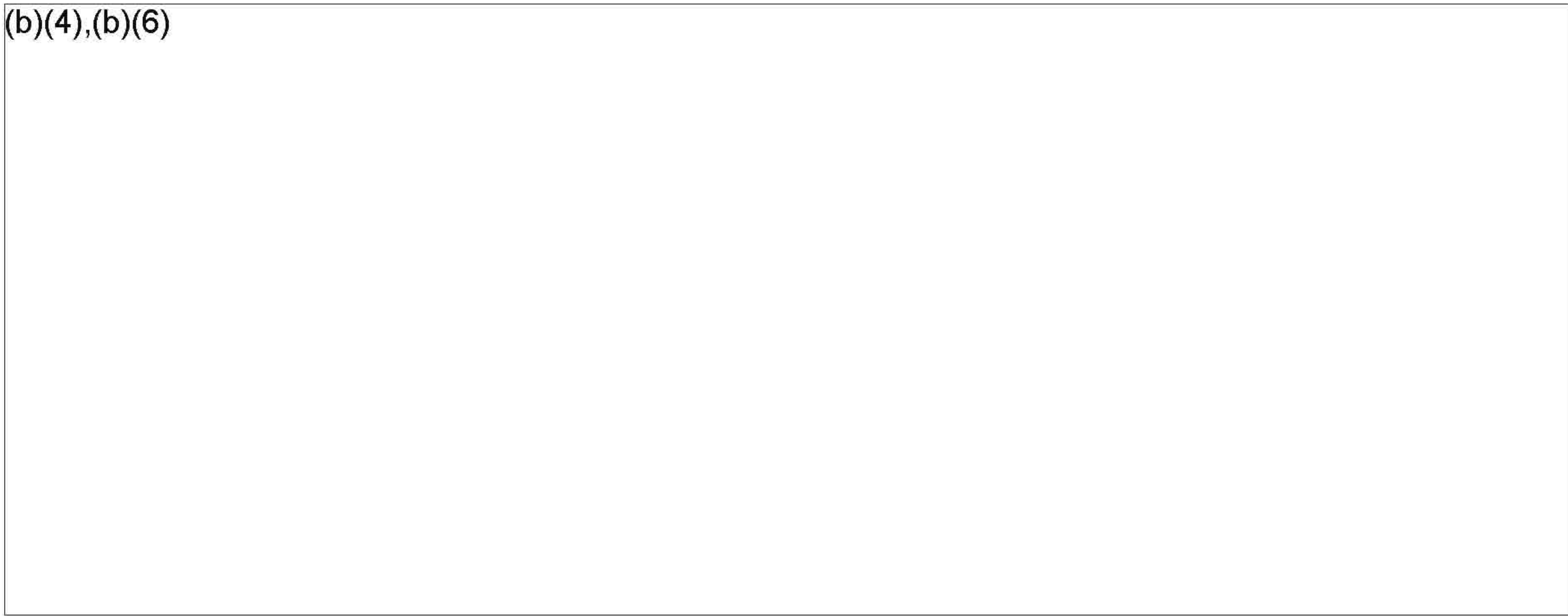
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WREL TECHNICAL PROPOSAL

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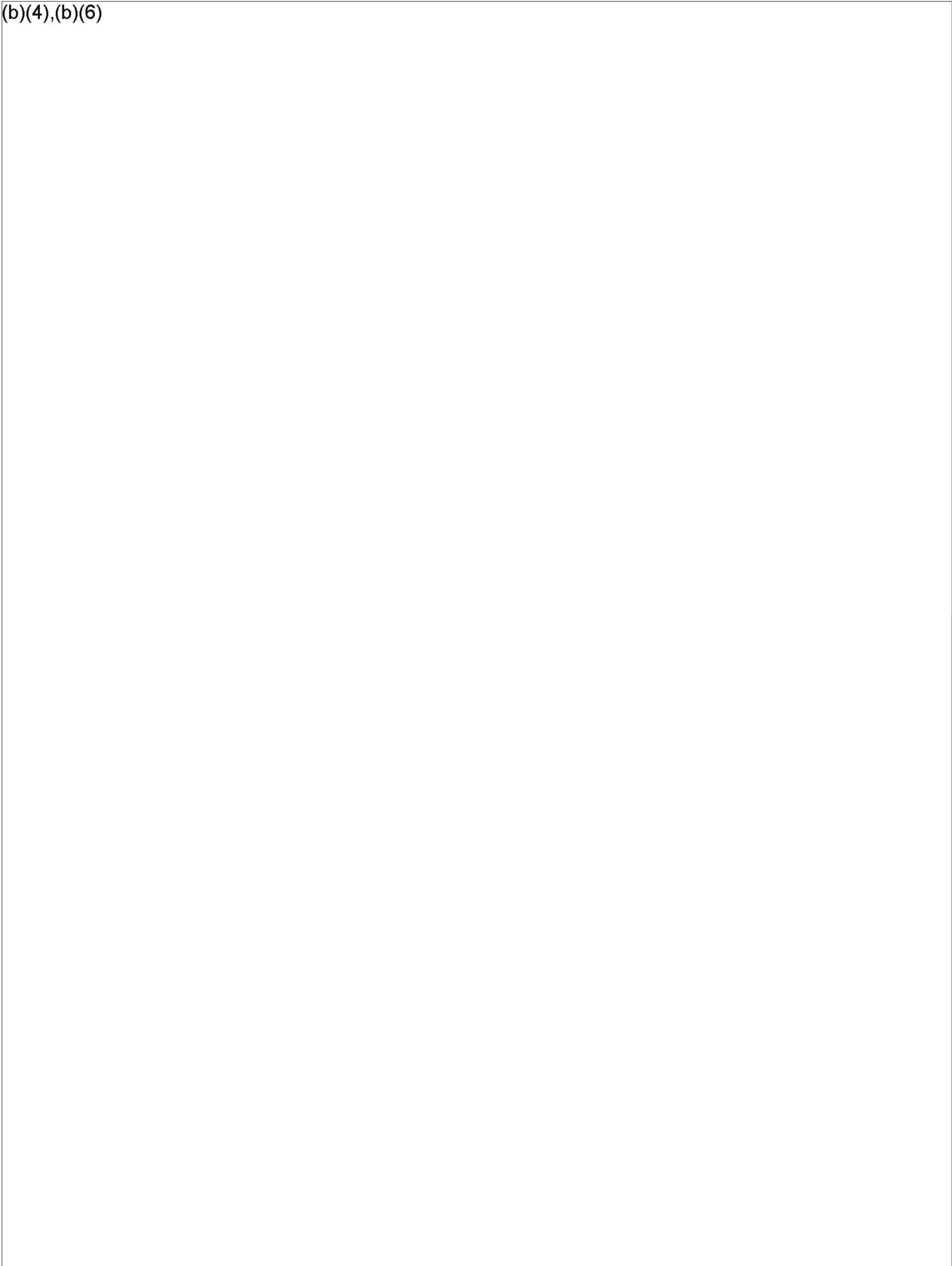
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WREL TECHNICAL PROPOSAL

MANAGEMENT PLAN

MANAGEMENT PLAN

With a 40-year history of accomplishments, WestEd is a strong, stable organization. “One of its major strengths lies in its management structure,” concluded a REL external evaluation panel (Decision Information Resources, 1999). Chief Executive Officer, Dr. Glen Harvey, has mobilized the organization to build on that capacity to reach the highest possible level of contribution to a compelling mission:

*WestEd, a research, development, and service agency, works with education and other communities to **promote excellence, achieve equity, and improve learning** for children, youth, and adults.*

Recognizing that vision and commitment, while necessary, are not sufficient to achieving our mission, WestEd places a premium on solid management of well-designed work. Both WestEd and the WREL operate on the premise that good management is the underpinning of good program work. WREL management structures have been designed to draw upon the highest levels of WestEd’s leadership and management capacity. This section outlines the structures and procedures we will use for managing the WREL, and constructing the strong infrastructure upon which high-quality, scientifically valid technical assistance and applied research and development will be built.

WestEd Management Structure

Executive Team (ET). Ultimate responsibility for the leadership, management, and quality of WestEd’s work rests with the CEO, Dr. Glen Harvey. Dr. Harvey works with the Board of Directors to establish institutional priorities and strategic plans, and provides oversight for all institutional functions. She develops and maintains communication with WestEd’s key stakeholders and constituents; she will be responsible for ensuring that WestEd fully understands and is aligned with the priorities of IES. Dr. Harvey is assisted by five chief officers, each of whom has specific areas of responsibility within the organization. Dr. Harvey and her direct reports comprise the Executive Team, which is responsible for establishing the procedures and systems that enable WestEd to function within the policies and priorities established by the Board. The ET meets monthly to review major areas including fiscal and personnel issues, business development, and programmatic issues. The CEO also meets with each individual chief monthly to review and address work plans, outcomes, and issues and challenges. Through this combination of meetings and ongoing communication, the CEO and the ET provide the overall institutional leadership and management support needed to meet WestEd’s major objectives each year and fully support and attend to ongoing issues related to WREL work. Our current and proposed WREL Director serves on the ET, and three of the seven ET members have been REL directors at some time in the past; six of the seven have been REL staff members at some point in their careers.

The **Chief Program Officer**, ET member and current Director of the WREL, has overall institutional responsibility for WestEd's program operations. He is primarily responsible for ensuring the rigor, utility, relevance, and quality of WestEd's work. This includes assuring that the work being conducted in the hundreds of contracts that are operating at any one time is completed on time, within budget, and with high quality. The CPO is responsible for establishing systems for monitoring and evaluating WestEd's programmatic work and is also responsible for establishing communications among programs such that they benefit from each other and add value through coordinated or collaborative efforts. The CPO's office guides the development of annual Program Action Plans for each of WestEd's programs, which establish goals for program work and impact; the CPO's office also conducts extensive annual Program Reviews with the ET where work plans, progress, accomplishments, outcomes, and overall performance is discussed with ET and program leadership. Oversight and supervision of specific Program Directors and their respective programs is shared with other Chiefs (see Figure 1, WestEd Organization Chart).

The Chief Program Officer will continue to serve as the WREL Director. He will maintain ongoing contact with IES and ensure that the WREL is responsive to Department of Education priorities and will coordinate with the CEO to assure clear communication about priorities and work executed under the WREL.

Management Council. The CEO convenes a Management Council monthly to address issues across the spectrum of agency business and program areas. The Management Council is made up of the ET and the leaders of major programs and administrative departments. At Management Council meetings, members deliberate and provide input on organizational and business issues. Management Council meetings are also designed for all managers to share experience and expertise across program lines and disciplines to leverage and strengthen all of WestEd's work. Some examples of issues the Management Council has discussed recently include: producing sustainable products and services; sharing strategies for working effectively within school districts; and conducting experimental or quasi-experimental research under constantly changing conditions in the field. Following the meetings of the full Management Council, members divide into a Program Council and an Administrative Council to address program topics in greater depth or coordinate activities in greater detail.

Members of the WREL Leadership Team (described below) sit on the Management Council, as does the lead we have bid for Task 6. The WREL Director also chairs the Program Council and will utilize this regular access to all of WestEd's senior leaders to enhance the work and management of the WREL.

WREL Management Structure

WREL Leadership Team. The Leadership Team will be composed of the WREL Director, Associate Director, the Director of the Fast Response Unit, and the two Directors of Research (see Figure 2 for the WREL Organization Chart). If WestEd is selected to be the contractor for Task 6, the leader of that effort will also sit on the Leadership Team. Overall, the Leadership Team will be responsible for ensuring that WREL work is coordinated across tasks and carried out according to plan and with high standards. The Team will meet regularly to:

- Review status, progress, and performance across all aspects of the WREL contract and make connections across tasks and subtasks as appropriate;
- Ensure progress on collecting and providing necessary indicator and other performance data;
- Vet plans and study designs, identify and examine areas in which work can be strengthened, identify possible or existing issues or challenges and plan solutions;
- Coordinate and support the preparation of Monthly Updates and Updated Annual Plans to the Department of Education;
- Prepare for quarterly meetings with and reports to the WestEd Board of Directors; and
- Work with IES, the Task 6 lead contractor, Department of Education, External Evaluators, other RELs, Comprehensive Centers, R&D Centers, and other key constituents as needed or requested.

WREL Director. As described above, WestEd’s Chief Program Officer, Dr. Gary Estes, will direct the WREL and chair the Leadership Team. Dr. Estes is eminently well qualified to serve in this capacity, having been the WREL Director since 1989. As the current WREL Director, Estes leads the agency’s participation in the Laboratory Network Program. He has served as chair of the directors’ group, and for several years has been the directors’ designated lead for collecting and reporting indicator data. In this role, he has worked closely with IES staff as well as the evaluators across the laboratory network to refine measures and report data, including a coordinated systemwide client survey. He is also the primary staff liaison to the WestEd Board’s Program Committee. As detailed in his biography in Personnel, Dr. Estes has considerable experience conducting, managing, and leading large-scale R&D and technical assistance initiatives and administering major contracts; as WestEd’s CPO, he oversees quality assurance and the design and vetting of research projects across the entire organization. Dr. Estes’ multiple leadership roles and placement within WestEd means that WREL has immediate and extensive access to all levels of WestEd leadership, decision-making bodies, and resources.

As WREL Director, Estes will have ultimate responsibility for ensuring that all project deliverables, research, and activities meet high-quality standards and are delivered on time and within budget, in accordance with IES’s expectations.

Associate Director. Dr. Nikola Filby, currently the WREL Associate Director, will continue to serve as Associate Director. Dr. Filby has managed significant aspects of past WREL contracts, including, for example, providing oversight of the development of new promising interventions on which randomized experimental impact studies are now underway. Dr. Filby has also served in the cross-laboratory REL system leadership group, chairing the program leaders group and managing collaborative projects. Along with the WREL Director, Dr. Filby will take overall responsibility for assuring that WREL work is coordinated and completed on time with high quality. Drs. Estes and Filby will meet weekly to review issues and progress of the contract overall. Dr. Filby takes an active role working with WestEd’s Board of Directors and will be closely involved with the day-to-day operations and management of the WREL. Among other duties, the Associate Director will:

- Coordinate the regular meetings of the WREL Leadership Team, working with the Director to set agendas and ensure appropriate decisions are made and actions taken to facilitate effective performance in all Tasks;
- Supervise the development and submission of Monthly Updates, Monthly Financial Reports, and Updated Annual Plans, and ensure that these tools are used by the Leadership Team to inform management and coordination of WREL work;
- Oversee the planning and preparation for meetings of the WestEd Board of Directors and Committees, to update the Board and ensure that the various Board Committees are fulfilling their responsibilities in relation to the WREL and IES;
- Serve as a WREL point of contact with other RELs, R&D Centers, Comprehensive Centers, and other organizations or constituent groups; and
- Coordinate and manage follow up with IES after Biannual Meetings and other meetings called by IES, and organize responses to special requests made by IES, the Department of Education, or others involving the WREL.

As depicted in the WREL Organization Chart (Figure 2), Drs. Estes and Filby will provide leadership and direction to and be supported by senior leaders with responsibilities for work proposed under individual Tasks.

Director, Fast Response Unit. Catherine Jovicich Walcott will direct the work of the Fast Response Unit. Walcott is currently WestEd's lead strategist on responding to NCLB, and brings significant experience with the Congressional Research Service and as a Team Leader at the U.S. Department of Education to this role. As Director of the Fast Response Unit, she will lead and coordinate the work of the Subtask 1.1 Regional Needs Analysis, Training, and Technical Response Unit. She will also lead WREL's dissemination activities, which have been placed within the Fast Response Unit in order to facilitate the coordination of technical assistance and dissemination activities. As described under Task 1, the Fast Response Unit will solicit needs and requests from the region and propose options for addressing them. For each Fast Response study or technical assistance activity, we will also engage staff or use consultants with the needed content expertise. Ms. Walcott will work collaboratively with the Directors of Research to oversee Subtask 1.2's Fast Response studies, ensuring that these studies are both rigorous in their design and appropriate for meeting the requests received from the region. Among other duties, this role includes:

- Coordinating and managing needs assessment activities, in collaboration with the WREL's state liaisons and state interest groups (described in Task 1);
- Securing Fast Response Requests (as described in Task 1) that may lead to projects or studies, and coordinating with the Directors of Research and the Analysis Unit to design, implement, and summarize such studies;
- Working with the leader of Task 6 to communicate with Fast Response Unit directors in other RELs, sharing information and leveraging findings and results of the studies;
- Planning regional and state events for disseminating new scientific evidence building on knowledge produced by other RELs, IES research centers, universities, and coordinating

efforts with the CCs and other services providers (e.g., SEAs, intermediate education agencies);

- Coordinating with WestEd’s Communications staff to design and develop WREL products, determining target audiences, critical design features, applying quality assurance processes, and developing dissemination plans;
- Coordinating requests for technical assistance with Comprehensive Assistance Centers (CCs) and other regional service providers; and
- Working closely with other members of the Leadership Team to monitor progress, review and ensure quality in all activities, make connections across tasks and subtasks, identify and address challenges and problems, and prepare regular and ad hoc reports to IES.

Directors of Research. The two Directors of Research, Dr. Neal Finkelstein and Dr. Thomas Hanson, are responsible for management, coordination, and day-to-day oversight of the work proposed under Subtask 1.2 and Task 2. Both bring considerable expertise and qualifications to this role. Dr. Finkelstein is WestEd’s Senior Research Scientist and is responsible for the development of research and evaluation designs that study the impact of program implementation in K–12 public schools. He assures that evaluation designs feature high standards of evidence, and oversees the implementation of randomized field trials in educational settings, including site recruitment and data collection. Dr. Hanson brings deep methodological expertise in statistical analysis and research design to this role. He is currently lead methodologist for four randomized experimental trials, in addition to serving as methodologist for experimental impact studies under the WREL. Drs. Finkelstein and Hanson’s duties as WREL Directors of Research will include:

- Establishing and regularly updating work plans to accomplish the Tasks’ research objectives;
- Identifying and supervising WREL research staff, monitoring staff performance, and evaluating staff work in the respective Task activities;
- Collaborating with the Director of the Fast Response Unit to supervise staff in the Analysis Unit, which will be conducting fast response studies;
- Overseeing and monitoring the work of subcontractors conducting research studies;
- Monitoring progress throughout the year to assure work is conducted on time, within budget, with high standards of quality and utility;
- Proactively identifying and addressing, or elevating to the Leadership Team, any quality or implementation issues that arise during the year; and
- Communicating with counterparts at Comprehensive Centers and other RELs, and field and respond to requests for information related to their areas.

Technical Working Group (TWG). WREL will engage the TWG in each Task 2 study. As outlined in Task 2, we will convene members semiannually. We will designate at least three TWG members to review each study based on the study’s content and design to efficiently use TWG members’ expertise and time. Directors of Research with their staff will summarize TWG

recommendations and input. These will be shared with the WREL Leadership Team and IES. Decisions and actions resulting from these will be documented and shared with IES. TWG members will also be consulted on Subtask 1.2 studies or analyses to assure that appropriate methodology is applied.

Management, Coordination, Communication^{A-SeePg10}

Management of Employees and Consultants. WestEd has a fully developed personnel management system, which has consistently yielded award-winning performance for the agency. The system includes annual performance planning and goal setting, mid-year and year-end performance reviews, access to professional development, and career planning and development. Employees working on the WREL contract will benefit from the active supervision and mentoring afforded to all WestEd employees.

In past years serving as the WREL, WestEd has developed expertise in managing diverse teams of staff and consultants to accomplish a project of such magnitude and complexity. Clear expectations, frequent communication, a strong culture of accountability, and the proper match between staff expertise and task responsibilities are critical. Active planning, reviewing plans, and updating plans throughout the course of a project help keep expectations aligned and current. Naturally, a staff member providing technical assistance services will have different supervision and management requirements from a consultant conducting longer-term rigorous applied R&D; our emphasis on open communication and setting clear expectations with each individual and each work team, without the imposition of a single, rigid structure, will allow effective management of the highly diverse staff we will assemble to conduct the work of the WREL.

Regular communication among team members in different locations will be facilitated through technology. With 16 offices and many staff working from home offices, WestEd has developed multiple ways to stay in touch. Face-to-face interaction will be particularly important in the early stages of the contract, but will be quickly supplemented by various virtual meeting systems. Agendas, plans, notes, and progress reports will be posted in a central, Web-based workspace, so that all staff members, regardless of location, can easily refer to them. The WREL Information Management System (described below) will ensure that all staff have access to up-to-date data on activities and progress. Conference calls, frequent email, and technology-facilitated file sharing will keep information flowing regularly.

Management of Subcontractors. As with individuals, WestEd has found that ongoing communication is key to ensuring that subcontracted work remains on track. The first step in creating good communication is a subcontract that identifies the expectations for both WestEd and the subcontractor, including all tasks to be performed and all reporting requirements. Expectations for subcontractors will be detailed in Gantt charts, which serve as an ongoing communication tool, and posted on the WREL's private Web workspace. Subcontractors will submit monthly reports, which include the substantive and quantitative information captured in the WREL Information Management System (requests from the field, tasks and activities completed, assessments of activities, problems encountered, solutions developed) and financial information (funds expended, staff hours allocated, and other direct costs). These reports will be used to update the Gantt charts and the IMS, and will feed directly into the relevant Monthly

Reports and Updated Annual Plans submitted to IES; they will also be discussed in regular coordination calls with the relevant Task Leaders.

Work Management System: On Time, Within Budget

Taken together, the composition of our Leadership Team, the dictates of monthly reporting, and the active use of WestEd's regular information, contract, and budget management tools will ensure that WREL work is completed on time, within budget.

Comprehensive Information Management System. Effective management of the WREL's work and personnel is supported with timely and accurate data. The entire WREL program is linked together through a customized WREL Information Management System (IMS). Quantitative and qualitative data on technical assistance and training activities, dissemination, and applied research and development will be gathered and managed in the IMS. This Web-based system, which was developed under the last WREL contract, allows for input, aggregation, and reporting on services, clients served, partnerships and alliances established, and assessments of all of these. The system will be updated to include the Fast Response Database, capturing requests from the region for training, technical assistance, and R&D studies and the WREL's responses to such requests; these data will be analyzed monthly and incorporated into the Fast Response Unit's needs assessment process, detailed in its Fast Response Plan, and reported on monthly. The IMS also captures requests for and distribution of publications and products. These data will be used to monitor and report on the regional dissemination activities.

Managing Timelines. As described in Task 5, in carrying out their regular management and reporting duties, members of the Leadership Team will frequently review progress on activities tracked in the Information Management System and the plans articulated in the Updated Annual Plan. Any area or task that falls behind in the Plan, including work being done by subcontractors, will be identified immediately and will quickly be reviewed and either brought up to speed or renegotiated with a new timeline. Any problems encountered will be addressed quickly, as the three Directors responsible for day-to-day oversight of the WREL's activities have immediate access to the WREL Director and Associate Director as well as WestEd's Executive Team and CEO, for rapid responses and solutions to issues that cannot be resolved by the Leadership Team alone.

Managing Within Budget. Monthly financial reporting, like the other monthly reports, will allow any discrepancy from the Plan to be identified, and addressed, almost immediately. The fiscal resources for the WREL have been carefully and conservatively budgeted and we will draw on WestEd's long experience and sophisticated systems for completing the contracted work within budget, without overspending. The overall WREL budget, as well as individual task and subtask budgets will also be monitored and reported on a monthly basis by Task Leaders and the Leadership Team and quarterly by the Executive Team. WestEd's Accounting Department provides monthly cost reports, at several levels of aggregation, that list expenses by line item, totals, and the discrepancy between budgeted and actual expenses for the current stage in the grant; reports on labor charges are provided every two weeks. These will be analyzed in conjunction with subcontractor financial reports each month. WestEd's Director of Financial

Services will work directly with the WREL Leadership Team, whenever needed, to resolve any budget-related issues or concerns before they become problems or result in overspending.

Quality Assurance Systems

The WREL operates within WestEd's environment of high accountability for operational excellence, impact and results, and high standards in all our work. Quality assurance and continuous improvement are considered integral to effective management. As a WestEd program, WREL will participate in the systems established to support quality and high standards in all our work. This includes developing an annual Program Action Plan, quarterly financial reviews with the Executive Team and Management Council, quarterly reviews with the Board of Directors, an extensive annual Program Review with the Executive Team, and mid-year and year-end performance reviews for all staff, including members of the Leadership Team. Within the operations of the WREL, work teams and units will apply specific quality assurance processes that are appropriate for the actual work being conducted.

Quality Assurance in Applied R&D. As described in detail under Subtask 1.2 and Task 2, all our studies will be thoroughly vetted and ultimately selected using an extensive process that includes needs assessment, feasibility testing, and design review. IES and external expert review panels will review all studies before they are initiated. Both Drs. Finkelstein and Hanson will be directly involved in overseeing the ongoing work under both Subtask 1.2 and Task 2. They will work closely with the Technical Working Group and IES to assure plans are appropriate and are implemented as designed. The full Leadership Team will track progress, milestones, and compliance with the study design. Because conditions in the field do change often, few studies can actually implement their initial plan without modifications along the way; Drs. Finkelstein and Hanson are highly experienced in conducting experimental design research in the field and will be actively involved in helping study leaders adapt to changing conditions without sacrificing rigorous design principles. IES and expert external panels will be informed and asked to review any changes in study design.

Quality Assurance in Technical Assistance and Training. WestEd has extensive experience providing assistance of all sorts to a wide range of constituents, and many of our staff have been at the forefront of efforts to describe, define, and validate best practices and high quality in technical assistance and in professional development. Careful consultation with clients before an engagement ensures that TA is designed with the client's goals and context in mind. We will make extensive use of client feedback and our own formative evaluation and debriefing practices to improve quality, relevance, and utility of our work consistently. Through direct participation in articulation of desired outcomes, collection of evidence, and interpretation of results, staff will both engage in continuous improvement and develop the skills to assure quality in their own work. As described in Task 1, we will also use the Task 1 Review Committee to review and critique TA plans and implementation.

Quality Assurance for Product Development. A central feature of WestEd's approach to quality assurance in our program work and research is the conviction that quality assurance is not a back-end review procedure. This conviction applies to our development of products and publications as well. Quality assurance begins on day one of development, whether the product

is a Policy Brief evolving out of a Fast Response study, a Web site, or a set of tools meeting a specific technical assistance need.

WestEd products are categorized according to level, moving from major high-impact efforts to informal documents, with a review process appropriate for each level. *Level I* products are formal, often stand-alone products in any medium developed to meet a pressing, clearly identified need in the field. The applied R&D conducted under both Tasks 1 and 2 will lead to Level I products. Before beginning work on a Level I product, the developer must create a Product Profile, which is then assessed by WestEd's internal Product Review Board (PRB). The PRB works with the developer to identify appropriate expert advisory groups and reviewers and manages the process and logistics of the review. In addition, all WREL Level I products will be submitted to IES for review and approval prior to publication. *Level II* products, by contrast, are less formal, most often developed to meet the narrower needs of a specific client, or are designed to be posted on a Web site and changed frequently. Level II products must be reviewed by one of the Directors of Research or, if these individuals are developing the materials, by the WREL Associate Director or Director.

Problem Identification, Prevention and Management. Even well-designed work and gold standard research studies, fully vetted, approved, and closely monitored, are subject to changing conditions and obstacles created in the environment. In a program of the magnitude and complexity of the WREL, we recognize that issues are bound to arise; our goal is to identify and manage such issues before they become problems. WREL uses clear communication, fully articulated expectations, careful planning, correct staff placement, and realistic timelines to prevent most common problems. Once work is approved and underway, we rely on good data, close supervision, and regular monitoring of appropriate information management tools to identify potential challenges and issues early — ideally, before they even arise. As we noted in Task 5, WestEd may conduct mid-contract external evaluations of our own work as we try to view the WREL from multiple perspectives. WestEd's CEO frequently invites clients, colleagues, and Board members to act as “critical friends” and help us see issues that, left unaddressed, could evolve into problems in the future. Once an issue is identified, our preference is for it to be handled by the manager closest to the situation, but in cases where that is not possible and escalation is necessary, our collaborative and flexible management plan, and instant access to the highest levels of WestEd's institutional decision-making, will allow WREL leadership to address it quickly, before it makes the transition from issue to problem.

Managing Departures of Senior Staff. Our staff are highly committed to WestEd and the work of the WREL and we do not anticipate elective staff turnover among senior WREL staff; however, we are well aware that conditions and circumstances change and we are prepared to manage any turnover, should it occur, in a way that will not unduly hinder the WREL in carrying out its work. Succession planning is a regular topic of discussion at WestEd among senior staff and executives, and the possibility that a project or contract may have to be completed by a staff member or team other than the one that originally conceived the project is not new to us. In such cases, WestEd will evaluate a position to determine specifically what skills, experience, and expertise is most essential to successful completion of the work and will identify one or more replacements with those characteristics; often, a teammate of the departing staff member will bring the most appropriate set of skills, substantive background, and professional relationships,

but in some cases, a position may be reconfigured when specific duties would best be met by several different people. Such is the case with WREL's senior leadership and management. We have constructed a robust team of professionals with complementary and partially overlapping areas of expertise, so if one person becomes unavailable, collectively the rest of the team will be able to carry on with supervision and leadership of the work. Our highly collaborative and communication-rich management plan means that key staff are fully aware of — indeed, often helping with — the work of their WREL colleagues. Comprehensive information tools and the frequent reporting requirements ensure that all team members have access to the most current information and our consistent focus on clear, fully articulated expectations will facilitate the process should one key staff member need to pass some or all of their WREL responsibilities to another.

^{A-SeePg10} November 21, 2005 Response to Technical Question #8 provides additional information on how subcontractors will fulfill their proposal roles. (See Appendix D)

Figure 1. WestEd Organization Chart

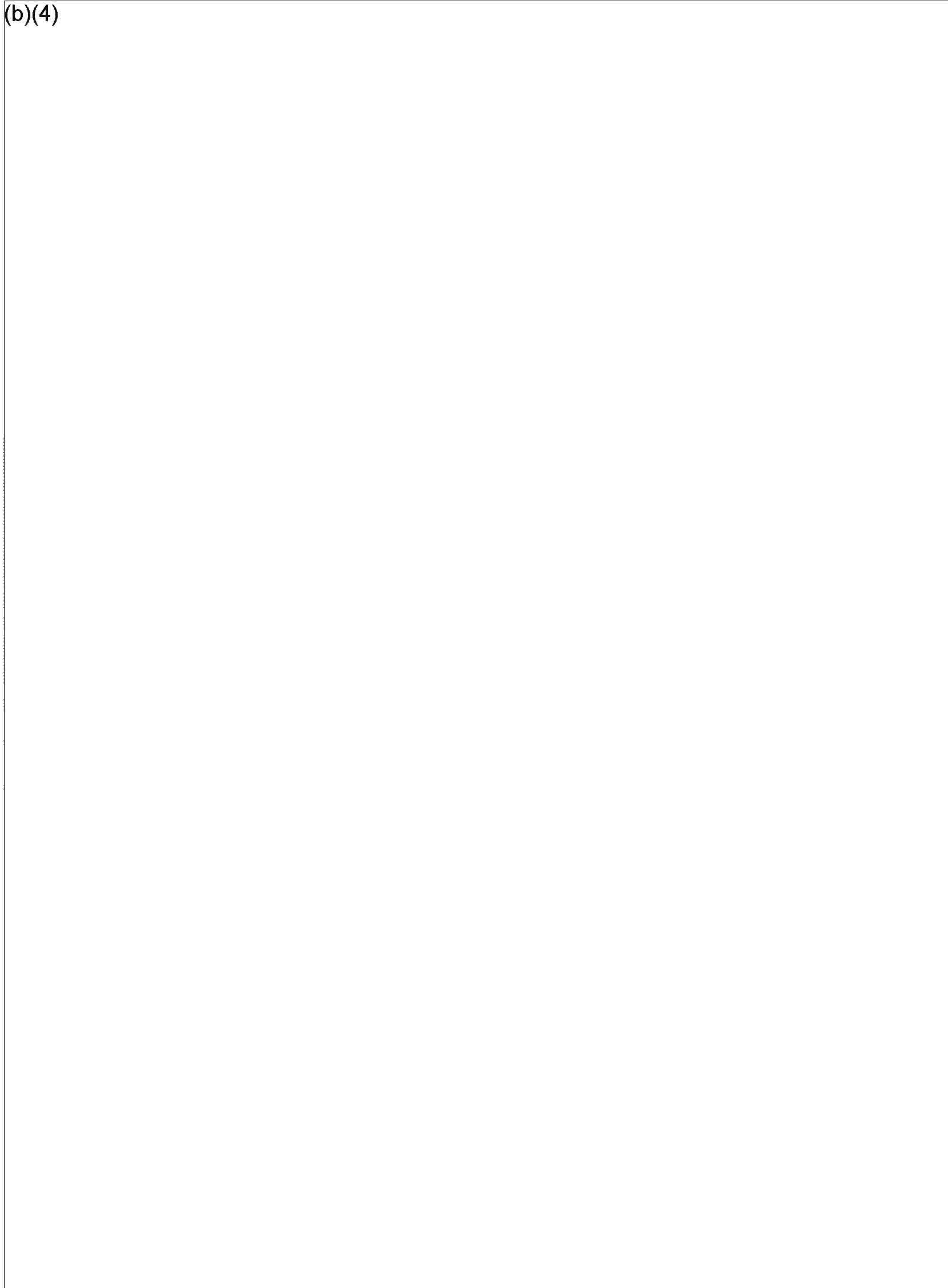
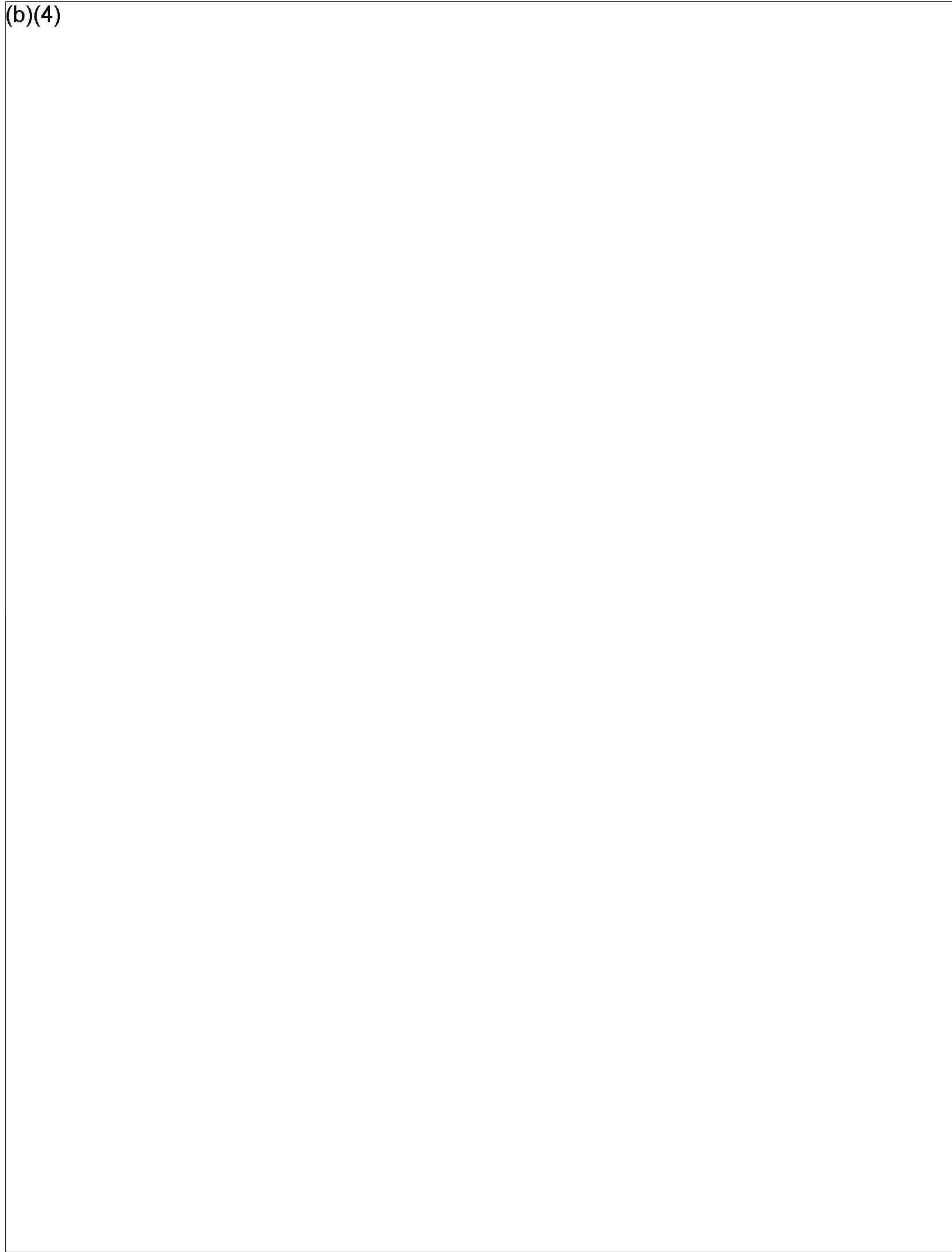


Figure 2. WREL Organization Chart



WREL TECHNICAL PROPOSAL

**ORGANIZATIONAL
EXPERIENCE &
CAPABILITY**

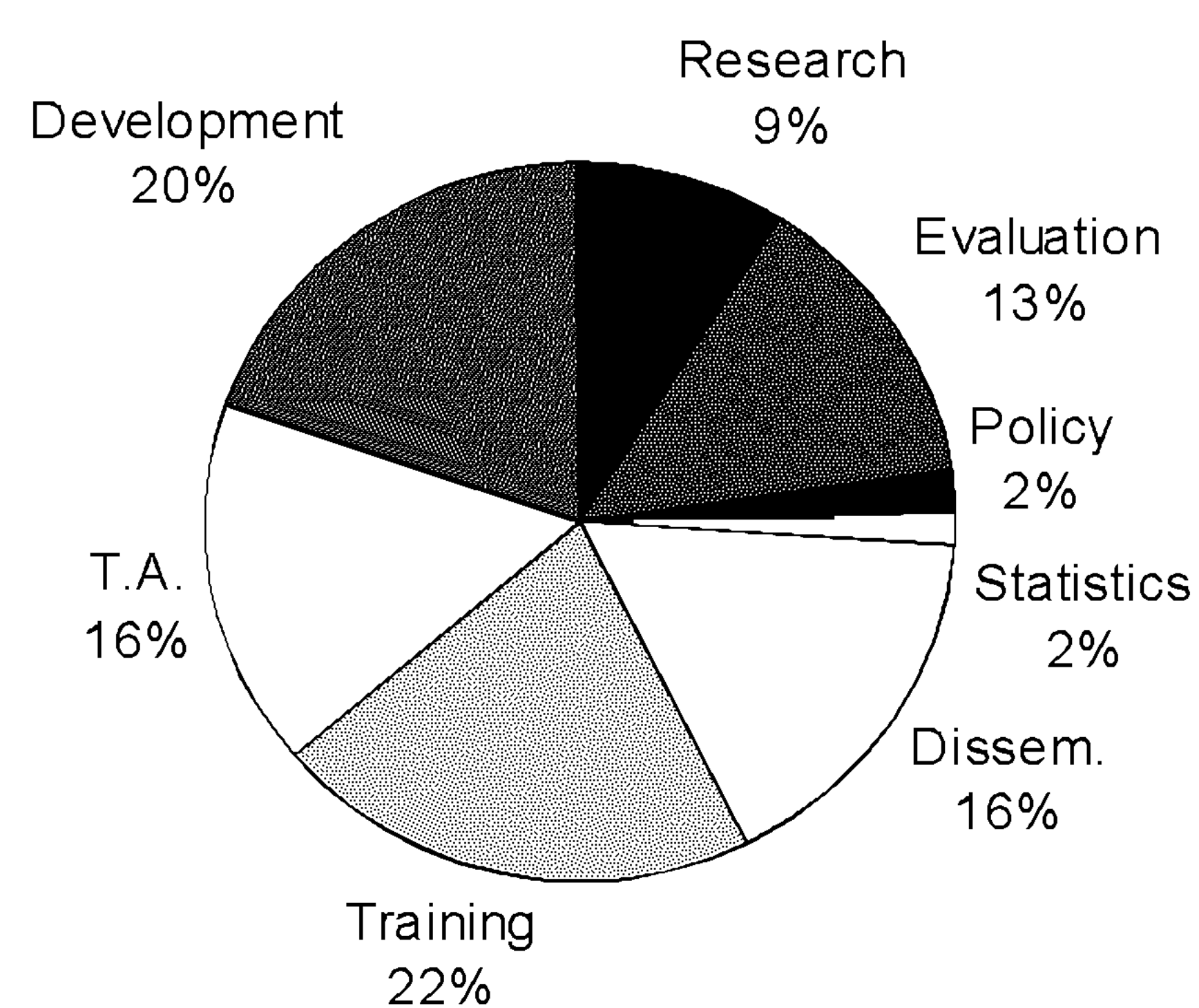
ORGANIZATIONAL EXPERIENCE AND CAPABILITY

WestEd is a preeminent educational research and evaluation organization with over 450 employees and 16 offices nationwide. Governed by a Board of Directors representing the western region's four states, WestEd is directed by the agency's Chief Executive Officer, Dr. Glen Harvey. Of its 450 professional, support, and administrative staff, approximately 240 have advanced degrees, including more than 70 doctorates in education or related fields such as psychology, sociology, and public policy. Most have years of experience in research, development, staff training, technical assistance, evaluation, and policy activities. Many members of the senior staff are nationally recognized.

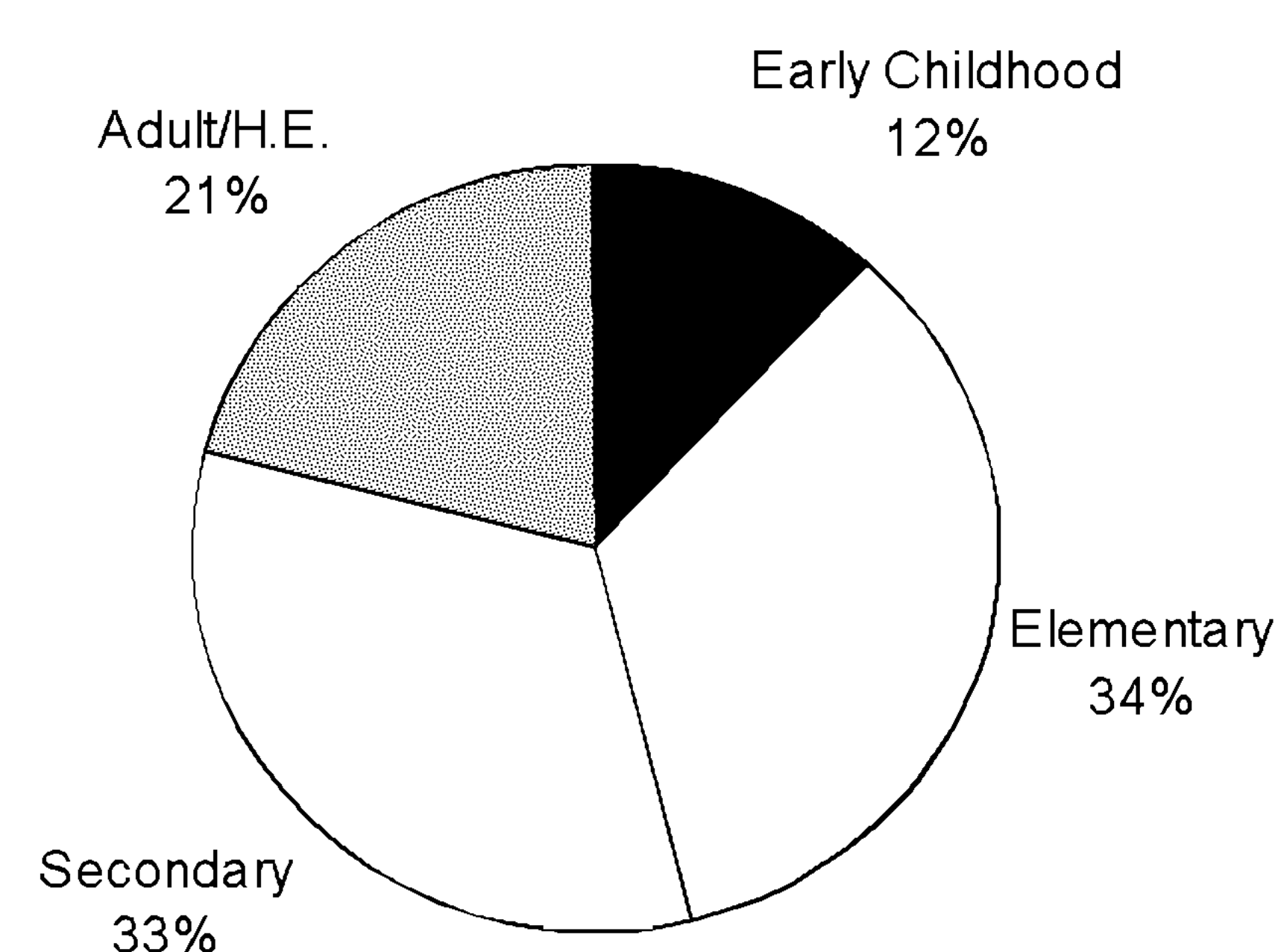
Over the past 39 years, WestEd and its two predecessors, the Far West Laboratory and the Southwest Regional Laboratory, have carried out more than 1,900 successful projects, many of them on the cutting edge, and some representing major contributions to the nation's R&D resources. The agency has from 450 to 700 active contracts and grants at any given time. The agency will operate on program funding of approximately \$70.5 million in Fiscal Year 2005, including over \$7 million a year in funding from the U.S. Department of Education for the operation of the Western Regional Educational Laboratory. Additional funding for specific projects comes from the U.S. Departments of Education and Health and Human Services, National Science Foundation, 15 state departments of education, universities, school districts, foundations, and other state and local agencies across the country.

The large variety of funding sources provide WestEd with a stable funding base and hence a stable organizational structure for carrying out the work of this proposal. Research, development, evaluation, and statistics together account for 44% of WestEd's \$70 million annual budget. Figure 1 displays WestEd's core work by type of R&D activity, based on the FY2004 project sample survey. Figure 2 shows WestEd's work by level of education served.

**Figure 1. WestEd Work:
Type of R&D Activity**



**Figure 2. WestEd Work:
Level of Education Served**



As one of the 10 regional educational laboratories for the U.S. Department of Education, WestEd has been a leader in moving research into practice by conducting R&D programs, projects, and evaluations; by providing training and technical assistance; and by working with policymakers and practitioners at state and local levels to carry out large-scale school improvement and

innovative change efforts. In developing and applying the best available R&D resources to improve the schooling environment and community-level supports, WestEd has built solid working relationships with education and community organizations at all levels, playing key roles in facilitating the efforts of others and in initiating important new improvement ventures.

Evidence of our experience and capability is provided in the following five areas specifically related to Tasks 1, 2, 3 and 4 of our proposal:

1. **Regionally Responsive Programs** (demonstrating our ability to serve the region effectively, and respond rapidly to the region's needs with high-quality products and services, as required in Task 1).
2. **Experimental and Quasi-Experimental Research** (demonstrating our capacity to conduct rigorous applied research and development, as required in Task 2 Rigorous Studies and in Task 1 Reviews — those of our Task 1 Fast Response Applied Research and Development projects that review existing studies for quality, strength of evidence, and patterns of results).
3. **Analytic Studies** (demonstrating our capacity to manipulate and analyze large data sets, as required in our Task 1 analytic projects — the largest proportion of our proposed Task 1 Fast Response Applied Research and Development projects for the first year).
4. **Dissemination of Research-Based Products and Services; Technical Assistance** (demonstrating our capacity to create user-friendly products and disseminate them widely and strategically, for maximum access and application, and to enhance access through direct, results-oriented training and technical assistance, as required for Tasks 1, 2 and 4).
5. **Collaboration with Other RELs** (demonstrating our ability to collaborate effectively with other RELs and researchers, leveraging resources and maximizing national impact, as required in Task 3).

Project summaries are included following this narrative, on both the projects mentioned and others that provide additional examples.

Regionally Responsive Programs

WestEd has not only served as the Western Regional Educational Laboratory for 39 years, but has led other initiatives of similar scope and with similar governance, planning, management, and reporting requirements. Further, during its long tenure as a regional laboratory, it has developed extensive knowledge of the region and has built the relationships and infrastructure necessary to continuously and effectively assess and respond to regional needs.

The *Western Regional Educational Laboratory (WREL)* at WestEd, serving the states of Arizona, California, Nevada, and Utah since 1966, has consistently exceeded standards for quality of products and services; over 95% of WREL clients rated services and products as good or excellent quality. WREL has also minimized problems through strong management systems and quickly resolved any problem which arose, accomplished work within budget, provided IES with accurate and timely cost information, submitted all deliverables and reports on time, and developed excellent business and customer relations. In the current contract, WREL develops tools and processes that help educators “transform” low-performing schools and to put them on the path of becoming high-performing learning communities. WREL also informs policy and develops systems, structures and networks that create a supportive context in which all schools

can succeed. (See additional information in the one-page summary.) Annual and ongoing regional needs assessment drives our selection of priority initiatives.

WestEd has also operated a wide range of technical assistance programs. The ***Region XI Comprehensive Assistance Center (CAC)*** at WestEd, serving 50 of the 58 counties in California, is a prime example of a regionally based technical assistance center. We have built strong client relationships and collaborative partnerships over the ten years we have operated the CAC, working closely with the California Department of Education as our primary client. WestEd also currently partners in two other Comprehensive Assistance Centers as a subcontractor. The ***Western Equity Assistance Center (WEAC)*** provided technical assistance to the states of Arizona, California, and Nevada for 18 years, helping to ensure educational equity and excellence to a region of high ethnic and linguistic diversity but whose students share the common characteristic of being underserved and underrepresented in schools of excellence. The ***WestEd Eisenhower Regional Consortium (WERC)*** was one of ten Eisenhower Regional Consortia. Together with the Eisenhower National Clearinghouse, WERC worked nationally and in the western region to support systemic improvements in math and science education. The ***WestEd Regional Technology Center (R-TEC)*** focused on increasing access to technology's benefits for disadvantaged and disabled learners in Arizona, California, Nevada, and Utah. The R-TEC also focused on ensuring that using technology to support student learning is informed by the latest research and leading practices in the region. The ***Northeast Regional Resource Center (NERRC)*** is one of six Regional Resource Centers for special education in the United States. The ***Regional Resource and the Federal Center (RRFC) Network*** is one of the technical assistance projects funded through the U.S. Department of Education, Office of Special Education Programs (OSEP). The Northeast RRC and other Regional Resource Centers help state education agencies (SEAs) improve their systems of early intervention, special education, and transition services through the development and implementation of policies, programs, and practices to enhance educational results for children and youth with disabilities. The ***Center for Prevention and Early Intervention (CPEI)***, a California state-funded project, offers training and technical assistance and disseminates informative resources around meeting the needs of disabled students.

Experimental and Quasi-Experimental Research

WestEd has a strong track record implementing experimental and quasi-experimental research studies — work that is directly applicable to our Task 2 randomized controlled trials and our Task 1 Reviews. Twelve large-scale randomized trials have been staged since 2004, most of which are ongoing at this time. The studies include interventions over a broad range including math curriculum materials to tobacco use prevention. WestEd's studies are conducted by research teams made up of methodologists, recruiters, statisticians, analysts, and program specialists. In all cases, the team is interested in the continuity of the experimental and control condition, the integrity of randomization, the validity and reliability of measurement, and the context within which the research is taking place.

One example is the ***Algebraic Interventions for Measured Achievement Project***. In this project, we test the efficacy of an intervention curriculum targeting specific algebraic learning trouble spots. The intervention is being delivered in after-school supplemental programs and in-school intervention classes. Students and instructors are randomly assigned to treatment and control conditions. Each curricular unit is tested at approximately 18 sites with both intervention and control students exposed to the same curricular content. The primary hypothesis-testing analysis

involves fitting linear mixed-effects ANCOVA models, with additional terms to account for the nesting of subjects within units of aggregation.

Tobacco-Related Disease Research Program (TRDRP) evaluated the long-term effectiveness of an innovative classroom animation program, *Classroom Animation Studio (CAS)*, in 20 Los Angeles Unified School District middle schools. The CAS was developed to teach students about tobacco use through the use of animation in 12 classroom-based lessons. Classrooms were the unit of randomization in this study.

Math Pathways and Pitfalls (MPP) is a study underway to assess the impact of instructional materials on 4th-6th grade students' mathematics achievement and mathematical language development. The study uses a cluster-randomized design in which 40 teachers per grade (and their students) are randomly assigned to either one intervention or one wait-listed control condition (120 teachers).

A randomized controlled trial is under way in New York City to assess the impact of the ***Quality Teaching for English Learners (QTEL)*** professional development approach using a group-randomized, experimental design with repeated measures. Approximately 200 Language Arts and English as a Second Language (ESL) teachers and 5,000 predominantly low-SES English learner students from 38 middle schools are participating in the study.

Recruitment is under way to examine the impact of the ***Integrating Literacy and Science Instruction in High School Biology*** project. The specific aim of this project is to test the effectiveness of teacher training in the integration of reading instruction and science content on student achievement in science and reading. Approximately 50 pair-matched high schools will participate in the study — half of which are assigned to an immediate professional development group and half of which are wait-listed to receive professional development subsequent to study participation. Measures include students' opportunity to learn; measures of instructional practice based on the analysis of teacher assignments; and multiple measures of student learning.

WestEd also conducts quasi-experimental studies, particularly when these are more feasible for the evaluation of programs that are underway. In our ***PBS Kids Ready To Learn Federal Performance Indicator Data Collection***, WestEd's approach builds on prior research and is designed to ensure federal performance indicators are collected in a scientifically rigorous manner. For example, to address the first performance indicator: *The percentage of children ages 3 – 6 who viewed literacy based Ready To Learn shows demonstrating expressive vocabulary skills and emergent literacy skills at or above national norms*, we developed a multiple method, quasi-experimental approach to evaluate the effects of Ready To Learn shows and workshops on the target population. Our design includes a treatment group of 300 children and a split comparison group consisting of 400 children. We are using a validated instrument to assess the identified learning outcomes and survey research to assess the effects of mediating variables.

Analytic Studies

We have proposed fast response research and development studies that include secondary analysis on existing datasets to better understand trends and relationships among variables, identify promising interventions, and clarify regional conditions and needs. WestEd has extensive experience in conducting these kinds of analytic studies.

For example, WestEd, with COSMOS, is conducting the *Longitudinal Assessment of Comprehensive School Reform (CSR) Implementation and Outcomes (LACIO)*. The evaluation involves collecting student achievement, survey, and case study data from a national sample of CSR schools paired with a set of comparison schools not participating in the program. The evaluation compares student achievement scores of all schools receiving CSR funds beginning in 2002 with those of similar schools not receiving funds; compares the existence of CSR-like components in 400 randomly selected CSR schools and 400 matched schools; assesses the effects of district and state policies on CSR implementation and outcomes in the 400 schools; and examines 30 randomly selected, demographically matched CSR and non-CSR schools through case studies. Pre-intervention student achievement scores for both CSR and comparison schools were analyzed both before and after the intervention, in addition to the counterfactual data for the CSR schools. Analyses at the direction of WestEd staff include an interrupted time series with comparison design as well as hierarchical linear modeling to distinguish state, district, and school effects.

Analyses of student achievement and other outcome measures were conducted for two states during the current WREL contract. In *Student Achievement and Graduation Rates in Nevada: Urgent Need for Faster Reform*, WestEd analyzed student achievement and graduation data. These analyses were reviewed extensively with district and state representatives and will guide planning for the current high school initiative. *California's Graduation Rate: The Hidden Crisis*, examined the methodological debate on how to measure graduation rates, provided comparisons between California and other states, and showed California results by race and ethnicity (including data from several of the state's large school districts) to illustrate trends in California's graduation rates. This report was distributed statewide.

Student Health Risks, Resilience, and Academic Performance in California: Year 2 Report, Longitudinal Analyses, examined the link between key risk and youth development factors and student performance on standardized tests. The data that were the basis of this report came from four sources: 1) aggregated health risk and resilience data from local school administration of the California Healthy Kids Survey (collected from 806,000 students in grades 7, 9, and 11, 1998–2002, representing approximately 86% of the district enrollment in the state); 2) the 1998–2002 SAT-9 test results released by CDE's Standardized Testing and Reporting Program; 3) the Academic Performance Index research files (1999–2002); and 4) the California Basic Educational Data System (1998–2002). To examine the relationship between school health risk/resilience and changes in NPR scores, we used ordinary least squares regression techniques to estimate conditional change models (Finkel, 1995) — with control for the demographic and socioeconomic composition of the school.

Dissemination of Research-Based Products and Services; Technical Assistance

As Task 1 and Task 2 research projects get underway, the expertise of both project staff and of WestEd's Communications Program will be brought to bear to ensure that research results in useful products and that these products are broadly and strategically disseminated for maximum access and implementation, as described in Task 4. Understanding the importance of effective dissemination, WestEd has employed the most up-to-date communications theories and tools to create a model Communications Program dedicated to disseminating all of its products in ways that are easy to access, comprehensible, and useful for researchers, technical assistance providers, policymakers, educators and parents alike. WestEd produces a full range of product

types — print, multimedia and, increasingly, Web-based. In all of these formats, WestEd's products have been widely recognized for quality and utility. The League of American Communications Professionals gave WestEd seven awards for excellence in the development of print and Web public relations materials in its 2004 international competition. In 2005, WestEd received top honors from the Association of Educational Publishers in four categories: best organizational Web site (for which it also received a Distinguished Achievement Award), best annual report, best product interior design (for *Successful Charter Schools Innovation Guide*), and best illustration and graphics.

The *Task Order to Eisenhower Consortium: Teachers Who Learn, Kids Who Achieve* provides an example of a valuable and widely disseminated product. WestEd distilled a descriptive research study of eight schools that won the U.S. Department of Education's National Award for Model Professional Development into a brief and compelling story of successful school reform, providing a glimpse of the culture of learning — for teachers, students, the entire community — that pervades these schools. Teacher voices and vignettes give life to the guiding principles that researchers identified across these disparate sites. Annotated lists of resources provide concrete help in putting these principles into practice.

WestEd also uses technology to disseminate knowledge in an interactive way. *Live Classroom*, a kind of Webcast technology, for example, can be used to hold virtual meetings and symposia, allowing presenters and participants to build relationships by combining state-of-the-art interactive technologies such as voice, video, application sharing, polling, and whiteboard recording, with traditional best practices of instruction. Participants can listen to and view the presentation, ask questions, join group discussions, and download accompanying resource materials — all from a remote computer. Live online events can be archived so that users can view and listen to the presentation at any time after the event. In addition, *Web Dialogues*, a proprietary WestEd application, supports asynchronous Web conferencing with a one- to ten-day structured agenda and the participation of scheduled panelists.

Dissemination is not alone sufficient to ensure that complex ideas, even though simplified, are implemented. Often, direct training and technical assistance is needed to facilitate learning and implementation of new ideas. WestEd has a long history of providing training and technical assistance in ways that yield results for educators and students. WestEd is (or has been) the parent organization for a number of centers designed to provide technical assistance and support to state departments of education. Many of these have a regional focus; others have a national client base. In addition to the regional technical assistance initiatives mentioned above, for several years, WestEd operated the *Star Schools Distance Learning Resource Network (DLRN)*, which provided technical assistance and just-in-time information about distance education to educators, administrators, state and local education agencies, and to the general public. DLRN placed special emphasis on disseminating information about Star Schools courses and resources that serve over 1,640,000 learners in 50 states. DLRN produced educational products to support the growing number of schools, colleges, and universities that use distance learning to reach rural and metropolitan learners, particularly the underserved.

In addition, WestEd has extensive experience providing direct assistance through technical assistance and coaching for low-performing schools and districts in rural and urban settings. Since the passage of California's Public School Accountability Act in 1999, for example, we have facilitated comprehensive school improvement processes in 71 schools in California's

Public School Accountability System, 13 schools in California's Comprehensive School Reform and High Priority Schools programs, 12 California districts and 5 schools designated for program improvement, and numerous schools and districts in Arizona, Hawaii, and Nevada. Thirty-five percent of our California schools and districts are rural and 65% are urban. Most of our schools have high percentages of African American students, other minority students, or English learners, sometimes all of the above; all have high percentages of disadvantaged students. Results show improvements in student achievement.

WestEd is also well known for professional development programs for teachers on a variety of topics: high school literacy, mathematics, science, and instruction of English learners. We have developed these programs over time, pilot testing and evaluating efforts to confirm effectiveness. For example, our Strategic Literacy Initiative was recently selected by the Institute of Education Sciences as one of two high school literacy programs to be studied by MDRC in a national randomized-control trial.

The *Program for Infant and Toddler Caregivers (PITC)* at WestEd's Center for Child & Family Studies, translates research into practice to serve the most vulnerable in our society: it focuses on improving and increasing the quality of services available to families with children under three years old. By training a cadre of certified PITC trainers and working through existing community college child development programs, WestEd has developed a system to increase and enhance the capacity of programs to provide evidenced-based practices in serving very young children and their families. PITC operates in 15 states throughout the country.

Collaboration with Other RELs

WestEd has a long track record of collaboration with other laboratories and research agencies and has assumed a leadership role in many of these efforts. For example, the WREL has been designated as the lead laboratory in the area of assessment by the U.S. Department of Education in the current WREL contract, and is working in more than 20 states. This has uniquely positioned WestEd to provide and broker dialogue and assistance to other Regional Laboratories and Comprehensive Centers, through our publications, events, and consulting. Examples of peer collaboration with other RELs include our work with the NWREL in the area of Smaller Learning Communities, with NCREL and SEDL on the Comprehensive School Reform Clearinghouse, with McREL and SEDL on studies of comprehensive school reform in Native American communities, with SEDL on studies of the unique needs of communities on the U.S.-Mexico border, and with the REL Network as chair of the Indicators Group.

Subcontractors

In Task 2, some studies will be carried out by subcontractors: Berkeley Policy Associates (Dr. Hans Bos, President) and Heller Research Associates (Dr. Joan Heller, President).

Berkeley Policy Associates (BPA) is an employee-owned, woman-owned, small business, based in Oakland, California, that has provided public policy research, evaluation, and consulting services to government and private sector clients for more than 30 years. BPA's staff of 25 includes a diverse group of analysts with backgrounds and expertise in the areas of public policy, economics, professional development and early childhood, primary and secondary education. As employee-owners, BPA staff participate in the risks and responsibilities of running the company,

as well as share in its profits. Small-business employee ownership motivates staff to provide superior performance and to strive to achieve the highest level of customer satisfaction. BPA places the strongest emphasis on designing and conducting high-quality research, and on producing policy-relevant reports that meet clients' needs as well as provide highly relevant information to policymakers and other stakeholders.

BPA has earned a national reputation for high-quality evaluation research and consulting in the fields of early childhood, primary and secondary education, childcare, child and youth development, welfare, and employment and training, among other fields. BPA staff have command of the most up-to-date research methodologies, coupled with a depth of experience in designing and conducting evaluations using both experimental and quasi-experimental methods.

BPA also brings to the proposed effort an in-depth understanding of the elements of effective academic professional development programs and the challenges faced by schools, school districts, and the larger community in implementing these programs. Descriptions of projects that demonstrate BPA's expertise are provided among the one-page project summaries.

Heller Research Associates (HRA) is an educational research firm based in Oakland, California. Over the past six years, HRA has evaluated over 20 publicly and privately funded projects aimed at improving teaching and learning in a variety of academic subjects including mathematics, science, and the visual and performing arts. HRA has earned a reputation for conducting rigorous, multi-method educational research and evaluation studies. Their studies often include a strong formative component based on cognitive analyses of teacher and student knowledge, to assist educational improvement projects in bringing about their intended impact on student learning. Current and recent clients include:

- Mathematics Achievement Partnership, Achieve, Inc.
- Mathematics Case Methods and Understanding Science Projects, WestEd
- National Science Foundation Math Task Bank Project, UC Office of the President
- In Quest of Excellence: Supporting National Board Certification, WestEd
- California Department of Education, Visual and Performing Arts Division
- The California Arts Project, California State University Foundation
- Community Arts Education Project, California Alliance for Arts Education

We have also selected a number of worthy colleagues as subcontractors to carry out Task 1, addressing the goal of building the capacity in our region to use high-quality research in strengthening schools and improving student achievement. Subcontractors will include the American Institutes of Research (AIR), the University of California at Berkeley, University of California at Santa Barbara, and Arizona State University. Each has the specific expertise required to carry out its proposed project.

Resources, Facilities and Equipment

Resources. WestEd's highly qualified staff are able to draw upon a rich archive of information resources that are tied to the knowledge base for school improvement and youth development. WestEd services include in-house computer searching of the ERIC database for online and education-related journals and newsletters. Additional services include online searches of national and international databases. WestEd also subscribes to Lexis-Nexis in order to search

for state and federal bills and general news. Each program area at WestEd also maintains an up-to-date library of research in its specific fields.

- Staff in the San Francisco, Oakland, Sausalito, Redwood City, and San Jose offices in California have access to major libraries at the University of California, Berkeley, Stanford University, and other university and local libraries in the Northern California area, as do the staff in each of the smaller offices, listed below, who have access to their respective university libraries.
- The WestEd office in Sacramento, CA maintains the California Early Start Library.
- WestEd's Assessment and Standards Development Services (ASDS) program maintains a measurement resources library.
- As part of its national leadership role in assessment and accountability in the Regional Educational Laboratory network, ASDS has a National Computer Systems (NCS) Opscan 5 high-speed optical mark reading scanner that allows the agency to offer efficient scanning at 3,000 pages per hour speed.
- The Arlington, VA office has an extensive library on math and science education, as well as National Center for Education Statistics (NCES), National Assessment of Educational Progress (NAEP), and National Science Foundation (NSF) publications.
- The Burlington, VT office's information center includes resources in the area of special education.

Corporate Facilities. WestEd's headquarters are located in the San Francisco business district. Completed in 1987, this six-story office building is easily accessible to public transit, freeways, and downtown hotels. Space of approximately 50,000 square feet has been designed to meet current needs. In addition to offices and work areas, the facilities include a publications center, a large multipurpose meeting/training room, six conference rooms, a videoconferencing room, guest cubicles, copier rooms, lounge areas, kitchens, and other special facilities.

WestEd's Southern California office in Los Alamitos occupies 20,000 square feet of space and has about 75 staff. The two-story research facility includes meeting rooms, classrooms, resource centers, libraries, and conference rooms. WestEd's office in Oakland, California, occupies over 26,000 square feet of office space and houses about 50 staff. This site includes a large meeting/training room and four smaller conference rooms.

WestEd also has a number of smaller field offices located in Camarillo, Redwood City, Riverside, Sacramento, San Diego, San Jose, Santa Ana, and Sausalito, CA; Phoenix and Tucson, AZ; Boston, MA; Burlington, VT; and Arlington, VA. This national spread enables WestEd to more efficiently carry out work that is national in scope, for example, to conduct research at sites across the country.

Computer Equipment and Facilities. The Desktop and Network Services team (DNS), housed in the Information Services Department, ensures that hardware, software, network, and co-location facilities function efficiently and effectively, with as little interruption as possible. The DNS team enables and supports the use of network services by monitoring network needs, and by providing assistance related to email, Internet access, network printing, peer-to-peer and group file sharing, mobile network access, security, project server administration, data recovery, telecomputing, and general troubleshooting. The team develops and maintains the Wide Area Network (WAN) and Local Area Network (LAN) infrastructure that provides staff with fast,

continuous network connectivity and access to organizational resources via the Internet. This team is also responsible for the management of co-location facilities, the development of Web and digital media servers, and enterprise server administration.

WestEd maintains over 3,000 pieces of equipment, including monitors, CPUs, laptops, and related components. Both Microsoft/Intel and Macintosh operating systems are supported. All personal computers may be used as stand-alone machines and are connected using the LAN/WAN. Computers interface with a variety of peripheral devices, including 92 high-speed laser printers and multifunction devices for the production of documents, connected through the LAN/WAN, which provide printer output at stations located throughout the agency.

WestEd uses industry-standard software packages including the Microsoft Office suite. Major applications include word processing, database management, spreadsheet, graphic development, electronic mail, scheduling, and World Wide Web browsers. SPSS and SAS are used for statistical analysis. The IMAP email system is based on industry standards and operates on Linux servers. WestEd operates a series of Linux servers running Samba for file sharing. The agency also has five Windows servers running project-based database applications and operating CostPoint, the agency's financial and accounting application housed in the Los Alamitos office. In addition, WestEd maintains 25 switches and 20 routers.

Internet access is provided through multiple T1 lines that connect the Los Alamitos and San Francisco offices. All offices with more than 10 staff have LANs that are connected via T1 and DSL. These LANs make up WestEd's enterprise WAN, which is managed from the San Francisco and Los Alamitos offices. Remote access to the email system is also available via DSL, Internet Service Providers, and an internal dial-up modem system. In total, the agency's telecommunications includes 245 telephone lines, 11 T1 lines, and 17 DSL lines.

WestEd's Web-hosting facilities use Apache Web server software, MySQL database software, extensive PERL scripts operating under ModPERL, and JAVA and PHP scripts. The agency maintains its organizational, project, and client Web sites on a series of Linux servers configured to provide backup capacity in the event of a hardware failure. These servers are located at two location facilities. One is a commercial provider, 365 Main, a state-of-the-art facility located in San Francisco. The other facility is in a California State University Network Operations Center located in the WestEd office building in Los Alamitos, California. Both locations have multiple high-speed backbone connections, battery-based backup power and long-term generator backup systems, 24 by 7 security, and extensive fire protection.

WestEd schedules upgrades of its hardware, software, and networking capabilities to keep up with changes in technology. The agency recognizes the increasingly significant role that media, computing, and information technology play in the lives, work, and continuing education of its staff and clients. A primary WestEd objective is to selectively apply effective technologies in ways that will significantly extend the work of staff and clients to meet the increasing needs of students in America's knowledge-based economy.

WREL TECHNICAL PROPOSAL

**SUMMARIES OF
PAST WORK**

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WREL TECHNICAL PROPOSAL

**SMALL BUSINESS
SUBCONTRACTING
PLAN**

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Institutional Overview

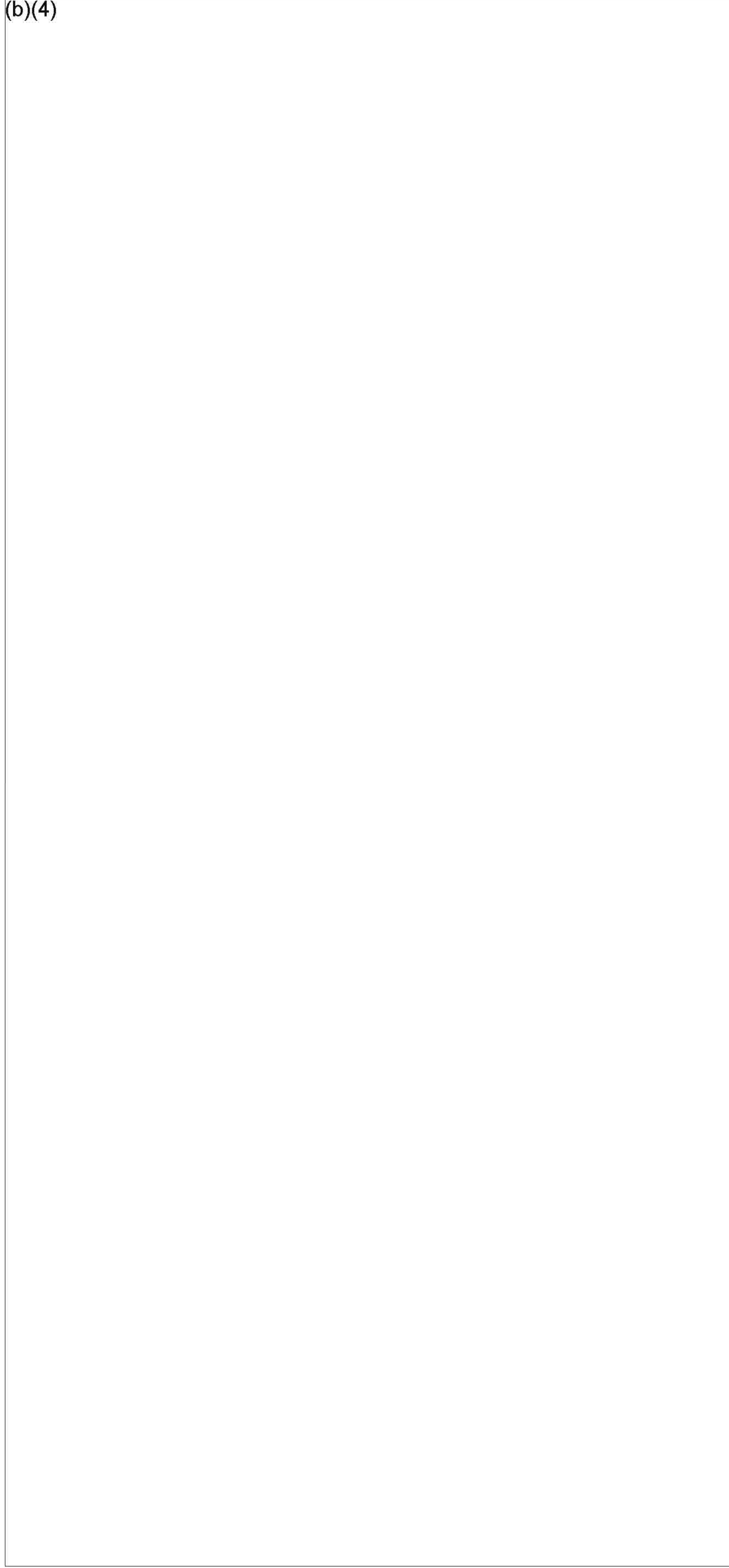
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Table 1. WREL Subcontracting Goals

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WREL TECHNICAL PROPOSAL

PERSONNEL

PERSONNEL

A capable and versatile staff has been brought together to carry out the proposed scope of work. As detailed below, the staff includes researchers with deep expertise in randomized experimental studies, quantitative and qualitative analysis; policy analysts; field agents with strong connections to the region; communicators with proven expertise in knowledge dissemination; and managers who have shown that they can successfully take charge of this kind of large, multi-faceted scope of work.

Two subcontractors, both small businesses, have major responsibility for some of the Task 2 studies. In addition, some of the Subtask 1.2 analytic studies are being carried out by subcontractors. The specific staff and their biographical information are included along with WestEd staff, in the relevant sections, in order to provide a more integrated presentation of staff capability by task.

We have been thoughtful not only in selecting personnel but also in assigning them to roles within WREL that best capitalize on their strengths. Each task includes staff with a complementary range of skills. Some “to be determined” space is left in the budget, both to expand our capability in core areas and to allow flexibility in responding to needs and opportunities as they emerge. WestEd as a whole has deep staff capability from which we can draw over time.

This Personnel section begins with the identification and brief biographical descriptions of all the professional staff in five clusters: overall leadership and management; Task 2 methodology and content leads; Tasks 1 and 4 leads; other staff, with major associate roles in one or more tasks; and the Technical Working Group. Following this text are the staffing tables that indicate the amount of time each of these staff is budgeted, by task, by year. At the end of this section are their resumes.

Leadership and Management (all tasks)

Five WestEd senior staff play leadership and management roles across the WREL contract. The assignments and areas of expertise of these five staff are summarized in the table below. Bios follow to provide further information.

Table 1. Leadership and Management Staff

	Estes	Filby	Finkelstein	Hanson	Walcott
Role in WREL	<i>Director</i>	<i>Associate Director</i>	<i>Co-Director of Research</i>	<i>Co-Director of Research</i>	<i>Director, Task 1 Fast Response</i>
Areas of Expertise					
Managing large, multifaceted R&D programs	X	X	X		X
Research design and methodology	X	X	X	X	
Randomized controlled trials	X	X	X	X	
Statistical analysis			X	X	
Policy analysis	X	X	X		X
Writing and product development	X	X	X		X
Regional assistance	X	X	X	X	X
Collaboration with regional and national organizations	X	X	X	X	X

Dr. Gary D. Estes will serve as WREL Director. Estes is Chief Program Officer (CPO) of WestEd and currently serves as Director of the WREL. As WestEd CPO, he oversees the management and quality of a multi-million dollar portfolio of work that includes research studies, development of research-based interventions, dissemination and technical assistance, as described in the Organizational Capability section. Estes' leadership and overall management of program operations have led to an expansion of the portfolio, an increase in the number of rigorous research studies, and hundreds of high-quality products and services that have benefited school, district, and state administrators, teachers, students, and youth in various areas of education and human development.

As current WREL Director, Estes leads the agency's participation in the Laboratory Network Program. He has served as chair of the directors' group, and for several years has been the directors' designated lead for collecting and reporting indicator data. In this role, he has worked closely with IES staff as well as the evaluators across the laboratory network to refine measures and report data, including a coordinated systemwide client survey.

Estes has over 35 years of experience in education. Prior to joining WestEd, Estes directed the Evaluation and Assessment Program and the Title I/Chapter 1 Technical Assistance Centers (TAC) at the Northwest Regional Educational Laboratory (NWREL). There, he conducted studies on item banking, criterion-referenced testing, and directed education and industry assessment projects. The TAC developed a school improvement model that was used in many of the districts across more than 13 states. He also developed a data system for tracking NWREL's institutional professional activities and obtaining client evaluations of agency work.

Coming to WestEd, Estes directed evaluations of beginning teacher support, including the development of teacher assessments. He contributed to the development of WestEd's Assessment and Standards Development Services (ASDS), a program that plans, develops, implements, and evaluates standards and assessment tools, methods, and systems. Currently, 15 states nationwide call on ASDS for assessment development assistance. Estes also initiated WestEd's technical assistance centers that support states and districts in Arizona, California, Nevada, and Utah with their reform efforts.

Prior to his work at NWREL, Estes served as District Evaluation Supervisor with the Union High School System in Phoenix, Arizona. There he developed assessment systems for evaluating English and native language proficiency of English learners, student writing, and conducted research on the effectiveness of the district's Title I, bilingual, migrant, Indian education, and special education programs. Estes also was an adjunct member of the Educational Psychology faculty, teaching statistics and measurement at Arizona State University, Tempe; a psychometrist in several school districts; and a math and Title I teacher. Estes received a B.S. in mathematics from Grand Canyon College, an M.A. in secondary education and mathematics, and a Ph.D. in educational psychology — both from Arizona State University.

Dr. Nikola Filby will be Associate Director. She has conducted large-scale research studies of classroom practice, in which she developed and implemented teacher observation protocols and student assessments. She has also carried out case studies of successful and innovative school and district programs, and evaluated regional and state policy initiatives. The results of these studies have been communicated in peer-reviewed journals and books as well as in casebooks, knowledge briefs, policy reports, and other practitioner-oriented publications.

Dr. Filby currently serves as Associate Director of the WREL at WestEd. This contract of over \$7,000,000 per year includes several types of R&D work, which she oversees along with the WREL Director. In four initiatives, staff has developed interventions to support school improvement, for example, modules for training secondary teachers of English learners. For three interventions that showed promise in early development, randomized experimental impact studies are now underway. In addition, several qualitative studies and two external evaluations of systems impact are being completed.

In 2003, WestEd took on, under Filby's leadership, a task order from the U.S. Department of Education's Office of Innovation and Improvement to develop a series of innovation guides on key topics. In the area of school choice, further work was commissioned to develop and pilot a face-to-face event at which district teams could hear from representatives of guide districts, carry out needs assessment, and do action planning with support from experienced district staff. This pilot event was very well received and has led to further work developing a multimedia toolkit

on choice for school districts, a project that is now underway. WestEd recently was awarded a task order to continue this R&D support capacity for the Office of Innovation and Improvement.

Dr. Filby's management role in WREL has also placed her in the cross-laboratory REL system leadership group. In that capacity she has served as chair of the program leaders group, managed collaborative projects such as the development of a Web site and a multi-site study of comprehensive school reform, and facilitated group activities. She plays a similar role for inter-organizational, collaborative projects within the western region.

Filby began her career at WestEd as a Research Associate on the Beginning Teacher Evaluation Study, and she has conducted research on classroom processes in literacy, instructional grouping strategies, and the classroom practice effects of reductions in class size. Filby received her B.A. in psychology from Wellesley College, and her Ph.D. in educational psychology from Stanford University.

Two senior WestEd staff will serve as Co-Directors of Research for the WREL: Dr. Neal Finkelstein and Dr. Thomas Hanson.

Dr. Neal D. Finkelstein, a Senior Research Scientist at WestEd, is responsible for the development of research and evaluation designs that study the impact of program implementation in K–12 public schools. He assures that evaluation designs feature high standards of evidence, and oversees the implementation of randomized field trials in educational settings, including site recruitment and data collection.

In the current WREL contract, he oversees three randomized field trials of interventions: one on Quality Teaching for English Learners, one on a Home Visiting Curriculum for Early Head Start home visitors, and one on the Local Accountability Professional Development Series. All three studies involve random assignment to groups, using a wait-listed control design; all require extensive data collection including both field observations and surveys. Overseeing instrument development and observer training has been a key part of his job. Approximately 200 Language Arts and ESL teachers and 5,000 predominantly low-SES English learner students from 38 middle schools are participating in the QTEL study.

Finkelstein has worked on large-scale program evaluations and policy analyses encompassing K–12 and higher education, and the bridge between them. He has worked extensively in the following areas: K–12 school finance, academic preparation programs for high school youth, school-to-work and early childhood education. All of his work involves the collection, management and analysis of large quantitative data sets. Questions of cost, cost-effectiveness and the marginal cost of policy decisions in education at the state and federal level are foremost in the analyses that he has conducted. Immediately prior to coming to WestEd, Finkelstein served as Director of Educational Outreach Research and Evaluation for the University of California Office of the President, where he implemented research and evaluation designs that studied the effectiveness of K–12 student and school academic programs initiated by the University of California on ten campuses throughout the state. Programs emphasized the connections between K–12 education and postsecondary educational opportunities for students.

Finkelstein also has expertise in reviewing research and providing information to policymakers and educators. He was a Senior Program Officer for the National Research Council, working to support the Committee on Education Finance in the investigation of equity, adequacy, and productivity considerations in the financing of American K–12 public education. He prepared research synthesis papers on a variety of topic areas to support Committee and staff deliberations, and drafted chapters of the final Committee report. Prior to this role with the National Research Council, Finkelstein served as Assistant Director of Policy Analysis for California Education (PACE), and Research Associate at the National Center for Research in Vocational Education (NCRVE). At NCRVE he focused on evaluation designs that had been used by programs to understand their effectiveness. Finkelstein received his B.A. in economics and psychology from Swarthmore and his M.A. and Ph.D. in education policy and management from the University of California, Berkeley.

Dr. Thomas L. Hanson, a Senior Research Scientist at WestEd, has served as lead researcher or consulting methodologist on many projects utilizing cluster-randomized trials to evaluate program efficacy, where teachers, schools, and/or school districts serve as the unit of randomization. He serves as Lead Statistician for WestEd’s *Evaluation of California’s SB19 Pupil Nutrition Act* (National Institutes of Health) — a group-randomized, experimental trial that examines the impact on student health of banning the sale of high-sugar foods/drinks in schools. Hanson also serves as chief methodologist for the *Algebraic Interventions for Measured Achievement Project*. Funded by IES, this experimental trial tests the efficacy of an intervention curriculum targeting specific algebraic learning trouble spots. Hanson also serves as methodologist on WestEd’s *Integrating Literacy and Science Instruction in High School Biology* (NSF) and *Efficacy of Reading Apprenticeship Professional Development for High School History and Science Teaching and Learning* (IES) studies, group-randomized trials aimed at testing the effectiveness of teacher training in the integration of reading instruction and subject-area content on teacher knowledge and skills, instructional practices and, ultimately, on student achievement. Each of these studies involves random assignment of approximately 50 schools to experimental and control conditions. Hanson is also the methodologist for the *Math Pathways and Pitfalls* study, funded by IES. This study uses a cluster-randomized design in which 40 teachers per grade (and their students) are randomly assigned to either one intervention or one wait-listed control condition (120 teachers total) to evaluate the efficacy of the instructional materials on student mathematics achievement and mathematical language development.

Hanson has served as senior evaluator for several intervention demonstration projects — including the *Iris Project* — a CSAP-funded project utilizing an experimental design to evaluate the effectiveness of the Strengthening Families Program in reducing substance abuse-related problems among children of substance abusing parents. He has served as Lead Statistician for WestEd’s statewide *Evaluation of the California In-School Tobacco Use Prevention Education Program* (California Department of Health and Human Services). He was Principal Investigator of the *Two Faces of Divorce Project* — a NIH-sponsored study that examined the antecedents and consequences of divorce from the perspective of mothers, fathers, and children. In addition, he directed the *Race/Ethnicity and Student Tobacco Use Study* (University of Southern California/NIH), the *Analysis of California Adolescent Tobacco Data Study* (California Tobacco-Related Disease Research Program), and the *Risk/Resilience and Student Academic Performance Study* (California Department of Education/Stuart Foundation). Across these research studies, Hanson has been responsible for developing survey instruments; conducting measurement

analyses such as estimation of item and scale reliabilities, exploratory factor analyses, single- and multiple-group confirmatory factor analyses, general techniques for validity assessment, and assessing measurement equivalence across groups; and conducting impact analyses. Hanson has extensive experience in the analysis of data collected from social surveys and other sources, including the latest advanced statistical techniques. He is particularly skilled at multi-level and mixed-modeling regression techniques. Hanson holds a B.A. in sociology from Old Dominion College and an M.S. and Ph.D. in sociology from the University of Wisconsin, Madison.

Catherine Jovicich Walcott will lead the Task 1 needs assessment and Fast Response activities, working closely with the Directors of Research on the conduct of applied R&D projects within Task 1. She brings to this role expertise in education policy analysis and implementation at all levels of government. Currently she serves as WestEd's lead strategist for policy and program development in California and agency responses to the No Child Left Behind Act.

Walcott previously worked for the U.S. Department of Education in a variety of policy analyst roles, ending as leader of the department's Standards, Assessments, & Accountability Team. As team leader, she managed a team of ten experts in standards-based education reform, developed legislative and communication strategies, and managed the development of state policy guidance on standards and assessments. She also created and implemented a plan for providing technical assistance to states through workshops, conferences, written materials, and the use of peer consultants. She represented the Department at national, regional, and international conferences.

At WestEd, in collaboration with the Chief Program Officer, she developed initiatives to strengthen the quality and effectiveness of WestEd's full portfolio of R&D and technical assistance projects. She has been responsible for managing several large, cross-agency projects, such as the development of a data-driven decision making toolkit for low-performing schools and a policy study of the governance and structural blocks to reforming the Los Angeles Unified School District. This work resulted in a policy report that catalyzed the creation of a network of charter schools in Los Angeles. Walcott holds a B.A. in psychology from Stanford University and an M.A. in public policy from Harvard University.

Task 2 Research and Content Leads

Strong methodological leadership for Task 2 is provided by the Co-Directors of Research identified above — Drs. Finkelstein and Hanson. In addition, we are fortunate to have two strong partner organizations (both small businesses): Berkeley Policy Associates (BPA) and Heller Research Associates. The principals of both organizations are leading specific studies in Task 2. Both have extensive experience conducting field evaluations, including randomized controlled trials. In addition to methodological leads, each study has content leads who are program developers responsible for recruitment and high-quality delivery of the intervention. These content leads have all spent years systematically developing and piloting interventions, and are acknowledged experts in their fields. Lead staff for each study are identified in the chart and described in the bios that follow. As discussed earlier, evaluation of interventions developed at WestEd is purposely assigned to one of the external subcontractors, to assure objectivity.

Table 2. Task 2 Lead Staff

	Research and Analysis	Intervention Delivery
A. Math Pathways and Pitfalls	Hans Bos, BPA	Carne Clark, Alma Ramirez, WestEd
B. Science Cases Professional Development: Understanding Science	Joan Heller, Heller Research Associates	Kirsten Daehler, Mayumi Shinohara, WestEd
C. Quality Teaching for English Learners	Hans Bos, BPA	Aida Walqui, Nanette Koelsch, WestEd
D. Problem-Based Economics	Neal Finkelstein, WestEd	(external)
E. Program for Infant and Toddler Caregivers	Hans Bos, BPA; Aletha Huston, University of Texas	Ron Lally, Peter Mangione, WestEd
F. Lessons in Character	Tom Hanson, WestEd	(external)
G. Assessment Accommodations	Stanley Rabinowitz, Edynn Sato Eichholzer, WestEd	

For biographical information on Finkelstein and Hanson, see the previous section on leadership and management of the WREL.

Dr. Johannes M. Bos will direct the three studies to be done by Berkeley Policy Associates (BPA). Bos is President, CEO, and Principal Analyst at BPA. Dr. Bos is nationally recognized for his experience and expertise in designing and conducting experimental and quasi-experimental evaluations and for his research on the impacts of social programs on children and families. Currently he is a Principal Investigator for the evaluation of the *SOURCE Demonstration Program*, a random assignment study funded by IES, that will assess the effectiveness of the provision of college admission and financial aid counseling on the college enrollment rates of disadvantaged high school students in the Los Angeles Unified School District. He has also worked on a number of Department of Education projects, including *Design of an Impact Evaluation of a National School-Based Violence Prevention Program*, for which he facilitated expert panel meetings, conducted statistical power analyses, and served as lead author of the design paper. Dr. Bos is also involved in a study of community college transitions for the Department's Office of Vocational and Adult Education, and a study of the implementation of experimental and quasi-experimental evaluations by Teaching American History Grantees for the Program and Policy Studies Service. He also has begun work on a new random assignment evaluation, *Evaluation of Explicit Literacy Instruction in Adult ESL Programs*. He recently co-authored a paper on the use of cluster random assignment in evaluating education programs, and a forthcoming book on alternative uses of random assignment in program evaluation.

As a Senior Research Associate at MDRC for ten years prior to joining BPA, Dr. Bos directed several large random assignment studies, including the *Evaluation of the Center for Employment and Training Replication*. Two additional random assignment evaluations, the New Chance and New Hope demonstrations (with approximately 2,300 and 1,300 sample members each) featured direct assessments of children and youth, and collection of a wide range of academic and behavioral child outcome measures from the children, their parents, and their teachers. He also

worked for eight years on the NEWWS evaluation, in which over 50,000 welfare recipients were assigned to 11 different programs. For this Department of Education study, he monitored the quality of random assignment, conducted impact analyses, and directed two large sub-studies, including an evaluation of adult education for welfare recipients. Dr. Bos received his Ph.D. in public administration from the Robert F. Wagner School of Public Service at New York University. He is a member of the National Advisory Board for the GED Testing Service, and served on the advisory boards for California's evaluations of CalWORKs and CalLEARN.

Dr. Joan Heller will direct the study to evaluate the *Understanding Science* Project. She has extensive experience directing educational research studies. In her current position as founder of Heller Research Associates, she serves as Principal Investigator of several studies, including a National Science Foundation-funded experiment studying the impact of teacher professional development on teaching and learning. Over the past decade, she has served as the external evaluator on two WestEd teacher professional development projects that incorporate subject-matter cases for mathematics and science teachers. In this capacity, Heller and her colleagues documented the projects' effectiveness for developing teachers' math and science content and pedagogical-content knowledge. Her previous experience includes teaching at the University of California, Berkeley, and directing research projects at Educational Testing Service, where she developed a California state portfolio assessment system in language arts, mathematics, science, and history/social science. Dr. Heller earned her M.A. and Ph.D. in educational psychology from the University of Pittsburgh, completing post-doctoral work at the Learning Research and Development Center.

Dr. Aletha Huston will co-direct the study of the PITC. She is the Priscilla Pond Flawn Regents Professor of Child Development and Associate Director of the Center for Population Research at the University of Texas at Austin. She is past president of the Division of Developmental Psychology of the American Psychological Association and president-elect of the Society for Research in Child Development. She specializes in understanding the effects of poverty on children and the impact of childcare and income support policies on children's development. Her current research examines the effects on children and families of parents' participation in a work-based program to reduce poverty. She has won numerous honors and research awards, including the prestigious Urie Bronfenbrenner Award for Lifetime Contributions to Developmental Psychology. She is a member of the MacArthur Network on Successful Pathways Through Middle Childhood and an investigator for the National Institute of Child Health and Human Development Study of Early Child Care and Youth Development, a longitudinal study following a national sample of children from birth through middle childhood. She has written several books and articles on subjects ranging from children in poverty and antipoverty programs to the role of television in society. She holds a B.A. in psychology from Stanford University and a Ph.D. in psychology and child development from the University of Minnesota.

Dr. Stanley N. Rabinowitz is Director of WestEd's Assessment and Standards Development Services, overseeing all program activities and consulting extensively with policymakers and assessment staff at the national, regional, and state levels. Dr. Rabinowitz has conducted research and published papers on issues related to NCLB accountability and assessment provisions, on the use of integrated standards and assessment systems in high-stakes state accountability programs, on high school exit exam policies for students with disabilities, and on assessment of ELLs on core academic content. Under WREL, he is currently completing a technical review of the

adequacy of high-stakes assessments for special populations. Previously, Dr. Rabinowitz directed the statewide assessment program for the New Jersey Department of Education. He received a B.A. in psychology from Brooklyn College and an M.S. and Ph.D. in educational psychology and statistics from the State University of New York, Albany.

Dr. Edynn Sato Eichholzer is a Senior Assessment Manager with WestEd's Assessment and Standards Development Services. Currently, she directs a study for the California Department of Education to determine alignment between California's English language development standards and the California English Language Development Test. She also directs assessment development work on Louisiana's alternate assessment for students with disabilities. Her previous work at WestEd includes providing technical assistance to state and district administrators as part of the Region XI Comprehensive Center. Prior to joining WestEd, her positions included Executive Editor at LeapFrog SchoolHouse, Director of Education and Management at eSCORE.com, and Assessment Development Supervisor at CTB/McGraw-Hill. Dr. Sato Eichholzer received her B.A. in multidisciplinary studies (elementary education) from Santa Clara University and her M.S. and Ph.D. in educational psychology from the University of California, Los Angeles.

Dr. Carne Clarke joined WestEd in 1989 and is the Director of the Mathematics Case Methods Project. She is the Principal Investigator of grants from the National Science Foundation and Stuart Foundation that aim to equip teachers with a stronger content knowledge base and to support the growth of teacher leaders. She is also the Principal Investigator of a National Science Foundation grant to develop materials to improve students' understanding of key mathematics concepts. Clarke's prior experience was a teacher in urban settings and teacher educator at the University of California, Berkeley, where her pioneering work with cases for teaching mathematics began in 1987. She is an author of K–8 mathematics supplementary materials and textbooks and has published journal articles and book chapters in the *Journal of Teacher Education*, *Teaching and Teacher Education*, the *Journal of Mathematics Teacher Education*, *The Case for Education*, and *Mathematics Teachers in Transition*. Clarke holds a B.S. in mathematics education from Kansas State University and an M.A. and Ed.D. in mathematics education from the University of California, Berkeley.

Alma Ramirez is Co-Director of the Mathematics Case Methods Project where she works with teachers to write, edit and field-test cases of mathematics teaching. Prior to joining WestEd, she was a middle school teacher, a mathematics methods instructor at the New College of California, a Family Math Mentor for the Lawrence Hall of Science, and a teacher-leader and case discussion facilitator for the Math Case Methods Project. Ramirez has presented at many professional meetings and conferences, and is the author and reviewer for a mathematics textbook series and editor of research-based materials for preschool students. Ramirez holds a B.A. in psychology and Chicano studies from the University of California, Berkeley, a bilingual credential from California State University, Hayward, and an M.A. in elementary education from California State University, San Francisco.

Kirsten Daehler is a Senior Research Associate in the Science and Mathematics Program at WestEd, where her work focuses on K–12 science education reform. She is the Co-Principal Investigator of the *Understanding Science* Initiative, a practice-based professional development project. In this role, she works with K–8 teachers to write compelling, real-life accounts about hard-to-teach and hard-to-learn physical science concepts. These professional development

materials help teachers learn challenging science, better understand the ways children think about and often misunderstand science, and develop the pedagogical reasoning to improve student achievement. Prior to joining WestEd, she was a high school chemistry and physics teacher and department chair. She holds a B.A. in chemistry from Wellesley College, and a teaching credential and an M.A. in secondary education from San Francisco State University. She received a scholarship from Columbia Teachers College to attend its Klingenstein Teacher Institute, and was honored by her students with the highest faculty award.

Mayumi Shinohara is a Senior Research Associate in the Science and Mathematics Program at WestEd, where her work focuses on K–8 science education reform with an emphasis on practice-based professional development and children’s thinking in technical domains. She is the Co-Principal Investigator of Science Cases for Teacher Learning. This project, funded by the Stuart Foundation and the U.S. Department of Education, develops a case-based professional development curriculum designed to help teachers think through the major ideas of K–6 science and examine the ways in which children develop and sometimes misunderstand those ideas. Shinohara also brings considerable expertise in online learning through her collaborative work with the Concord Consortium. Her publications include *Tales from the Electronic Frontier*, a widely used book and Web site of teaching narratives showing how students and teachers are using the Internet to learn science and mathematics. Prior to coming to WestEd, she taught at Lawrence Hall of Science, where she worked in a variety of capacities: teaching children ages 3–16 as an instructor in the chemistry education program, developing and implementing curriculum published in the Great Explorations in Math and Science (GEMS) series, creating and implementing professional development models and materials to facilitate classroom-based partnerships among scientists and teachers of science, and serving as science advisor on the production of various interactive exhibits and displays. She received a B.S. in physics from the University of Illinois, Champaign-Urbana, and an M.S. in physics from Brandeis University, where she received the David Falkoff Prize for Excellence in Undergraduate Teaching.

Dr. Aída Walqui is Director of WestEd’s Teacher Professional Development Program and the Quality Teaching Initiative at WestEd. She oversees program activities, the development of professional development materials and strategies, and consults on improving teacher quality and the academic and linguistic development of English learners at the school, district, state, regional, national, and international levels. She has more than 30 years of experience in the field of academic second language teaching and literacy development in elementary and secondary schools. Prior to joining WestEd, she taught at the University of California, Santa Cruz, Stanford University, and at universities in Peru, Mexico, and England. A member of several national and international teacher professional development advisory boards, and an author of many books, chapters, and articles, Walqui is frequently invited to speak on teacher growth in school contexts characterized by cultural and linguistic diversity. A native of Peru, Walqui received her Licenciatura in Literature from the Universidad Nacional Mayor de San Marcos, Peru. She holds an M.A. in sociolinguistics from Georgetown University, and a Ph.D. in language, literacy, and culture from Stanford University.

Nanette E. Koelsch is a Senior Research Associate in the Teacher Professional Development Program at WestEd. Her areas of expertise include teacher professional development for teachers of English learners, literacy education, and portfolio assessment. She provides research-based technical assistance to help educators improve schooling for diverse populations, manages

several district-level projects that focus on developing culturally relevant assessments for ethnolinguistically and culturally diverse students, and works closely with educators to develop curriculum-embedded assessments that inform instruction and meet state standards, including social studies pedagogy and curriculum. Ms. Koelsch holds an M.A. in language, literacy, and culture from the University of California, Berkeley, where she is currently completing her doctoral work. Previously, she was an Instructor in the Department of Bilingual and Multicultural Education at Northern Arizona University, teaching graduate courses addressing literacy and the education of linguistically and culturally diverse students. Ms. Koelsch has taught English language arts, social studies, and mathematics at the elementary and middle school levels in heterogeneously mixed classes of English language learners and monolingual English speakers.

Dr. J. Ronald Lally is an international expert on early childhood development, and serves as Co-Director of WestEd's Center for Child and Family Studies, a program that improves the quality of childcare for children birth to three; helps children and families living in poverty; and influences national, regional, and local policies and practices that have an impact on young children and their families. In addition, Lally has directed WestEd's Program for Infant/Toddler Caregivers (PITC) since 1985, and is executive producer of 17 infant/toddler PITC training videos that provide techniques to ensure secure and intellectually engaging group childcare. PITC is a widely used training system for infant and toddler caregivers in the U.S., training over 4,500 participants who care for over 42,000 children. The National Center for Children in Poverty in 2002 selected PITC as a model initiative to support infants, toddlers, and their families.

Lally is one of the founders and on the Board of Directors of ZERO TO THREE: National Center for Infants, Toddlers, and Families. He is on the national advisory committees of the Ounce of Prevention Fund, the Mailman Family Center at Nova/Southeastern University, and "Stop Crime: Invest In Kids." He has participated in two White House Conferences on Early Childhood and Brain Development in the late 1990s and has authored numerous publications focusing on early childhood development. Prior to joining WestEd, he was a professor at Syracuse University and chair of its Department of Child and Family Studies. Lally received a B.A. in social science and an M.A. and Ed.D. in educational psychology from the University of Florida. He holds a postdoctoral certificate of Infant Testing from the Child Development Research Center in London.

Dr. Peter L. Mangione is Co-Director of WestEd's Center for Child and Family Studies. He provides leadership in the development of a comprehensive training system for infant and toddler caregivers and the evaluation of early childhood programs and services. His contributions have helped make the Center's Program for Infant/Toddler Caregivers a national model for training early childhood practitioners. He has also been a key contributor to the development of the document "Continuity in Early Childhood: A Framework for Home, School, and Community Linkages," which is being used by policymakers and program planners throughout the country.

Previously, he served as a doctoral fellow at the Max-Planck-Institute for Psychiatry in Munich, Germany, where he specialized in infant development and the use of video technology to study social behavior. He has also worked extensively in the fields of child development, early childhood education, family support services, public policy, and research and evaluation design.

He received a B.A. in psychology from Oakland University and an M.S. and Ph.D. in education and human development from the University of Rochester.

Tasks 1 and 4 Lead Staff

Tasks 1 and 4 are reported together because of the integral connection between these two tasks. We know that effective dissemination requires the early involvement of communicators who can help shape products to meet user requirements, and that content experts need to be involved throughout the process, from outreach and needs analysis through dissemination and technical assistance. We have brought together a staff that can work together flexibly as a team.

This flexibility also extends to the interconnection between Task 1 and Task 2. A lead analyst is identified for Task 1 because we know the importance of having strong analytic capacity directly involved in the ongoing work of research review and reporting of analytic studies; another methodologist will also be hired. The Task 1 studies, however, are managed jointly by the Research Directors and the Fast Response Unit Director. This will further ensure quality, and enable us to deploy core analytic staff flexibly across the two tasks as needed.

Table 3. Tasks 1 and 4 Lead Staff

	Walcott	Chow	Koehler	Berliner	Wiese	Crane	Zimmerman
	<i>Lead, CA Liaison</i>	<i>NV Liaison</i>	<i>AZ, UT Liaison</i>	<i>Readiness, Systems</i>	<i>Curric. & Teaching</i>	<i>Analyst, Systems</i>	<i>Communicator</i>
Regional outreach and partnership building	X	X	X				
Research review	X	X	X	X	X	X	X
Policy analysis	X	X	X			X	X
Writing and product development	X	X	X	X	X	X	X
Regional assistance	X	X	X				X
Readiness to learn				X	X		
Curriculum & teaching	X	X	X		X	X	
Support systems	X	X	X	X		X	
English Learners					X		

Stanley H. Chow is a Senior Program Manager at WestEd and staff to the External Relations Committee of WestEd's Board of Directors. For more than 30 years he has directed research studies and managed support efforts to schools throughout the western region. For nearly a decade he directed the WestEd Rural Schools Assistance Program, assessing needs, developing research and assistance responses, and delivering services to schools and districts in isolated and under-resourced communities, as well as working with state departments of education. His recent publications include a set of evaluation reports from 1999 to the present on Nevada's regional professional development program, and tracer cases of the effects of Nevada's early literacy

training program on teaching and learning. He holds a B.A. in psychology from San Francisco State University and an M.S. in special education from the University of Wisconsin.

Dr. Paul Koehler is Director of the Policy Center at WestEd. He is responsible for providing information and services to the policymakers in the four-state western region. Current policy topics he has addressed include student achievement and graduation rates in Nevada and California, full-day kindergarten, accountability improvement strategies, school-college partnerships, and education issues on the U.S.-Mexico border. Koehler also serves as the Policy Advisor for Education to the Office of the Governor in Arizona. In this capacity, he provides consultation, assistance, advice, and research to the governor on matters relevant to improving the effectiveness of Arizona's K–12 public education system. Prior to joining WestEd, Koehler served as Associate Superintendent of the Arizona Department of Education (ADE) and was a District Superintendent in one of the five largest school districts in Arizona. Overseeing 175 personnel and over \$125 million in state and federal funds at ADE, he was responsible for K-12 curriculum, instruction, and federal programs, including special education, Indian education, migrant and bilingual programs as well as the Arizona Student Assessment Program. He holds a B.S. in business management from C.W. Post College, an M.S. in elementary education from Brooklyn College, and a Ph.D. in elementary education and curriculum development from Arizona State University.

BethAnn Berliner, a Senior Research Associate and Project Director at WestEd, currently manages The Community Laboratory Project, a communitywide reform effort in Bay Point, California, involving a feeder system of low-performing elementary, middle and high schools, several youth development interventions, and a partnership of government officials and education, health, and social service providers. This work has resulted in several school and community reforms intended to increase academic performance and improve student developmental outcomes, targeting students at risk of health-compromising behaviors, dropping out of school, and limited pathways to postsecondary educational and vocational options. Additionally, she directs the research support for Santa Rosa, California's Measure O efforts, a 20-year citywide initiative to reduce youth gang activities, increase school completion, and improve the quality of youth development and health supports to high-risk families. As an expert in the area of homelessness, she serves as a U.S. Department of Education monitor for federal Title I Part D and Title X programs for homeless, neglected and delinquent students. Berliner has also directed several evaluation studies, including studies that address recovery efforts for students who dropped out of school, teen pregnancy prevention efforts in 14 rural school districts, after-school interventions for failing students, school violence prevention efforts, and the supervision of pre-service teachers. Prior to coming to WestEd, Berliner directed a number of community-based educational programs for assault victims, youth offenders, hearing and visually impaired youth, and battered women and their children. She received her B.A. in history from the University of California, Santa Barbara, M.A. in educational and social history from the University of Colorado, and M.P.A. in policy and evaluation from San Francisco State University.

Dr. Ann-Marie Wiese, Research Associate in the Teacher Professional Development Program at WestEd, is Project Director for a national study of the impact of National Board Certified teachers in low-performing schools. She is also evaluator for a study that builds on National Board for Professional Teaching Standards as a lever for school change in high-priority schools.

Prior to coming to WestEd, Wiese taught required Cross-cultural Language and Academic Development (CLAD) courses at the University of California, Santa Cruz, and courses on culture, bilingualism, and literacy instruction at the University of California, Berkeley. She has been a bilingual elementary school teacher, and served as a Fellow at the U.S. Department of Education's Office of Bilingual and Minority Languages Affairs. Wiese received her B.A. in psychology from the University of California, Santa Cruz, and M.A. and Ph.D. in education from the University of California, Berkeley.

Eric Crane is a Senior Research Associate with Assessment and Standards Development Services at WestEd with expertise in applied statistics, item response theory, and psychometric work. Prior to joining WestEd, Crane managed the Research and Analysis Unit at the California Department of Education, where he provided technical and policy support during two different cycles of development of accountability systems in California. Previously, he worked as a private consultant, where his projects included test equating studies, program evaluations, and large-scale data analyses. Crane holds an A.B. in economics from Princeton University, an M.A. in education and statistics from the University of California, Berkeley, and has completed doctoral work in Quantitative Methods in Education at the University of California, Berkeley.

Joy Zimmerman is a Senior Communicator responsible for ensuring the quality, relevance, and usefulness of WestEd's products. She works with writers from the early stages, using a Product Profile to guide planning focused on the needs of the target audience. She also oversees internal and external review of draft products. She was the editor for four of the six innovation guides produced for the U.S. Department of Education's Office of Innovation and Improvement. For these and other major products, she does developmental editing and enlists other Communications staff or outside editors to ensure high quality writing, editing, and proofing. Having spent a decade as a journalist, earning four writing awards from the California Newspaper Publishers Association, she is especially skilled at clear writing for general audiences.

Other Associate Staff

A strong contingent of talented staff will carry out the scope of work under the direction of the lead staff listed above. These staff will often work across projects, as their specialized skills are needed. For example, research analysts will work across Task 1 and Task 2 studies. Skilled communicators will edit products as they are created. Staff are listed alphabetically, and their primary assignments are summarized in the table that precedes the bios.

Table 4. Associate Professional Staff

Name	Agency	Primary Assignment
Cerna, Rebeca	WestEd	T2: Lessons in Character
Connolly, Brooke	WestEd	T2: Problem-Based Economics
Derby, Kenwyn	WestEd	T1: Database Management
Dietsch, Barbara	WestEd	T2: Lessons in Character
Farr, Beverly	Rockman, Et Al.	T2: Science Cases
Feldman, Sarah	WestEd	T1: Research Associate
Furgiuele, Chris	BPA	T2: Quality Teaching for English Learners
Hale, Sylvie	WestEd	T1: Database Development
Hamburger, Leslie	WestEd	T2: Quality Teaching for English Learners
Harrison, Tenley	WestEd	T1: Dropout Prevention Review
Headington, Kerry	WestEd	T2: Assessment Accommodations
Hiebert, Elfrieda	UC, Berkeley	T1: Science Vocabulary Analysis
Holden, Christian	WestEd	T4: Graphic Designer
Huebner, Tracy	WestEd	T1: High School Reform
Johnson, Jim	WestEd	T1: Editor
Makkonen, Reino	WestEd	T1: Research Assistant
McPherson, Cynthia	WestEd	T1: Database Development
McReynolds, Brian	WestEd	T2: Lessons in Character
Montell, Frances	WestEd	T2: Problem-Based Economics
Parrish, Tom	AIR	T1: Instructional Strategies Analysis
Perez, Maria	AIR	T1: Instructional Strategies Analysis
Rumberger, Russell	UC, Santa Barbara	T1: Preschool Analysis
Sanchez, Raquel	BPA	T2: Math Pathways and Pitfalls
Schmida, Mary	WestEd	T1: Academic Language Symposium
Socias, Miguel	AIR	T1: Instructional Strategies Analysis
Thomas, Vanora	BPA	T1: Math Pathways and Pitfalls
Tushnet, Naida	WestEd	T4: Evaluation
Valvano, Vince	BPA	T1: Math Pathways and Pitfalls
Weinstock, Phyllis	BPA	T2: Quality Teaching for English Learners
Weiss, Steven	WestEd	T2: Quality Teaching for English Learners
Zheng, Cindy Hong	WestEd	T2: Lessons in Character

Rebeca Cerna is a Research Associate with the Health and Human Development Program at WestEd with expertise in survey administration and coordinating data collection efforts. Her current work involves coordinating the data collection and process evaluation activities for a *Safe Schools/Healthy Students* program and directing a need assessment for an alcohol management project at two local universities. She has served on the research teams of many studies that examine interventions to reduce risk factors associated with substance use and violence and increase protective factors. Additionally, she helped develop the Web-based *Consent Management System* for managing survey consents and tracking surveys and the *Student Assistance Program Software*. Prior to coming to WestEd, she was nominated and served as a Civic Entrepreneur for the Pew Partnership for Civic Change where she worked with a youth collaborative to expand youth leadership opportunities. She is a certified Health Education Specialist from the National Commission for Health Education Credentialing and holds a B.S. in health science from California State University, Long Beach, and an M.P.H. in community health from the University of California, Los Angeles.

Brooke Connolly, a Research Associate in the Evaluation Research Program at WestEd, specializes in research study design, instrument development, data collection and statistical analysis. She currently provides research assistance to numerous studies, including the Longitudinal Assessment of Comprehensive School Reform Program Implementation and Outcomes, evaluations of mathematics education technology, and evaluations of local district initiatives. Prior to joining WestEd, she worked at the American Institutes for Research, providing statistical analyses of data published by the National Center for Education Statistics. She holds a B.A. in psychology from Dickinson College and an M.A. in education from the University of Michigan.

Kenwyn Derby is a Research Associate with WestEd's Office of the Chief Program Officer. She provides research and coordination support on special projects, assists in strategic planning and quality control efforts, and facilitates communication across the organization. She is a member of the leadership team of SchoolsMovingUp, WestEd's school improvement Web site, and serves as its primary contact person. Prior to coming to WestEd, she managed recruiting, employee relations, and organizational development for a San Francisco internet start-up, worked for the City of Oakland as a Human Resource Analyst, and held various positions in print and online editing and psychology research. She holds a B.A. in political science and Spanish from Amherst College and an M.S. in organizational psychology, focusing on organizational change, from San Francisco State University.

Dr. Barbara Dietsch is a Senior Research Associate in the Health and Human Development Program at WestEd. She has more than 15 years of experience developing, implementing, and evaluating programs targeting health behaviors of adolescents, with an emphasis on the predictors of substance use, early sexual activity, and other associated high-risk behaviors. She currently directs several studies, including an in-school tobacco prevention program, a character education program, and a large-scale school district health program. She is also studying the impact of SB19, a California law that removes vending machines with non-nutritious foods and drinks from schools. As a trainer and technical assistance provider, she provides trainings on tobacco prevention to district and county Title IV coordinators, and moderated the California Healthy Kids Survey listserv for three years, providing support to subscribers. In addition to her

work at WestEd, she is a registered dietician and adjunct professor in the Department of Preventive Medicine at the University of Southern California. Prior to joining WestEd, she worked in tobacco prevention and comprehensive health programs at Los Angeles Unified School District. She received a B.S. in home economics from California State University, Northridge, an M.A. from California State University, Long Beach, and a Ph.D. in Preventive Medicine, Health Behavior Research from the University of Southern California.

Dr. Beverly Farr is the Director of Research at Rockman Et Al., where she directs several research and evaluation studies. Prior to this, she worked for several years as Managing Research Director at the American Institutes for Research, where she directed major research projects on school reform, accountability systems, professional development programs, and teacher credentialing projects. Farr also spent 15 years of her professional career evaluating or providing technical assistance to local, state or federal programs across 20 states as the Director of federally funded technical assistance centers. This work allowed her to capitalize on her expertise in effective instructional practices and comprehensive accountability systems. Her knowledge of second language development has also allowed her to focus a significant amount of her work on the needs of English language learners. She has published several books, articles, and chapters about educational reform, and recently has released two books that focus on assessment and instructional practices designed to meet the needs of English learners. She holds a B.A. in Spanish linguistics from Florida Atlantic University and a Ph.D. in reading education from Indiana University.

Sarah Feldman is a Senior Research Associate in the San Francisco office at WestEd. She is working on the Guide to Charter High Schools for the U.S. Department of Education's Office of Innovation and Improvement. Two years ago, she supported the process of researching and writing the guide to Successful Charter Schools. Prior to working at WestEd, Sarah trained principals for urban schools and was a public middle school assistant principal. She has experience as a school administrator, teacher, and professional development trainer and is completing her dissertation on middle school students who struggle with reading for her doctorate in education at Mills College.

Chris Furgiuele is a Research Analyst at Berkeley Policy Associates (BPA) who has conducted extensive research in the field of education and workforce development. He currently directs the Los Angeles SOURCE Project, a multi-year random assignment demonstration project that links low-income high school students in Los Angeles to college students who will help them navigate the college and financial aid application process. He also directs the San Francisco Care Not Cash Caseload Decline Study, which assesses the current whereabouts and economic well-being of more than 1,800 homeless individuals who left the city's General Assistance program in the past year. His areas of expertise include project management, instrument development, data collection and analysis. Past work includes evaluation studies of the state of Louisiana's TANF welfare-to-work program. He holds a B.A. in economics from Syracuse University and an M.P.P. from the University of California, Berkeley.

Sylvie van Huesden Hale is Director of WestEd's Application Development Group, whose expertise includes the use of multimedia technologies to solve complex data management problems in education. She is currently working on several projects that integrate interactive online tools and activities with field-based coaching strategies. She has extensive experience

working directly with high-poverty, low-performing schools — particularly in providing technical assistance on data analysis, reform planning, and implementation, as well as leadership-building strategies. She is the author of *Comprehensive School Reform: Research-Based Strategies to Achieve High Standards*, a set of materials that includes a guidebook and two videos. She is also one of the primary authors of *Schoolwide Programs: A New Outlook* and *Focus on School Improvement*. She received her B.A. in international relations from San Francisco State University and her M.A. in international development and administrative policy analysis from Stanford University.

Leslie Hamburger, Research Associate in the Teacher Professional Development Program at WestEd, develops tools and processes in English and Spanish for the teaching of mathematics to secondary English learners. She also designs and conducts professional development in English and Spanish to enhance the expertise of secondary mathematics teachers with English learners, including the role of literacy in mathematics classes. Prior to her employment at WestEd, she was an assistant principal whose duties included planning and coordinating a schoolwide testing program promoting mathematics reform, curricular alignment, implementation of content standards, and increased student achievement. As a mathematics resource teacher and curriculum specialist, she designed mathematics curricula and conducted professional development and coaching for mathematics teachers with a focus on linguistically diverse student populations. She has experience teaching and developing curriculum for bilingual, sheltered, transitional, mainstream, and gifted and talented students in secondary mathematics. She received her B.S. in business administration from Westbrook College and her M.A. in educational administration from San Jose State University.

Tenley Harrison works as a Research Associate for the Western Regional Educational Laboratory and brings expertise in the areas of survey design, data collection and analysis, program and curriculum design, and report writing for a variety of research studies and service projects. She has provided research and technical assistance support to The Community Laboratory Project, the Evaluation of the Regional Professional Development Program of Nevada, and the Laboratory Network Project: Low-Performing Schools Web Site. She has coauthored several policy briefs and research reports, including *Voices from La Frontera: Study of School Districts Along the United States/Mexico Border*. Prior to working at WestEd, she taught sheltered literature and history to high school students in the Bay Area as well as English to high school students in Japan. Harrison received a B.A. in psychobiology from Yale University and an M.A. in international and comparative education from Stanford University.

Kerry Sherman Headington is a Research Associate in WestEd's Assessment and Standards Development Services program. Her responsibilities include project management, the development and implementation of standards and assessment materials, research and alignment studies, and evaluation of programs. Previously, she worked with the Language and Cultural Diversity Program, Northern California Comprehensive Assistance Center, and the Policy Support and Studies Program at WestEd. Before coming to WestEd, she taught 3rd grade on the Jicarilla Apache reservation in New Mexico and English as a Second Language in the Czech Republic, and conducted ethnographic research in schools. She holds a B.A. in psychology and multicultural education from the Catholic University of America and an M.A. in international comparative education and policy analysis from Stanford University.

Dr. Elfrieda Hiebert is currently an Adjunct Professor at the University of California, Berkeley. Previously she was a Professor at the University of Michigan, where she served as Director of the Center for Improvement of Early Reading Achievement (CIERA). She is the author of over 100 published research articles and chapters on how instructional and assessment practices influence literacy acquisition, especially among low-income children. She recently authored a volume with Michael Kamil, *Teaching and Learning Vocabulary: Bringing Research to Practice*. For the PREL, she planned and facilitated a highly successful series of national Reading Forums that brought together leading researchers and literacy leaders from the 50 states. She is currently engaged in research investigating the effects of texts, particularly informational texts, on the fluency and vocabulary development of students, especially English learners. Hiebert has herself been a teacher of primary-level students in central California. She received her Ph.D. in educational psychology from the University of Wisconsin, Madison.

Christian Holden is WestEd's primary graphic designer for both print and Web materials. With a degree in production for electronic media from the Newhouse School of Public Communications at Syracuse University, Holden has created a number of award-winning publications for WestEd. For example, the *2003 WestEd Products and Services Catalog* that he designed won two awards in the League of American Communications Professionals competition: a Platinum Award in the overall Best Narrative category and a Gold Award in the Toolkits, Mailers, and Related category. He created the designs for two reports that won top honors for interior design in 2005. He received his B.S. in electronic media from Syracuse University.

Dr. Tracy Huebner is a Senior Research Associate specializing in studying complex programs for schooling and children. Her areas of expertise include qualitative design and analysis, research and evaluation, implementation and assessment of whole school change efforts, and pre-service teacher education. She currently directs research studies that examine ways districts support low-performing schools and high school reform efforts, including the profiling of small high schools supported by the Gates Foundation that show early positive gains from their reform efforts. Prior to joining WestEd, she was at Harvard's Children's Initiative where she was a lecturer and researcher, and an evaluation consultant to schools, districts, and reform initiatives, such as the National Center for the Accelerated Schools Project. She holds a B.A. in English and French literature from Cornell University and an M.A. and Ph.D. in education from Stanford University.

Jim Johnson is a Senior Communicator at WestEd. He has extensive experience as a writer, editor, teacher, and program developer, both at WestEd and in the academic community. He served for nine years as Director of Communications at WestEd, overseeing the development and dissemination of products for the agency. He has been a writing instructor at the college level in both the community college and state university systems, as well as an instructor in film media. He is particularly skilled at working with staff to improve their writing skills as they carry out projects. He is a regular editor of cases for professional development and descriptions of promising practices to be published in print or Web formats.

Reino Makkonen is a Research Assistant with the Policy Center at WestEd, and brings expertise in data collection and analysis, literature-based research, and synthesizing complex data for multiple audiences. He has authored several policy briefs and research summaries for legislators,

governors, and state boards of education. Prior to joining WestEd, he was a middle and high school substitute teacher, and worked in educational publishing at Houghton Mifflin and Straight Line Editorial Development. Additionally, he helped craft the content for a best selling educational toy, and has written research articles for the *Harvard Education Letter* and *Horace Magazine*. Makkonen received a B.A. in journalism from the University of North Carolina, Chapel Hill and an Ed.M. in education policy from Harvard University.

Cindy McPherson is an Information Designer and Project Manager with 10 years of experience improving programs in education — from developing curriculum and training programs to designing Web sites. As Project Manager in WestEd’s Application Development Group(ADG), she coordinates development teams to produce high-quality interactive Web sites, writes documentation and delivers training to help clients and developers use CS software, and contributes to the strategic development of ADG. She has conducted qualitative research on school reform efforts. A strong communicator with a background in education, she understands education reform issues and is adept at translating client needs into technical specifications.

Brian McReynolds is a Program Coordinator with the Health and Human Development Program at WestEd with expertise in large-scale survey administration. He currently works on multiple health and education studies that involve surveys, including California’s statewide Healthy Kids Survey, Student Survey, and Student Tobacco Survey. He brings experience and expertise in survey coordination, database management, and analysis of survey data. He holds a B.S. in economics from the University of Utah.

Dr. Frances Montell is a Research Associate in the Science and Mathematics Program at WestEd where she provides research support to evaluation studies of the California Mathematics Professional Development Institutes and a National Science Foundation-funded teacher induction program. Previously, Montell was a Researcher and Project Manager at the Stanford Learning Lab at Stanford University, where she conducted evaluations of education technology projects and developed and assessed online learning modules. She also designed and conducted evaluations of science education programs at the University of California, Santa Barbara. Montell holds a B.A. in sociology from the University of California, San Diego, and an M.A. and a Ph.D. in sociology from the University of California, Santa Barbara.

Dr. Tom Parrish is Co-Director of the Center for Special Education Finance at American Institutes for Research (AIR), which is involved in research addressing the national agenda for special education finance and in conducting state and federal studies on the impact of special education finance reform. His major area of expertise is fiscal policy in public education with a specialty in special education. He has directed and participated in numerous cost analysis, education policy, and evaluation projects for federal, state, and local agencies over the past 25 years. He has addressed numerous committees, conferences, and legislative bodies on education finance policy, and has written extensively on these issues. Currently, he is involved in a study documenting the related services being received by a large sample of special education students and an evaluation of the implementation of California Proposition 227, which specifies instructional program provisions for English learners. He also spent five years teaching students from diverse ethnic and cultural backgrounds. He received his Ph.D. in educational policy and administration from Stanford University.

María Pérez, Senior Research Scientist at AIR, is Co-Project Director on the forthcoming independent evaluation of the *Effects of the Implementation of Proposition 227 on the Education of English Learners, K-12*. At the American Institutes for Research, Ms. Perez has been instrumental in high-level processing and analysis of complex data from national and state departments of education, school districts, and schools; recent work has focused extensively on the achievement and inclusion of English learners and students with special needs in standardized testing. Outside of her role on the Proposition 227 evaluation, she also directs achievement analyses for the California Department of Education (CDE)-contracted *Intermediate Intervention/Underperforming Schools Program (II/USP) Evaluation Study* and *High Priority Schools Evaluation Study*. She has a Master's degree in macroeconomic programming in developing countries, and has extensive experience with statistical programming software (SQL, SAS, STATA) and statistical analysis of quantitative data. Previous to working at AIR, she was an assistant instructor in Pontificia Universidad Católica de Chile's Economics department.

Dr. Russell Rumberger is Professor of Education and Director of the University of California Linguistic Minority Research Institute (UC LMRI), a University of California multi-campus research unit established in 1984 to foster interdisciplinary research and to improve academic achievement of children from diverse language backgrounds. A faculty member at the University of California, Santa Barbara, he teaches research methods and policy courses, and has published widely in several areas of education: education and work; the education of disadvantaged students, particularly school dropouts; and education policy. His research in the area of education and work has focused on the economic payoffs to schooling and on educational requirements of work. His research on at-risk students has focused on the causes and consequences of dropping out of school. His research on education policy has focused on school performance, school segregation, and, most recently, student mobility. Rumberger has published in leading journals in the fields of economics, sociology, and education, including *Economics of Education Review*, *Sociology of Education*, *American Educational Research Journal*, and *Educational Evaluation and Policy Analysis*. He currently serves on the editorial boards of four journals: *Economics of Education Review*, *Sociology of Education*, *American Educational Research Journal*, and *Teachers College Record*. Rumberger teaches courses in research methodology and education policy. He holds a B.A. in electrical engineering from Carnegie-Mellon University, and an M.A. in economics and a Ph.D. in education from Stanford University.

Raquel Sanchez, a Research Analyst at Berkeley Policy Associates (BPA), currently provides research and program development support to several projects, including the National Office of Job Corps Workgroup developing strategies and materials to serve language minority students, a U.S. Department of Education study of the implementation of experimental and quasi-experimental evaluations of an American history grant program, and a study of the relationship of language, identity and academic risk in Latino middle school students. Prior to coming to BPA, she contributed to the development of a multimedia and online professional development course for teachers earning CLAD certification, and taught at the pre-K, elementary, middle and college levels. She holds a B.A. and M.A. from California State University, Los Angeles, and is expected to complete her Ph.D. from Stanford University in 2006.

Dr. Mary Schmida is a Research Associate with the Teacher Professional Development Program at WestEd, and brings years of experience teaching writing and developing educational

materials for English learners. She currently provides content expertise to the development of professional development modules that help teachers to use rigorous and challenging content with English learners. Prior to joining WestEd, she worked for a decade as a writing instructor at the University of California, Berkeley, and several years in the Peace Corps teaching high school in Africa. She holds a B.A. in linguistics, an M.A. in education, and a Ph.D. in education from the University of California, Berkeley.

Dr. Miguel Socias, is a research scientist at AIR. Dr. Socias is a key leader of the achievement analysis component of the *Evaluation of the Effects of Proposition 227 on the Education of English Learners in California*. In this project, he contributes expertise in statistical analysis to help design and conduct analyses of the academic and linguistic performance of English learners (ELs) in California. In addition, he conducted a “survival analysis” (also known as event history analysis) to analyze the time it takes ELs across the state to be redesignated to fluent English proficient status. Dr. Socias also works on the Study of Measure the Delivery of Services in Accordance with the Individual Education Programs of *Students with Disabilities in the Los Angeles Unified School District* (LAUSD). In this project his responsibilities include database management, statistical analysis and final report writing. Dr. Socias served as an analyst for the Evaluation of the Immediate Intervention/Underperforming Schools Program (II/USP), conducted under contract to the California Department of Education. In this role, Dr. Socias led the sample selection process for the qualitative data collection efforts, and conducted analyses of student achievement data to detect the impact on test scores of a school’s participation in II/USP. Dr. Socias has Ph.D. in Education and an M.A. in Economics from Stanford University.

Vanora Thomas is a Junior Analyst at Berkeley Policy Associates (BPA) who provides research support on a number of studies. She brings experience in large-scale survey and Web-based survey management, conducting interviews and site visits, and collecting field data. She currently provides support to studies that examine the transition from adult basic education to postsecondary education options at community colleges and California’s welfare time limit policy. Previously, she was part of a research team that evaluated Louisiana’s TANF program. She holds a B.A. in anthropology from the University of California, Santa Cruz, and an M.A. in anthropology from George Washington University.

Dr. Naida C. Tushnet has over 35 years of experience in education. She currently directs the Evaluation Research Program for WestEd, which houses evaluations of mathematics and science programs at the elementary, secondary, collegiate, and graduate levels; studies of school reform; and evaluations of community- and school-based projects for children who are placed at risk. Earlier in her career, she taught high school and worked in two other regional laboratories, a state education agency, and the federal government, where she was responsible for studies of programs designed to improve schools through the application of research. She has directed a number of projects, including the R&D Interpretation Service, which synthesized research in ways that were useful for teachers; the Documentation and Evaluation of the Educational Partnerships Program; and the evaluation of the Star Schools Distance Learning Program. Tushnet received her B.A. in history from Grinnell College, M.A. in history from Columbia University, and Ph.D. in education policymaking and administration from Washington University.

Dr. Vince Valvano is a Principal Research Analyst at Berkeley Policy Associates (BPA), bringing extensive experience leading multi-method program evaluations and conducting quantitative analysis of program outcomes using a variety of statistical techniques. He has directed several social and educational research and evaluation studies using cohort analysis, subgroup comparisons, multivariate regression analysis, and duration analysis. He is also an experienced field researcher and has developed surveys and interview and administrative document review protocols. Currently, he directs several studies, including *The Community College Transitions Project*, which will produce case studies of 16 exemplary programs in four states to highlight the factors that contribute to their success at transitioning students from adult basic education to community colleges. He also directs the evaluation of the *SOURCE Demonstration Program*, a random assignment study that will assess the effectiveness of the provision of college admission and financial aid counseling on the college enrollment rates of disadvantaged high school students in the Los Angeles Unified School District. Previous work includes directing welfare-to-work studies for the states of Louisiana and Colorado. He holds a B.A. in community studies from the University of California, Santa Cruz and a Ph.D. in economics from the University of California, Berkeley.

Dr. Phyllis Weinstock is a Principal Analyst at Berkeley Policy Associates (BPA) with 20 years of experience in evaluation research, project management, and social policy analysis, focusing on child and youth development and educational programs and policies. She currently directs the U.S. Department of Education's Improving State Accountability Systems for the Even Start Family Literacy Program, and recently completed a statewide evaluation of the Child Development Facility Accreditation Project. This study involved a survey of a stratified random sample of 200 participating programs; interviews and focus groups in selected counties; and observational assessments of a sample of 40 childcare programs in five counties. She has directed several other community childcare studies, and evaluations of after-school programs, welfare-to-work initiatives, and school-based violence prevention programs. She holds a Ph.D. in city and regional planning from the University of California, Berkeley.

Steven Weiss is a Research Associate with the Teacher Professional Development Program at WestEd. He currently develops tools and processes for the teaching of academic Spanish to native Spanish-speaking students and English as a Second Language for newcomers. He designs and conducts teacher professional development in the area of disciplinary academic language development, including social studies. Prior to joining WestEd, Weiss was a K–8 assistant principal and an English language and bilingual resource teacher. He holds a B.A. in political science from Vassar College, an M.Ed. in bilingual, cross-cultural language and academic development emphasis from the University of California at Los Angeles, an M.A. in Spanish from Middlebury College, and an M.S. in education administration from San Francisco State University.

Cindy Hong Zheng is a Research Associate with the Health and Human Development Program at WestEd, and brings expertise in the areas of evaluation methods, survey design, statistics, and data analysis. Her research interests are adolescent risk behaviors, youth development, parental divorce, and adult well-being. Prior to joining WestEd, Zheng provided statistical support to a team of social researchers at the University of Southern California. She holds a B.S. in economics from Jiangnan University in China and an M.P.H. in epidemiology and biometry from the University of Southern California.

Technical Working Group

The following bios are of the nine national experts who will serve as our Technical Working Group, providing feedback and guidance to ensure the scientific merits and quality of our work. Each has agreed to serve in this role, and a letter of commitment is included in the Appendix. They represent strong methodological expertise in research design, analysis, and instrumentation, and also span content areas relevant to the proposed work.

Dr. Jamal Abedi is a Professor of Education at the University of California, Davis, and Director of Technical Projects at the University of California, Los Angeles National Center for Research on Evaluation, Standards and Student Testing (CRESST). His research interests include psychometrics and test and scale development. His work includes validity studies for the National Assessment of Educational Progress (NAEP) focusing on the impact of language background on students' performance. Recent work includes the application of latent-variable modeling in assessing validity and reliability of performance-based assessment measures, studies on the validity of accommodations for English learners, and research on the opportunity to learn for English learners. He has developed a culture-free instrument for measuring creativity, which has become translated into a number of languages and administered in several countries.

Dr. Lloyd Bond is a Senior Scholar at the Carnegie Foundation in Palo Alto. Prior to working at the Foundation, Bond held professorships in the Department of Educational Research Methodology at the University of North Carolina, Greensboro and in the Psychology Department at the University of Pittsburgh. He is a specialist in measurement and assessment, known for his research on test bias, cognitive processes underlying test performance, the assessment of teaching performance and, most recently, assessment in higher education. Bond has been an associate editor and member of the editorial boards of the leading journals in educational and psychological measurement, and consults with school districts, state departments of education, testing organizations, research and development centers, and other organizations. A Fellow of the American Psychological Association, he served on both the 1985 and 1999 national education research committees to revise the standards for educational and psychological testing, and from 1997 to 2002 was senior advisor to the National Board for Professional Teaching Standards.

Dr. Geoffrey Borman is an Associate Professor at the School of Education at the University of Wisconsin, Madison. He is a Senior Researcher with the Consortium for Policy Research in Education, and Lead Analyst for the Center for Data-Driven Reform in Education at Johns Hopkins University. His research interests revolve around social stratification and the ways in which schools can overcome inequality. His primary methodological interests include the review and synthesis of research evidence, the design of quasi-experimental and experimental studies of educational innovations, and the specification of school-effects models. Borman recently completed a research synthesis of the achievement effects of 29 nationally disseminated comprehensive school reform models. He trained as a quantitative methodologist through the University of Chicago's Measurement, Evaluation, and Statistical Analysis program and received the National Academy of Education/Spencer Postdoctoral Fellowship Award, the 2004 Raymond Cattell Early Career Award from the American Educational Research Association, and the 2004 American Educational Research Association Review of Research Award.

Dr. Brian Flay is a Distinguished Professor of Community Health Services at the University of Chicago and Professor of Public Health at Oregon State University. His research interests include health promotion and disease prevention research, smoking and drug abuse prevention, violence prevention, youth HIV/AIDS prevention, positive youth development, comprehensive school reform, prevention research methods and theory, and prevention research training. He currently has an IES grant to study a character education program. He writes on research methods as well as individual studies. Among his honors, he received a Research Laureate Award from the American Academy of Health Behavior

Dr. Thomas Good is a Professor of Educational Psychology and Education Leadership at the University of Arizona, Tucson. His research focuses on classroom instructional process, including whole class and small group learning environments, communication of expectations in social settings, analysis of instructional behavior, teacher-student communication, teacher behavior and student achievement, and mathematical learning. As the Editor of the *Elementary School Journal* he frequently addresses issues related to at-risk learners. His interests include issues of educational assessment spanning conceptions of effective teaching, particularly in schools with large populations of students coming from low-income homes.

Dr. Joan Herman is Co-Director of CRESST and the University of California, Los Angeles Center for the Study of Evaluation. Dr. Herman has done extensive research on the effects of testing on schools and on the design of information systems to support school planning and improvement. She has wide experience as an evaluator of school reform projects, recently focusing on the assessment of the effects of technology and school reform.

Dr. Heather Hill is an Assistant Research Scientist at the University of Michigan. Her primary work focuses on the development of measures of content knowledge for teaching mathematics, and using such measures to evaluate public policies and programs intended to improve teachers' facility with mathematics. Her other interests include the measurement of instruction more broadly, instructional improvement efforts in mathematics, and the role that language plays in the implementation of public policy. She received a Ph.D. in political science from the University of Michigan in 2000 for work analyzing the implementation of public policies in law enforcement and education.

Dr. Roger Levine is a Managing Research Scientist at American Institutes for Research (AIR). He has been actively involved with social science data collection and analysis for over 30 years. He created the AIR Cognitive Survey Laboratory and is Director of AIR's Palo Alto Cognitive Survey Laboratory. In addition to pilot-testing survey items, this facility has been used to investigate the questionnaire response process in fourth and eighth grade students, students with learning disabilities, and English learners. Procedures employed in this Laboratory have also been employed in field investigations of how principals and school district personnel respond to specific data items (such as staffing intensity, wage, and benefits) that are crucial for modeling the cost of education and to investigate how teachers answer questions about their background and their instructional practices. Levine has directed U.S. Department of Education studies of magnet schools and the Magnet Schools Assistance Program, the organizational structure of high schools (and the relationships between state and school district policy and organizational practices) and was the country's national study director for an international study of the organizational structure of elementary schools. He directed an evaluation of the Department of

Defense's ASVAB Career Exploration Program for the Department of Defense's Defense Manpower Data Center, designed to assess the impacts of participation in a program to help students make better career and college choices. He also directed analyses of large, longitudinal and large, cross-sectional data files for the National Center for Education Statistics.

Dr. Jason Snipes is the Deputy Director of Education, Children and Youth for Manpower Demonstration Research Corporation (MDRC). He is Co-Principal Investigator for the Closing Achievement Gaps project, Lead Quantitative Analyst for the national evaluation of Project GRAD, and Impact Analyst for the Career Academies evaluation. He was the Lead Analyst for the Adult Basic Education component of the National Evaluation of Welfare-to-Work Strategies. Snipes has developed specialized experimental analysis methods for defining student risk groups and estimating the impacts of programs on different student populations. He has also developed and employed innovative experimental and non-experimental methods for measuring the effects of education interventions on education and labor market outcomes, including achievement on standardized tests.

WREL TECHNICAL PROPOSAL

STAFFING CHARTS

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WREL TECHNICAL PROPOSAL

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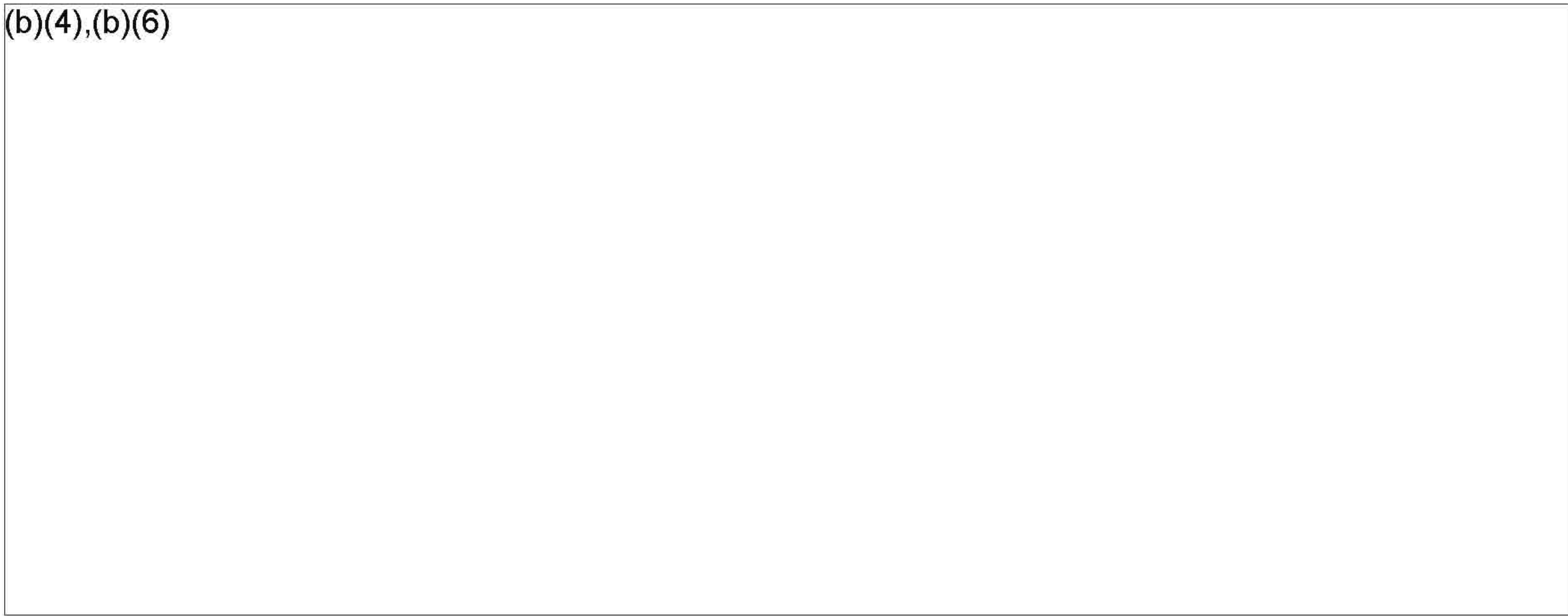
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WREL TECHNICAL PROPOSAL

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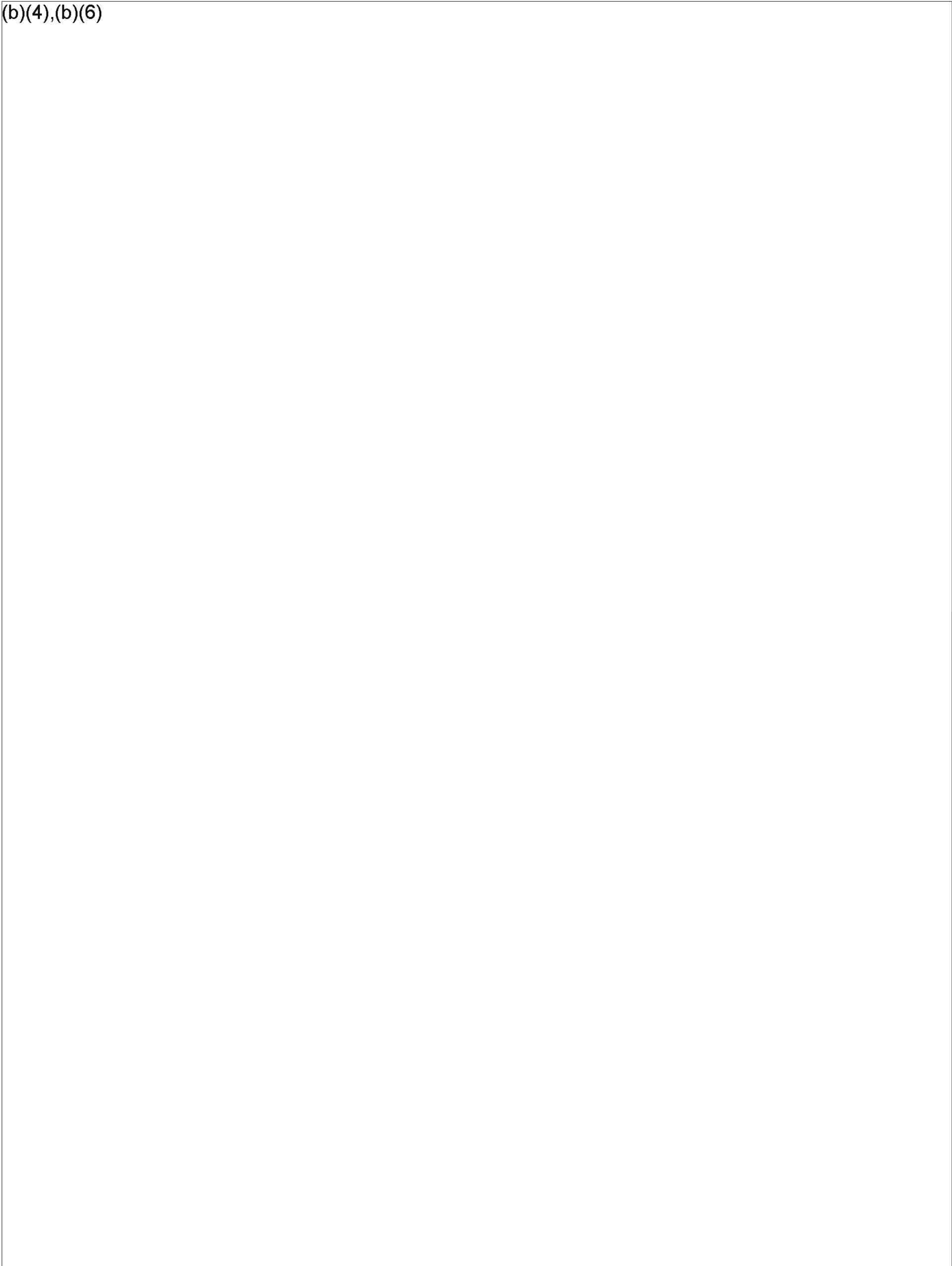
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WREL TECHNICAL PROPOSAL

MANAGEMENT PLAN

MANAGEMENT PLAN

With a 40-year history of accomplishments, WestEd is a strong, stable organization. “One of its major strengths lies in its management structure,” concluded a REL external evaluation panel (Decision Information Resources, 1999). Chief Executive Officer, Dr. Glen Harvey, has mobilized the organization to build on that capacity to reach the highest possible level of contribution to a compelling mission:

*WestEd, a research, development, and service agency, works with education and other communities to **promote excellence, achieve equity, and improve learning** for children, youth, and adults.*

Recognizing that vision and commitment, while necessary, are not sufficient to achieving our mission, WestEd places a premium on solid management of well-designed work. Both WestEd and the WREL operate on the premise that good management is the underpinning of good program work. WREL management structures have been designed to draw upon the highest levels of WestEd’s leadership and management capacity. This section outlines the structures and procedures we will use for managing the WREL, and constructing the strong infrastructure upon which high-quality, scientifically valid technical assistance and applied research and development will be built.

WestEd Management Structure

Executive Team (ET). Ultimate responsibility for the leadership, management, and quality of WestEd’s work rests with the CEO, Dr. Glen Harvey. Dr. Harvey works with the Board of Directors to establish institutional priorities and strategic plans, and provides oversight for all institutional functions. She develops and maintains communication with WestEd’s key stakeholders and constituents; she will be responsible for ensuring that WestEd fully understands and is aligned with the priorities of IES. Dr. Harvey is assisted by five chief officers, each of whom has specific areas of responsibility within the organization. Dr. Harvey and her direct reports comprise the Executive Team, which is responsible for establishing the procedures and systems that enable WestEd to function within the policies and priorities established by the Board. The ET meets monthly to review major areas including fiscal and personnel issues, business development, and programmatic issues. The CEO also meets with each individual chief monthly to review and address work plans, outcomes, and issues and challenges. Through this combination of meetings and ongoing communication, the CEO and the ET provide the overall institutional leadership and management support needed to meet WestEd’s major objectives each year and fully support and attend to ongoing issues related to WREL work. Our current and proposed WREL Director serves on the ET, and three of the seven ET members have been REL directors at some time in the past; six of the seven have been REL staff members at some point in their careers.

The **Chief Program Officer**, ET member and current Director of the WREL, has overall institutional responsibility for WestEd's program operations. He is primarily responsible for ensuring the rigor, utility, relevance, and quality of WestEd's work. This includes assuring that the work being conducted in the hundreds of contracts that are operating at any one time is completed on time, within budget, and with high quality. The CPO is responsible for establishing systems for monitoring and evaluating WestEd's programmatic work and is also responsible for establishing communications among programs such that they benefit from each other and add value through coordinated or collaborative efforts. The CPO's office guides the development of annual Program Action Plans for each of WestEd's programs, which establish goals for program work and impact; the CPO's office also conducts extensive annual Program Reviews with the ET where work plans, progress, accomplishments, outcomes, and overall performance is discussed with ET and program leadership. Oversight and supervision of specific Program Directors and their respective programs is shared with other Chiefs (see Figure 1, WestEd Organization Chart).

The Chief Program Officer will continue to serve as the WREL Director. He will maintain ongoing contact with IES and ensure that the WREL is responsive to Department of Education priorities and will coordinate with the CEO to assure clear communication about priorities and work executed under the WREL.

Management Council. The CEO convenes a Management Council monthly to address issues across the spectrum of agency business and program areas. The Management Council is made up of the ET and the leaders of major programs and administrative departments. At Management Council meetings, members deliberate and provide input on organizational and business issues. Management Council meetings are also designed for all managers to share experience and expertise across program lines and disciplines to leverage and strengthen all of WestEd's work. Some examples of issues the Management Council has discussed recently include: producing sustainable products and services; sharing strategies for working effectively within school districts; and conducting experimental or quasi-experimental research under constantly changing conditions in the field. Following the meetings of the full Management Council, members divide into a Program Council and an Administrative Council to address program topics in greater depth or coordinate activities in greater detail.

Members of the WREL Leadership Team (described below) sit on the Management Council, as does the lead we have bid for Task 6. The WREL Director also chairs the Program Council and will utilize this regular access to all of WestEd's senior leaders to enhance the work and management of the WREL.

WREL Management Structure

WREL Leadership Team. The Leadership Team will be composed of the WREL Director, Associate Director, the Director of the Fast Response Unit, and the two Directors of Research (see Figure 2 for the WREL Organization Chart). If WestEd is selected to be the contractor for Task 6, the leader of that effort will also sit on the Leadership Team. Overall, the Leadership Team will be responsible for ensuring that WREL work is coordinated across tasks and carried out according to plan and with high standards. The Team will meet regularly to:

- Review status, progress, and performance across all aspects of the WREL contract and make connections across tasks and subtasks as appropriate;
- Ensure progress on collecting and providing necessary indicator and other performance data;
- Vet plans and study designs, identify and examine areas in which work can be strengthened, identify possible or existing issues or challenges and plan solutions;
- Coordinate and support the preparation of Monthly Updates and Updated Annual Plans to the Department of Education;
- Prepare for quarterly meetings with and reports to the WestEd Board of Directors; and
- Work with IES, the Task 6 lead contractor, Department of Education, External Evaluators, other RELs, Comprehensive Centers, R&D Centers, and other key constituents as needed or requested.

WREL Director. As described above, WestEd’s Chief Program Officer, Dr. Gary Estes, will direct the WREL and chair the Leadership Team. Dr. Estes is eminently well qualified to serve in this capacity, having been the WREL Director since 1989. As the current WREL Director, Estes leads the agency’s participation in the Laboratory Network Program. He has served as chair of the directors’ group, and for several years has been the directors’ designated lead for collecting and reporting indicator data. In this role, he has worked closely with IES staff as well as the evaluators across the laboratory network to refine measures and report data, including a coordinated systemwide client survey. He is also the primary staff liaison to the WestEd Board’s Program Committee. As detailed in his biography in Personnel, Dr. Estes has considerable experience conducting, managing, and leading large-scale R&D and technical assistance initiatives and administering major contracts; as WestEd’s CPO, he oversees quality assurance and the design and vetting of research projects across the entire organization. Dr. Estes’ multiple leadership roles and placement within WestEd means that WREL has immediate and extensive access to all levels of WestEd leadership, decision-making bodies, and resources.

As WREL Director, Estes will have ultimate responsibility for ensuring that all project deliverables, research, and activities meet high-quality standards and are delivered on time and within budget, in accordance with IES’s expectations.

Associate Director. Dr. Nikola Filby, currently the WREL Associate Director, will continue to serve as Associate Director. Dr. Filby has managed significant aspects of past WREL contracts, including, for example, providing oversight of the development of new promising interventions on which randomized experimental impact studies are now underway. Dr. Filby has also served in the cross-laboratory REL system leadership group, chairing the program leaders group and managing collaborative projects. Along with the WREL Director, Dr. Filby will take overall responsibility for assuring that WREL work is coordinated and completed on time with high quality. Drs. Estes and Filby will meet weekly to review issues and progress of the contract overall. Dr. Filby takes an active role working with WestEd’s Board of Directors and will be closely involved with the day-to-day operations and management of the WREL. Among other duties, the Associate Director will:

- Coordinate the regular meetings of the WREL Leadership Team, working with the Director to set agendas and ensure appropriate decisions are made and actions taken to facilitate effective performance in all Tasks;
- Supervise the development and submission of Monthly Updates, Monthly Financial Reports, and Updated Annual Plans, and ensure that these tools are used by the Leadership Team to inform management and coordination of WREL work;
- Oversee the planning and preparation for meetings of the WestEd Board of Directors and Committees, to update the Board and ensure that the various Board Committees are fulfilling their responsibilities in relation to the WREL and IES;
- Serve as a WREL point of contact with other RELs, R&D Centers, Comprehensive Centers, and other organizations or constituent groups; and
- Coordinate and manage follow up with IES after Biannual Meetings and other meetings called by IES, and organize responses to special requests made by IES, the Department of Education, or others involving the WREL.

As depicted in the WREL Organization Chart (Figure 2), Drs. Estes and Filby will provide leadership and direction to and be supported by senior leaders with responsibilities for work proposed under individual Tasks.

Director, Fast Response Unit. Catherine Jovicich Walcott will direct the work of the Fast Response Unit. Walcott is currently WestEd’s lead strategist on responding to NCLB, and brings significant experience with the Congressional Research Service and as a Team Leader at the U.S. Department of Education to this role. As Director of the Fast Response Unit, she will lead and coordinate the work of the Subtask 1.1 Regional Needs Analysis, Training, and Technical Response Unit. She will also lead WREL’s dissemination activities, which have been placed within the Fast Response Unit in order to facilitate the coordination of technical assistance and dissemination activities. As described under Task 1, the Fast Response Unit will solicit needs and requests from the region and propose options for addressing them. For each Fast Response study or technical assistance activity, we will also engage staff or use consultants with the needed content expertise. Ms. Walcott will work collaboratively with the Directors of Research to oversee Subtask 1.2’s Fast Response studies, ensuring that these studies are both rigorous in their design and appropriate for meeting the requests received from the region. Among other duties, this role includes:

- Coordinating and managing needs assessment activities, in collaboration with the WREL’s state liaisons and state interest groups (described in Task 1);
- Securing Fast Response Requests (as described in Task 1) that may lead to projects or studies, and coordinating with the Directors of Research and the Analysis Unit to design, implement, and summarize such studies;
- Working with the leader of Task 6 to communicate with Fast Response Unit directors in other RELs, sharing information and leveraging findings and results of the studies;
- Planning regional and state events for disseminating new scientific evidence building on knowledge produced by other RELs, IES research centers, universities, and coordinating

efforts with the CCs and other services providers (e.g., SEAs, intermediate education agencies);

- Coordinating with WestEd’s Communications staff to design and develop WREL products, determining target audiences, critical design features, applying quality assurance processes, and developing dissemination plans;
- Coordinating requests for technical assistance with Comprehensive Assistance Centers (CCs) and other regional service providers; and
- Working closely with other members of the Leadership Team to monitor progress, review and ensure quality in all activities, make connections across tasks and subtasks, identify and address challenges and problems, and prepare regular and ad hoc reports to IES.

Directors of Research. The two Directors of Research, Dr. Neal Finkelstein and Dr. Thomas Hanson, are responsible for management, coordination, and day-to-day oversight of the work proposed under Subtask 1.2 and Task 2. Both bring considerable expertise and qualifications to this role. Dr. Finkelstein is WestEd’s Senior Research Scientist and is responsible for the development of research and evaluation designs that study the impact of program implementation in K–12 public schools. He assures that evaluation designs feature high standards of evidence, and oversees the implementation of randomized field trials in educational settings, including site recruitment and data collection. Dr. Hanson brings deep methodological expertise in statistical analysis and research design to this role. He is currently lead methodologist for four randomized experimental trials, in addition to serving as methodologist for experimental impact studies under the WREL. Drs. Finkelstein and Hanson’s duties as WREL Directors of Research will include:

- Establishing and regularly updating work plans to accomplish the Tasks’ research objectives;
- Identifying and supervising WREL research staff, monitoring staff performance, and evaluating staff work in the respective Task activities;
- Collaborating with the Director of the Fast Response Unit to supervise staff in the Analysis Unit, which will be conducting fast response studies;
- Overseeing and monitoring the work of subcontractors conducting research studies;
- Monitoring progress throughout the year to assure work is conducted on time, within budget, with high standards of quality and utility;
- Proactively identifying and addressing, or elevating to the Leadership Team, any quality or implementation issues that arise during the year; and
- Communicating with counterparts at Comprehensive Centers and other RELs, and field and respond to requests for information related to their areas.

Technical Working Group (TWG). WREL will engage the TWG in each Task 2 study. As outlined in Task 2, we will convene members semiannually. We will designate at least three TWG members to review each study based on the study’s content and design to efficiently use TWG members’ expertise and time. Directors of Research with their staff will summarize TWG

recommendations and input. These will be shared with the WREL Leadership Team and IES. Decisions and actions resulting from these will be documented and shared with IES. TWG members will also be consulted on Subtask 1.2 studies or analyses to assure that appropriate methodology is applied.

Management, Coordination, Communication^{A-SeePg10}

Management of Employees and Consultants. WestEd has a fully developed personnel management system, which has consistently yielded award-winning performance for the agency. The system includes annual performance planning and goal setting, mid-year and year-end performance reviews, access to professional development, and career planning and development. Employees working on the WREL contract will benefit from the active supervision and mentoring afforded to all WestEd employees.

In past years serving as the WREL, WestEd has developed expertise in managing diverse teams of staff and consultants to accomplish a project of such magnitude and complexity. Clear expectations, frequent communication, a strong culture of accountability, and the proper match between staff expertise and task responsibilities are critical. Active planning, reviewing plans, and updating plans throughout the course of a project help keep expectations aligned and current. Naturally, a staff member providing technical assistance services will have different supervision and management requirements from a consultant conducting longer-term rigorous applied R&D; our emphasis on open communication and setting clear expectations with each individual and each work team, without the imposition of a single, rigid structure, will allow effective management of the highly diverse staff we will assemble to conduct the work of the WREL.

Regular communication among team members in different locations will be facilitated through technology. With 16 offices and many staff working from home offices, WestEd has developed multiple ways to stay in touch. Face-to-face interaction will be particularly important in the early stages of the contract, but will be quickly supplemented by various virtual meeting systems. Agendas, plans, notes, and progress reports will be posted in a central, Web-based workspace, so that all staff members, regardless of location, can easily refer to them. The WREL Information Management System (described below) will ensure that all staff have access to up-to-date data on activities and progress. Conference calls, frequent email, and technology-facilitated file sharing will keep information flowing regularly.

Management of Subcontractors. As with individuals, WestEd has found that ongoing communication is key to ensuring that subcontracted work remains on track. The first step in creating good communication is a subcontract that identifies the expectations for both WestEd and the subcontractor, including all tasks to be performed and all reporting requirements. Expectations for subcontractors will be detailed in Gantt charts, which serve as an ongoing communication tool, and posted on the WREL's private Web workspace. Subcontractors will submit monthly reports, which include the substantive and quantitative information captured in the WREL Information Management System (requests from the field, tasks and activities completed, assessments of activities, problems encountered, solutions developed) and financial information (funds expended, staff hours allocated, and other direct costs). These reports will be used to update the Gantt charts and the IMS, and will feed directly into the relevant Monthly

Reports and Updated Annual Plans submitted to IES; they will also be discussed in regular coordination calls with the relevant Task Leaders.

Work Management System: On Time, Within Budget

Taken together, the composition of our Leadership Team, the dictates of monthly reporting, and the active use of WestEd's regular information, contract, and budget management tools will ensure that WREL work is completed on time, within budget.

Comprehensive Information Management System. Effective management of the WREL's work and personnel is supported with timely and accurate data. The entire WREL program is linked together through a customized WREL Information Management System (IMS). Quantitative and qualitative data on technical assistance and training activities, dissemination, and applied research and development will be gathered and managed in the IMS. This Web-based system, which was developed under the last WREL contract, allows for input, aggregation, and reporting on services, clients served, partnerships and alliances established, and assessments of all of these. The system will be updated to include the Fast Response Database, capturing requests from the region for training, technical assistance, and R&D studies and the WREL's responses to such requests; these data will be analyzed monthly and incorporated into the Fast Response Unit's needs assessment process, detailed in its Fast Response Plan, and reported on monthly. The IMS also captures requests for and distribution of publications and products. These data will be used to monitor and report on the regional dissemination activities.

Managing Timelines. As described in Task 5, in carrying out their regular management and reporting duties, members of the Leadership Team will frequently review progress on activities tracked in the Information Management System and the plans articulated in the Updated Annual Plan. Any area or task that falls behind in the Plan, including work being done by subcontractors, will be identified immediately and will quickly be reviewed and either brought up to speed or renegotiated with a new timeline. Any problems encountered will be addressed quickly, as the three Directors responsible for day-to-day oversight of the WREL's activities have immediate access to the WREL Director and Associate Director as well as WestEd's Executive Team and CEO, for rapid responses and solutions to issues that cannot be resolved by the Leadership Team alone.

Managing Within Budget. Monthly financial reporting, like the other monthly reports, will allow any discrepancy from the Plan to be identified, and addressed, almost immediately. The fiscal resources for the WREL have been carefully and conservatively budgeted and we will draw on WestEd's long experience and sophisticated systems for completing the contracted work within budget, without overspending. The overall WREL budget, as well as individual task and subtask budgets will also be monitored and reported on a monthly basis by Task Leaders and the Leadership Team and quarterly by the Executive Team. WestEd's Accounting Department provides monthly cost reports, at several levels of aggregation, that list expenses by line item, totals, and the discrepancy between budgeted and actual expenses for the current stage in the grant; reports on labor charges are provided every two weeks. These will be analyzed in conjunction with subcontractor financial reports each month. WestEd's Director of Financial

Services will work directly with the WREL Leadership Team, whenever needed, to resolve any budget-related issues or concerns before they become problems or result in overspending.

Quality Assurance Systems

The WREL operates within WestEd's environment of high accountability for operational excellence, impact and results, and high standards in all our work. Quality assurance and continuous improvement are considered integral to effective management. As a WestEd program, WREL will participate in the systems established to support quality and high standards in all our work. This includes developing an annual Program Action Plan, quarterly financial reviews with the Executive Team and Management Council, quarterly reviews with the Board of Directors, an extensive annual Program Review with the Executive Team, and mid-year and year-end performance reviews for all staff, including members of the Leadership Team. Within the operations of the WREL, work teams and units will apply specific quality assurance processes that are appropriate for the actual work being conducted.

Quality Assurance in Applied R&D. As described in detail under Subtask 1.2 and Task 2, all our studies will be thoroughly vetted and ultimately selected using an extensive process that includes needs assessment, feasibility testing, and design review. IES and external expert review panels will review all studies before they are initiated. Both Drs. Finkelstein and Hanson will be directly involved in overseeing the ongoing work under both Subtask 1.2 and Task 2. They will work closely with the Technical Working Group and IES to assure plans are appropriate and are implemented as designed. The full Leadership Team will track progress, milestones, and compliance with the study design. Because conditions in the field do change often, few studies can actually implement their initial plan without modifications along the way; Drs. Finkelstein and Hanson are highly experienced in conducting experimental design research in the field and will be actively involved in helping study leaders adapt to changing conditions without sacrificing rigorous design principles. IES and expert external panels will be informed and asked to review any changes in study design.

Quality Assurance in Technical Assistance and Training. WestEd has extensive experience providing assistance of all sorts to a wide range of constituents, and many of our staff have been at the forefront of efforts to describe, define, and validate best practices and high quality in technical assistance and in professional development. Careful consultation with clients before an engagement ensures that TA is designed with the client's goals and context in mind. We will make extensive use of client feedback and our own formative evaluation and debriefing practices to improve quality, relevance, and utility of our work consistently. Through direct participation in articulation of desired outcomes, collection of evidence, and interpretation of results, staff will both engage in continuous improvement and develop the skills to assure quality in their own work. As described in Task 1, we will also use the Task 1 Review Committee to review and critique TA plans and implementation.

Quality Assurance for Product Development. A central feature of WestEd's approach to quality assurance in our program work and research is the conviction that quality assurance is not a back-end review procedure. This conviction applies to our development of products and publications as well. Quality assurance begins on day one of development, whether the product

is a Policy Brief evolving out of a Fast Response study, a Web site, or a set of tools meeting a specific technical assistance need.

WestEd products are categorized according to level, moving from major high-impact efforts to informal documents, with a review process appropriate for each level. *Level I* products are formal, often stand-alone products in any medium developed to meet a pressing, clearly identified need in the field. The applied R&D conducted under both Tasks 1 and 2 will lead to Level I products. Before beginning work on a Level I product, the developer must create a Product Profile, which is then assessed by WestEd's internal Product Review Board (PRB). The PRB works with the developer to identify appropriate expert advisory groups and reviewers and manages the process and logistics of the review. In addition, all WREL Level I products will be submitted to IES for review and approval prior to publication. *Level II* products, by contrast, are less formal, most often developed to meet the narrower needs of a specific client, or are designed to be posted on a Web site and changed frequently. Level II products must be reviewed by one of the Directors of Research or, if these individuals are developing the materials, by the WREL Associate Director or Director.

Problem Identification, Prevention and Management. Even well-designed work and gold standard research studies, fully vetted, approved, and closely monitored, are subject to changing conditions and obstacles created in the environment. In a program of the magnitude and complexity of the WREL, we recognize that issues are bound to arise; our goal is to identify and manage such issues before they become problems. WREL uses clear communication, fully articulated expectations, careful planning, correct staff placement, and realistic timelines to prevent most common problems. Once work is approved and underway, we rely on good data, close supervision, and regular monitoring of appropriate information management tools to identify potential challenges and issues early — ideally, before they even arise. As we noted in Task 5, WestEd may conduct mid-contract external evaluations of our own work as we try to view the WREL from multiple perspectives. WestEd's CEO frequently invites clients, colleagues, and Board members to act as “critical friends” and help us see issues that, left unaddressed, could evolve into problems in the future. Once an issue is identified, our preference is for it to be handled by the manager closest to the situation, but in cases where that is not possible and escalation is necessary, our collaborative and flexible management plan, and instant access to the highest levels of WestEd's institutional decision-making, will allow WREL leadership to address it quickly, before it makes the transition from issue to problem.

Managing Departures of Senior Staff. Our staff are highly committed to WestEd and the work of the WREL and we do not anticipate elective staff turnover among senior WREL staff; however, we are well aware that conditions and circumstances change and we are prepared to manage any turnover, should it occur, in a way that will not unduly hinder the WREL in carrying out its work. Succession planning is a regular topic of discussion at WestEd among senior staff and executives, and the possibility that a project or contract may have to be completed by a staff member or team other than the one that originally conceived the project is not new to us. In such cases, WestEd will evaluate a position to determine specifically what skills, experience, and expertise is most essential to successful completion of the work and will identify one or more replacements with those characteristics; often, a teammate of the departing staff member will bring the most appropriate set of skills, substantive background, and professional relationships,

but in some cases, a position may be reconfigured when specific duties would best be met by several different people. Such is the case with WREL's senior leadership and management. We have constructed a robust team of professionals with complementary and partially overlapping areas of expertise, so if one person becomes unavailable, collectively the rest of the team will be able to carry on with supervision and leadership of the work. Our highly collaborative and communication-rich management plan means that key staff are fully aware of — indeed, often helping with — the work of their WREL colleagues. Comprehensive information tools and the frequent reporting requirements ensure that all team members have access to the most current information and our consistent focus on clear, fully articulated expectations will facilitate the process should one key staff member need to pass some or all of their WREL responsibilities to another.

^{A-SeePg10} November 21, 2005 Response to Technical Question #8 provides additional information on how subcontractors will fulfill their proposal roles. (See Appendix D)

Figure 1. WestEd Organization Chart

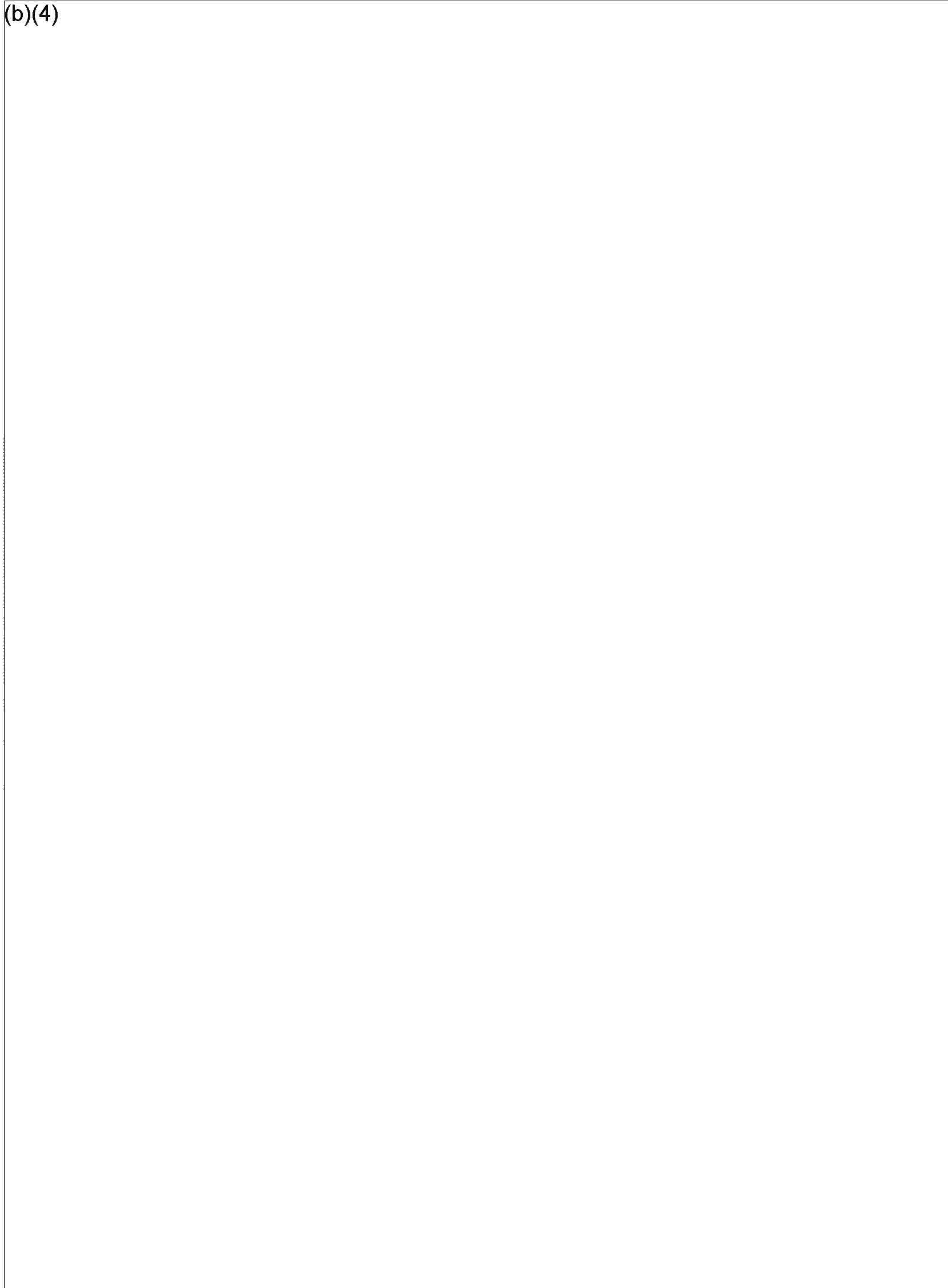
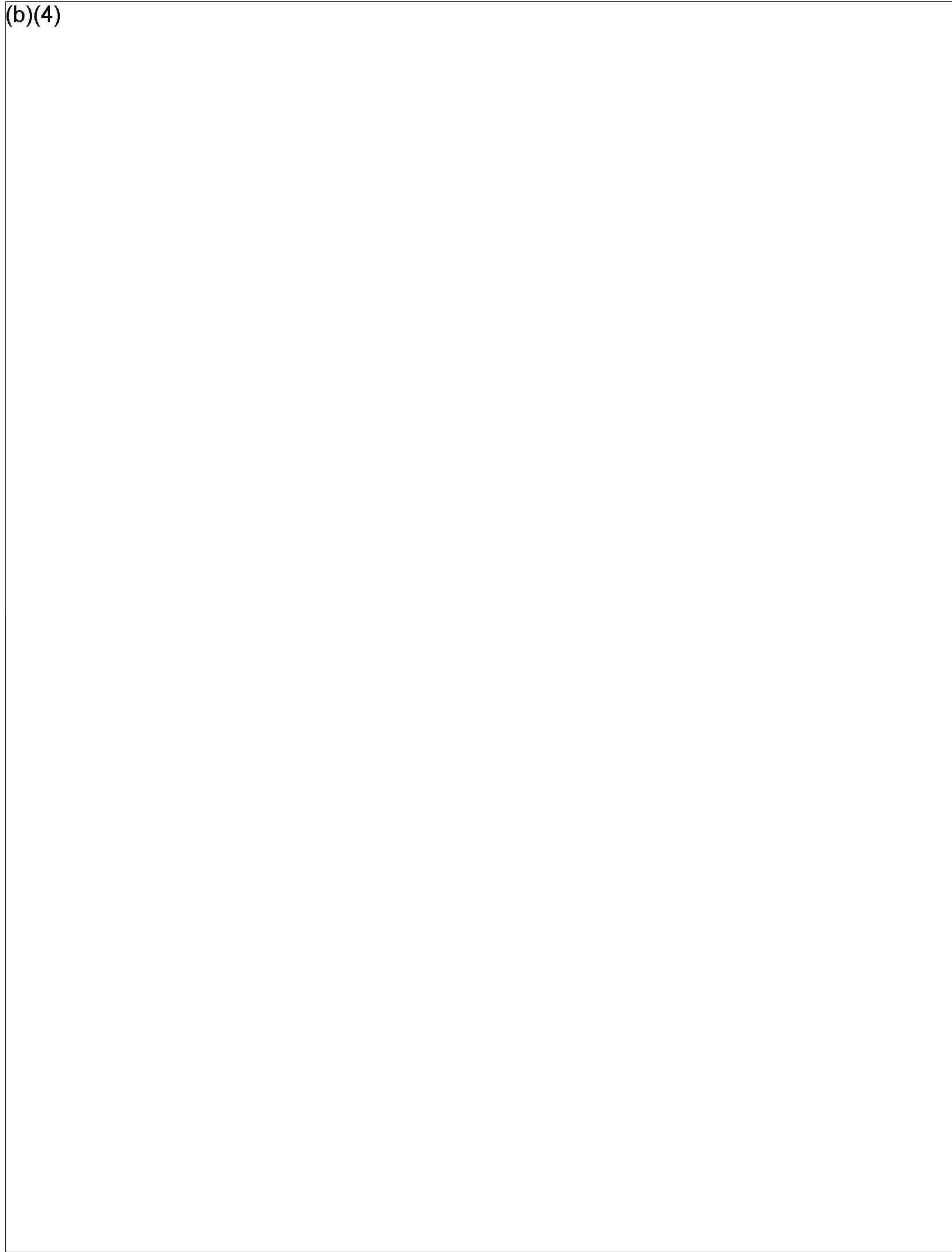


Figure 2. WREL Organization Chart



WREL TECHNICAL PROPOSAL

**ORGANIZATIONAL
EXPERIENCE &
CAPABILITY**

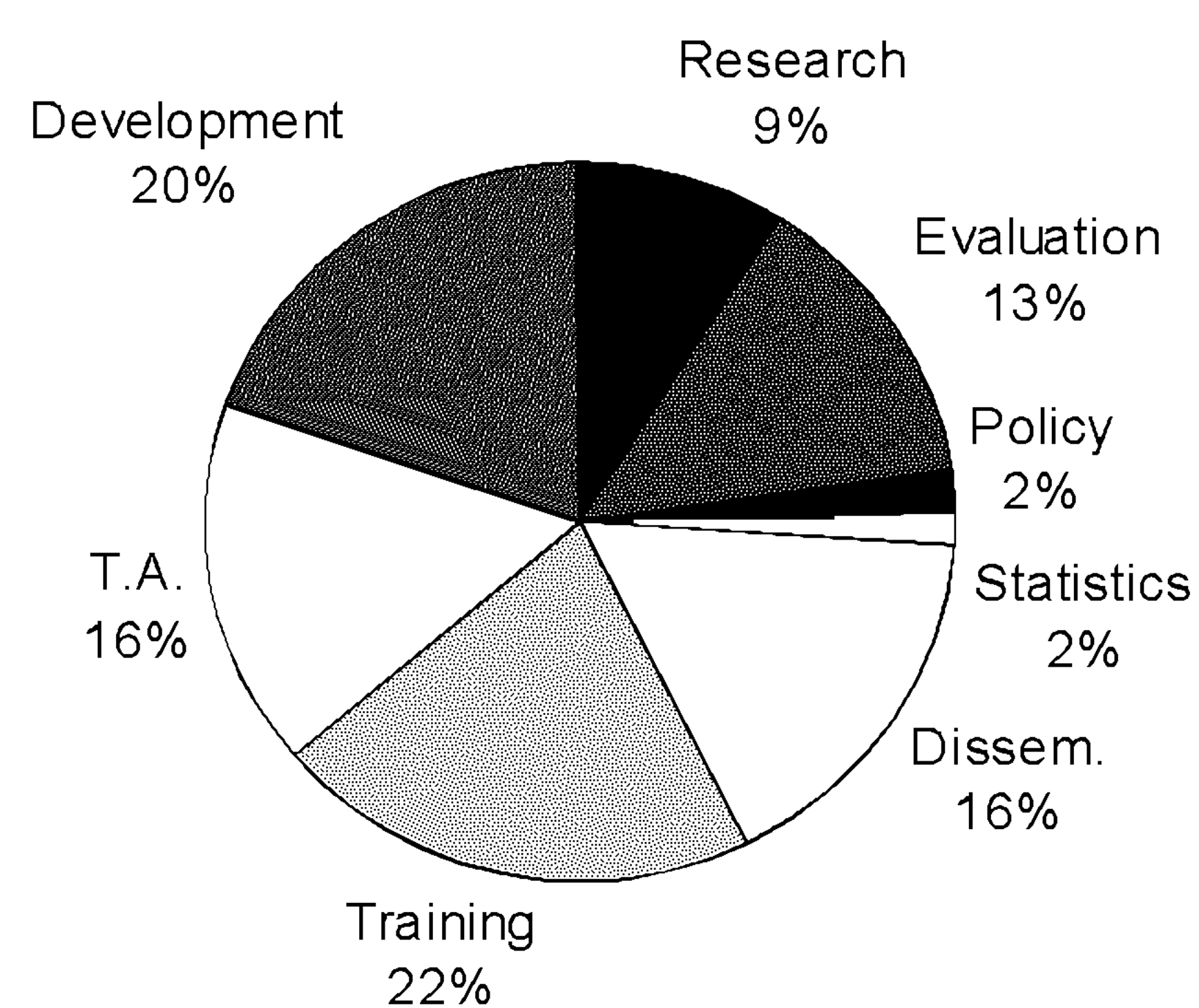
ORGANIZATIONAL EXPERIENCE AND CAPABILITY

WestEd is a preeminent educational research and evaluation organization with over 450 employees and 16 offices nationwide. Governed by a Board of Directors representing the western region's four states, WestEd is directed by the agency's Chief Executive Officer, Dr. Glen Harvey. Of its 450 professional, support, and administrative staff, approximately 240 have advanced degrees, including more than 70 doctorates in education or related fields such as psychology, sociology, and public policy. Most have years of experience in research, development, staff training, technical assistance, evaluation, and policy activities. Many members of the senior staff are nationally recognized.

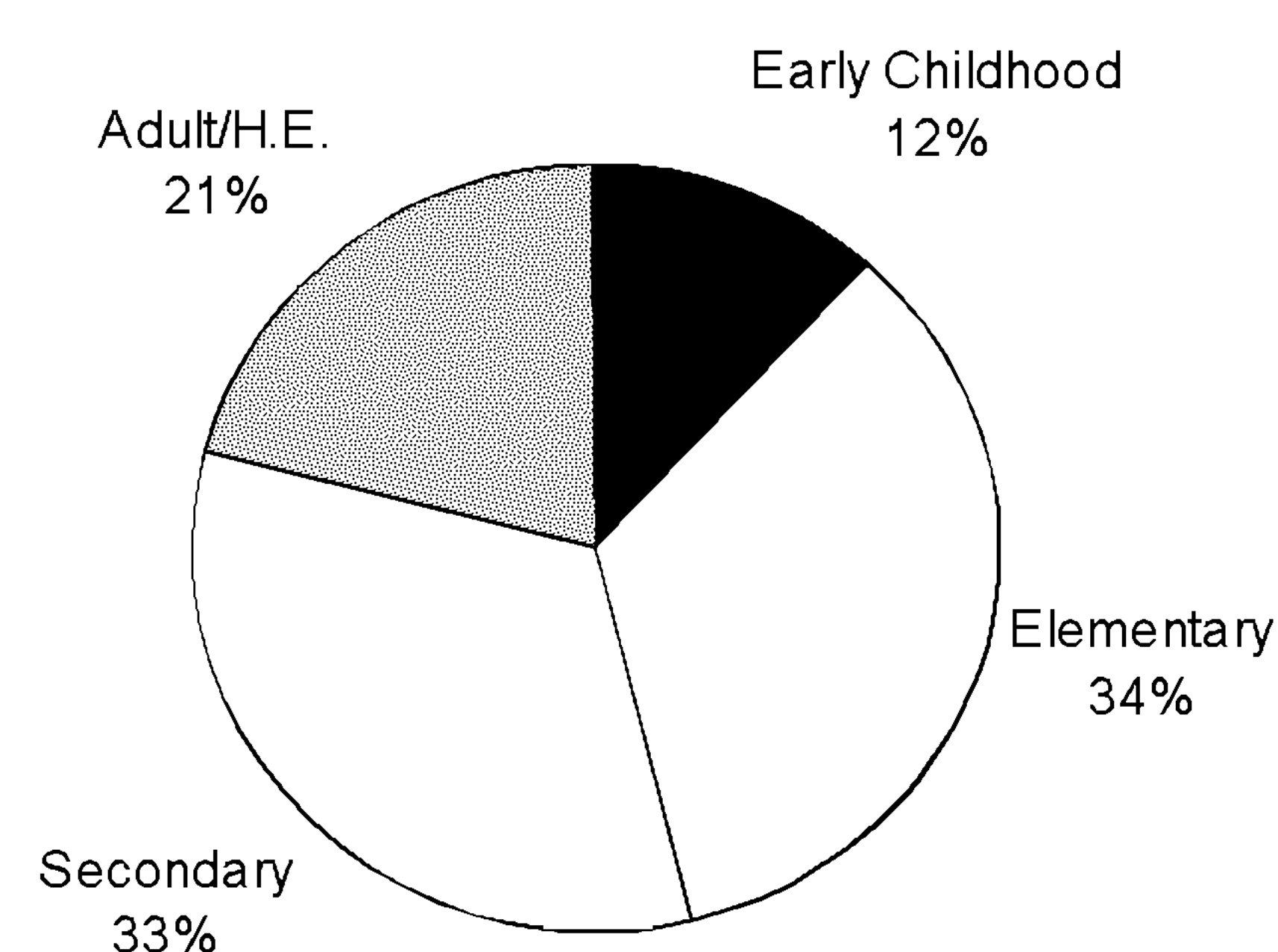
Over the past 39 years, WestEd and its two predecessors, the Far West Laboratory and the Southwest Regional Laboratory, have carried out more than 1,900 successful projects, many of them on the cutting edge, and some representing major contributions to the nation's R&D resources. The agency has from 450 to 700 active contracts and grants at any given time. The agency will operate on program funding of approximately \$70.5 million in Fiscal Year 2005, including over \$7 million a year in funding from the U.S. Department of Education for the operation of the Western Regional Educational Laboratory. Additional funding for specific projects comes from the U.S. Departments of Education and Health and Human Services, National Science Foundation, 15 state departments of education, universities, school districts, foundations, and other state and local agencies across the country.

The large variety of funding sources provide WestEd with a stable funding base and hence a stable organizational structure for carrying out the work of this proposal. Research, development, evaluation, and statistics together account for 44% of WestEd's \$70 million annual budget. Figure 1 displays WestEd's core work by type of R&D activity, based on the FY2004 project sample survey. Figure 2 shows WestEd's work by level of education served.

**Figure 1. WestEd Work:
Type of R&D Activity**



**Figure 2. WestEd Work:
Level of Education Served**



As one of the 10 regional educational laboratories for the U.S. Department of Education, WestEd has been a leader in moving research into practice by conducting R&D programs, projects, and evaluations; by providing training and technical assistance; and by working with policymakers and practitioners at state and local levels to carry out large-scale school improvement and

innovative change efforts. In developing and applying the best available R&D resources to improve the schooling environment and community-level supports, WestEd has built solid working relationships with education and community organizations at all levels, playing key roles in facilitating the efforts of others and in initiating important new improvement ventures.

Evidence of our experience and capability is provided in the following five areas specifically related to Tasks 1, 2, 3 and 4 of our proposal:

1. **Regionally Responsive Programs** (demonstrating our ability to serve the region effectively, and respond rapidly to the region's needs with high-quality products and services, as required in Task 1).
2. **Experimental and Quasi-Experimental Research** (demonstrating our capacity to conduct rigorous applied research and development, as required in Task 2 Rigorous Studies and in Task 1 Reviews — those of our Task 1 Fast Response Applied Research and Development projects that review existing studies for quality, strength of evidence, and patterns of results).
3. **Analytic Studies** (demonstrating our capacity to manipulate and analyze large data sets, as required in our Task 1 analytic projects — the largest proportion of our proposed Task 1 Fast Response Applied Research and Development projects for the first year).
4. **Dissemination of Research-Based Products and Services; Technical Assistance** (demonstrating our capacity to create user-friendly products and disseminate them widely and strategically, for maximum access and application, and to enhance access through direct, results-oriented training and technical assistance, as required for Tasks 1, 2 and 4).
5. **Collaboration with Other RELs** (demonstrating our ability to collaborate effectively with other RELs and researchers, leveraging resources and maximizing national impact, as required in Task 3).

Project summaries are included following this narrative, on both the projects mentioned and others that provide additional examples.

Regionally Responsive Programs

WestEd has not only served as the Western Regional Educational Laboratory for 39 years, but has led other initiatives of similar scope and with similar governance, planning, management, and reporting requirements. Further, during its long tenure as a regional laboratory, it has developed extensive knowledge of the region and has built the relationships and infrastructure necessary to continuously and effectively assess and respond to regional needs.

The *Western Regional Educational Laboratory (WREL)* at WestEd, serving the states of Arizona, California, Nevada, and Utah since 1966, has consistently exceeded standards for quality of products and services; over 95% of WREL clients rated services and products as good or excellent quality. WREL has also minimized problems through strong management systems and quickly resolved any problem which arose, accomplished work within budget, provided IES with accurate and timely cost information, submitted all deliverables and reports on time, and developed excellent business and customer relations. In the current contract, WREL develops tools and processes that help educators “transform” low-performing schools and to put them on the path of becoming high-performing learning communities. WREL also informs policy and develops systems, structures and networks that create a supportive context in which all schools

can succeed. (See additional information in the one-page summary.) Annual and ongoing regional needs assessment drives our selection of priority initiatives.

WestEd has also operated a wide range of technical assistance programs. The ***Region XI Comprehensive Assistance Center (CAC)*** at WestEd, serving 50 of the 58 counties in California, is a prime example of a regionally based technical assistance center. We have built strong client relationships and collaborative partnerships over the ten years we have operated the CAC, working closely with the California Department of Education as our primary client. WestEd also currently partners in two other Comprehensive Assistance Centers as a subcontractor. The ***Western Equity Assistance Center (WEAC)*** provided technical assistance to the states of Arizona, California, and Nevada for 18 years, helping to ensure educational equity and excellence to a region of high ethnic and linguistic diversity but whose students share the common characteristic of being underserved and underrepresented in schools of excellence. The ***WestEd Eisenhower Regional Consortium (WERC)*** was one of ten Eisenhower Regional Consortia. Together with the Eisenhower National Clearinghouse, WERC worked nationally and in the western region to support systemic improvements in math and science education. The ***WestEd Regional Technology Center (R-TEC)*** focused on increasing access to technology's benefits for disadvantaged and disabled learners in Arizona, California, Nevada, and Utah. The R-TEC also focused on ensuring that using technology to support student learning is informed by the latest research and leading practices in the region. The ***Northeast Regional Resource Center (NERRC)*** is one of six Regional Resource Centers for special education in the United States. The ***Regional Resource and the Federal Center (RRFC) Network*** is one of the technical assistance projects funded through the U.S. Department of Education, Office of Special Education Programs (OSEP). The Northeast RRC and other Regional Resource Centers help state education agencies (SEAs) improve their systems of early intervention, special education, and transition services through the development and implementation of policies, programs, and practices to enhance educational results for children and youth with disabilities. The ***Center for Prevention and Early Intervention (CPEI)***, a California state-funded project, offers training and technical assistance and disseminates informative resources around meeting the needs of disabled students.

Experimental and Quasi-Experimental Research

WestEd has a strong track record implementing experimental and quasi-experimental research studies — work that is directly applicable to our Task 2 randomized controlled trials and our Task 1 Reviews. Twelve large-scale randomized trials have been staged since 2004, most of which are ongoing at this time. The studies include interventions over a broad range including math curriculum materials to tobacco use prevention. WestEd's studies are conducted by research teams made up of methodologists, recruiters, statisticians, analysts, and program specialists. In all cases, the team is interested in the continuity of the experimental and control condition, the integrity of randomization, the validity and reliability of measurement, and the context within which the research is taking place.

One example is the ***Algebraic Interventions for Measured Achievement Project***. In this project, we test the efficacy of an intervention curriculum targeting specific algebraic learning trouble spots. The intervention is being delivered in after-school supplemental programs and in-school intervention classes. Students and instructors are randomly assigned to treatment and control conditions. Each curricular unit is tested at approximately 18 sites with both intervention and control students exposed to the same curricular content. The primary hypothesis-testing analysis

involves fitting linear mixed-effects ANCOVA models, with additional terms to account for the nesting of subjects within units of aggregation.

Tobacco-Related Disease Research Program (TRDRP) evaluated the long-term effectiveness of an innovative classroom animation program, *Classroom Animation Studio (CAS)*, in 20 Los Angeles Unified School District middle schools. The CAS was developed to teach students about tobacco use through the use of animation in 12 classroom-based lessons. Classrooms were the unit of randomization in this study.

Math Pathways and Pitfalls (MPP) is a study underway to assess the impact of instructional materials on 4th-6th grade students' mathematics achievement and mathematical language development. The study uses a cluster-randomized design in which 40 teachers per grade (and their students) are randomly assigned to either one intervention or one wait-listed control condition (120 teachers).

A randomized controlled trial is under way in New York City to assess the impact of the ***Quality Teaching for English Learners (QTEL)*** professional development approach using a group-randomized, experimental design with repeated measures. Approximately 200 Language Arts and English as a Second Language (ESL) teachers and 5,000 predominantly low-SES English learner students from 38 middle schools are participating in the study.

Recruitment is under way to examine the impact of the ***Integrating Literacy and Science Instruction in High School Biology*** project. The specific aim of this project is to test the effectiveness of teacher training in the integration of reading instruction and science content on student achievement in science and reading. Approximately 50 pair-matched high schools will participate in the study — half of which are assigned to an immediate professional development group and half of which are wait-listed to receive professional development subsequent to study participation. Measures include students' opportunity to learn; measures of instructional practice based on the analysis of teacher assignments; and multiple measures of student learning.

WestEd also conducts quasi-experimental studies, particularly when these are more feasible for the evaluation of programs that are underway. In our ***PBS Kids Ready To Learn Federal Performance Indicator Data Collection***, WestEd's approach builds on prior research and is designed to ensure federal performance indicators are collected in a scientifically rigorous manner. For example, to address the first performance indicator: *The percentage of children ages 3 – 6 who viewed literacy based Ready To Learn shows demonstrating expressive vocabulary skills and emergent literacy skills at or above national norms*, we developed a multiple method, quasi-experimental approach to evaluate the effects of Ready To Learn shows and workshops on the target population. Our design includes a treatment group of 300 children and a split comparison group consisting of 400 children. We are using a validated instrument to assess the identified learning outcomes and survey research to assess the effects of mediating variables.

Analytic Studies

We have proposed fast response research and development studies that include secondary analysis on existing datasets to better understand trends and relationships among variables, identify promising interventions, and clarify regional conditions and needs. WestEd has extensive experience in conducting these kinds of analytic studies.

For example, WestEd, with COSMOS, is conducting the *Longitudinal Assessment of Comprehensive School Reform (CSR) Implementation and Outcomes (LACIO)*. The evaluation involves collecting student achievement, survey, and case study data from a national sample of CSR schools paired with a set of comparison schools not participating in the program. The evaluation compares student achievement scores of all schools receiving CSR funds beginning in 2002 with those of similar schools not receiving funds; compares the existence of CSR-like components in 400 randomly selected CSR schools and 400 matched schools; assesses the effects of district and state policies on CSR implementation and outcomes in the 400 schools; and examines 30 randomly selected, demographically matched CSR and non-CSR schools through case studies. Pre-intervention student achievement scores for both CSR and comparison schools were analyzed both before and after the intervention, in addition to the counterfactual data for the CSR schools. Analyses at the direction of WestEd staff include an interrupted time series with comparison design as well as hierarchical linear modeling to distinguish state, district, and school effects.

Analyses of student achievement and other outcome measures were conducted for two states during the current WREL contract. In *Student Achievement and Graduation Rates in Nevada: Urgent Need for Faster Reform*, WestEd analyzed student achievement and graduation data. These analyses were reviewed extensively with district and state representatives and will guide planning for the current high school initiative. *California's Graduation Rate: The Hidden Crisis*, examined the methodological debate on how to measure graduation rates, provided comparisons between California and other states, and showed California results by race and ethnicity (including data from several of the state's large school districts) to illustrate trends in California's graduation rates. This report was distributed statewide.

Student Health Risks, Resilience, and Academic Performance in California: Year 2 Report, Longitudinal Analyses, examined the link between key risk and youth development factors and student performance on standardized tests. The data that were the basis of this report came from four sources: 1) aggregated health risk and resilience data from local school administration of the California Healthy Kids Survey (collected from 806,000 students in grades 7, 9, and 11, 1998–2002, representing approximately 86% of the district enrollment in the state); 2) the 1998–2002 SAT-9 test results released by CDE's Standardized Testing and Reporting Program; 3) the Academic Performance Index research files (1999–2002); and 4) the California Basic Educational Data System (1998–2002). To examine the relationship between school health risk/resilience and changes in NPR scores, we used ordinary least squares regression techniques to estimate conditional change models (Finkel, 1995) — with control for the demographic and socioeconomic composition of the school.

Dissemination of Research-Based Products and Services; Technical Assistance

As Task 1 and Task 2 research projects get underway, the expertise of both project staff and of WestEd's Communications Program will be brought to bear to ensure that research results in useful products and that these products are broadly and strategically disseminated for maximum access and implementation, as described in Task 4. Understanding the importance of effective dissemination, WestEd has employed the most up-to-date communications theories and tools to create a model Communications Program dedicated to disseminating all of its products in ways that are easy to access, comprehensible, and useful for researchers, technical assistance providers, policymakers, educators and parents alike. WestEd produces a full range of product

types — print, multimedia and, increasingly, Web-based. In all of these formats, WestEd's products have been widely recognized for quality and utility. The League of American Communications Professionals gave WestEd seven awards for excellence in the development of print and Web public relations materials in its 2004 international competition. In 2005, WestEd received top honors from the Association of Educational Publishers in four categories: best organizational Web site (for which it also received a Distinguished Achievement Award), best annual report, best product interior design (for *Successful Charter Schools Innovation Guide*), and best illustration and graphics.

The *Task Order to Eisenhower Consortium: Teachers Who Learn, Kids Who Achieve* provides an example of a valuable and widely disseminated product. WestEd distilled a descriptive research study of eight schools that won the U.S. Department of Education's National Award for Model Professional Development into a brief and compelling story of successful school reform, providing a glimpse of the culture of learning — for teachers, students, the entire community — that pervades these schools. Teacher voices and vignettes give life to the guiding principles that researchers identified across these disparate sites. Annotated lists of resources provide concrete help in putting these principles into practice.

WestEd also uses technology to disseminate knowledge in an interactive way. *Live Classroom*, a kind of Webcast technology, for example, can be used to hold virtual meetings and symposia, allowing presenters and participants to build relationships by combining state-of-the-art interactive technologies such as voice, video, application sharing, polling, and whiteboard recording, with traditional best practices of instruction. Participants can listen to and view the presentation, ask questions, join group discussions, and download accompanying resource materials — all from a remote computer. Live online events can be archived so that users can view and listen to the presentation at any time after the event. In addition, *Web Dialogues*, a proprietary WestEd application, supports asynchronous Web conferencing with a one- to ten-day structured agenda and the participation of scheduled panelists.

Dissemination is not alone sufficient to ensure that complex ideas, even though simplified, are implemented. Often, direct training and technical assistance is needed to facilitate learning and implementation of new ideas. WestEd has a long history of providing training and technical assistance in ways that yield results for educators and students. WestEd is (or has been) the parent organization for a number of centers designed to provide technical assistance and support to state departments of education. Many of these have a regional focus; others have a national client base. In addition to the regional technical assistance initiatives mentioned above, for several years, WestEd operated the *Star Schools Distance Learning Resource Network (DLRN)*, which provided technical assistance and just-in-time information about distance education to educators, administrators, state and local education agencies, and to the general public. DLRN placed special emphasis on disseminating information about Star Schools courses and resources that serve over 1,640,000 learners in 50 states. DLRN produced educational products to support the growing number of schools, colleges, and universities that use distance learning to reach rural and metropolitan learners, particularly the underserved.

In addition, WestEd has extensive experience providing direct assistance through technical assistance and coaching for low-performing schools and districts in rural and urban settings. Since the passage of California's Public School Accountability Act in 1999, for example, we have facilitated comprehensive school improvement processes in 71 schools in California's

Public School Accountability System, 13 schools in California's Comprehensive School Reform and High Priority Schools programs, 12 California districts and 5 schools designated for program improvement, and numerous schools and districts in Arizona, Hawaii, and Nevada. Thirty-five percent of our California schools and districts are rural and 65% are urban. Most of our schools have high percentages of African American students, other minority students, or English learners, sometimes all of the above; all have high percentages of disadvantaged students. Results show improvements in student achievement.

WestEd is also well known for professional development programs for teachers on a variety of topics: high school literacy, mathematics, science, and instruction of English learners. We have developed these programs over time, pilot testing and evaluating efforts to confirm effectiveness. For example, our Strategic Literacy Initiative was recently selected by the Institute of Education Sciences as one of two high school literacy programs to be studied by MDRC in a national randomized-control trial.

The *Program for Infant and Toddler Caregivers (PITC)* at WestEd's Center for Child & Family Studies, translates research into practice to serve the most vulnerable in our society: it focuses on improving and increasing the quality of services available to families with children under three years old. By training a cadre of certified PITC trainers and working through existing community college child development programs, WestEd has developed a system to increase and enhance the capacity of programs to provide evidenced-based practices in serving very young children and their families. PITC operates in 15 states throughout the country.

Collaboration with Other RELs

WestEd has a long track record of collaboration with other laboratories and research agencies and has assumed a leadership role in many of these efforts. For example, the WREL has been designated as the lead laboratory in the area of assessment by the U.S. Department of Education in the current WREL contract, and is working in more than 20 states. This has uniquely positioned WestEd to provide and broker dialogue and assistance to other Regional Laboratories and Comprehensive Centers, through our publications, events, and consulting. Examples of peer collaboration with other RELs include our work with the NWREL in the area of Smaller Learning Communities, with NCREL and SEDL on the Comprehensive School Reform Clearinghouse, with McREL and SEDL on studies of comprehensive school reform in Native American communities, with SEDL on studies of the unique needs of communities on the U.S.-Mexico border, and with the REL Network as chair of the Indicators Group.

Subcontractors

In Task 2, some studies will be carried out by subcontractors: Berkeley Policy Associates (Dr. Hans Bos, President) and Heller Research Associates (Dr. Joan Heller, President).

Berkeley Policy Associates (BPA) is an employee-owned, woman-owned, small business, based in Oakland, California, that has provided public policy research, evaluation, and consulting services to government and private sector clients for more than 30 years. BPA's staff of 25 includes a diverse group of analysts with backgrounds and expertise in the areas of public policy, economics, professional development and early childhood, primary and secondary education. As employee-owners, BPA staff participate in the risks and responsibilities of running the company,

as well as share in its profits. Small-business employee ownership motivates staff to provide superior performance and to strive to achieve the highest level of customer satisfaction. BPA places the strongest emphasis on designing and conducting high-quality research, and on producing policy-relevant reports that meet clients' needs as well as provide highly relevant information to policymakers and other stakeholders.

BPA has earned a national reputation for high-quality evaluation research and consulting in the fields of early childhood, primary and secondary education, childcare, child and youth development, welfare, and employment and training, among other fields. BPA staff have command of the most up-to-date research methodologies, coupled with a depth of experience in designing and conducting evaluations using both experimental and quasi-experimental methods.

BPA also brings to the proposed effort an in-depth understanding of the elements of effective academic professional development programs and the challenges faced by schools, school districts, and the larger community in implementing these programs. Descriptions of projects that demonstrate BPA's expertise are provided among the one-page project summaries.

Heller Research Associates (HRA) is an educational research firm based in Oakland, California. Over the past six years, HRA has evaluated over 20 publicly and privately funded projects aimed at improving teaching and learning in a variety of academic subjects including mathematics, science, and the visual and performing arts. HRA has earned a reputation for conducting rigorous, multi-method educational research and evaluation studies. Their studies often include a strong formative component based on cognitive analyses of teacher and student knowledge, to assist educational improvement projects in bringing about their intended impact on student learning. Current and recent clients include:

- Mathematics Achievement Partnership, Achieve, Inc.
- Mathematics Case Methods and Understanding Science Projects, WestEd
- National Science Foundation Math Task Bank Project, UC Office of the President
- In Quest of Excellence: Supporting National Board Certification, WestEd
- California Department of Education, Visual and Performing Arts Division
- The California Arts Project, California State University Foundation
- Community Arts Education Project, California Alliance for Arts Education

We have also selected a number of worthy colleagues as subcontractors to carry out Task 1, addressing the goal of building the capacity in our region to use high-quality research in strengthening schools and improving student achievement. Subcontractors will include the American Institutes of Research (AIR), the University of California at Berkeley, University of California at Santa Barbara, and Arizona State University. Each has the specific expertise required to carry out its proposed project.

Resources, Facilities and Equipment

Resources. WestEd's highly qualified staff are able to draw upon a rich archive of information resources that are tied to the knowledge base for school improvement and youth development. WestEd services include in-house computer searching of the ERIC database for online and education-related journals and newsletters. Additional services include online searches of national and international databases. WestEd also subscribes to Lexis-Nexis in order to search

for state and federal bills and general news. Each program area at WestEd also maintains an up-to-date library of research in its specific fields.

- Staff in the San Francisco, Oakland, Sausalito, Redwood City, and San Jose offices in California have access to major libraries at the University of California, Berkeley, Stanford University, and other university and local libraries in the Northern California area, as do the staff in each of the smaller offices, listed below, who have access to their respective university libraries.
- The WestEd office in Sacramento, CA maintains the California Early Start Library.
- WestEd's Assessment and Standards Development Services (ASDS) program maintains a measurement resources library.
- As part of its national leadership role in assessment and accountability in the Regional Educational Laboratory network, ASDS has a National Computer Systems (NCS) Opscan 5 high-speed optical mark reading scanner that allows the agency to offer efficient scanning at 3,000 pages per hour speed.
- The Arlington, VA office has an extensive library on math and science education, as well as National Center for Education Statistics (NCES), National Assessment of Educational Progress (NAEP), and National Science Foundation (NSF) publications.
- The Burlington, VT office's information center includes resources in the area of special education.

Corporate Facilities. WestEd's headquarters are located in the San Francisco business district. Completed in 1987, this six-story office building is easily accessible to public transit, freeways, and downtown hotels. Space of approximately 50,000 square feet has been designed to meet current needs. In addition to offices and work areas, the facilities include a publications center, a large multipurpose meeting/training room, six conference rooms, a videoconferencing room, guest cubicles, copier rooms, lounge areas, kitchens, and other special facilities.

WestEd's Southern California office in Los Alamitos occupies 20,000 square feet of space and has about 75 staff. The two-story research facility includes meeting rooms, classrooms, resource centers, libraries, and conference rooms. WestEd's office in Oakland, California, occupies over 26,000 square feet of office space and houses about 50 staff. This site includes a large meeting/training room and four smaller conference rooms.

WestEd also has a number of smaller field offices located in Camarillo, Redwood City, Riverside, Sacramento, San Diego, San Jose, Santa Ana, and Sausalito, CA; Phoenix and Tucson, AZ; Boston, MA; Burlington, VT; and Arlington, VA. This national spread enables WestEd to more efficiently carry out work that is national in scope, for example, to conduct research at sites across the country.

Computer Equipment and Facilities. The Desktop and Network Services team (DNS), housed in the Information Services Department, ensures that hardware, software, network, and co-location facilities function efficiently and effectively, with as little interruption as possible. The DNS team enables and supports the use of network services by monitoring network needs, and by providing assistance related to email, Internet access, network printing, peer-to-peer and group file sharing, mobile network access, security, project server administration, data recovery, telecomputing, and general troubleshooting. The team develops and maintains the Wide Area Network (WAN) and Local Area Network (LAN) infrastructure that provides staff with fast,

continuous network connectivity and access to organizational resources via the Internet. This team is also responsible for the management of co-location facilities, the development of Web and digital media servers, and enterprise server administration.

WestEd maintains over 3,000 pieces of equipment, including monitors, CPUs, laptops, and related components. Both Microsoft/Intel and Macintosh operating systems are supported. All personal computers may be used as stand-alone machines and are connected using the LAN/WAN. Computers interface with a variety of peripheral devices, including 92 high-speed laser printers and multifunction devices for the production of documents, connected through the LAN/WAN, which provide printer output at stations located throughout the agency.

WestEd uses industry-standard software packages including the Microsoft Office suite. Major applications include word processing, database management, spreadsheet, graphic development, electronic mail, scheduling, and World Wide Web browsers. SPSS and SAS are used for statistical analysis. The IMAP email system is based on industry standards and operates on Linux servers. WestEd operates a series of Linux servers running Samba for file sharing. The agency also has five Windows servers running project-based database applications and operating CostPoint, the agency's financial and accounting application housed in the Los Alamitos office. In addition, WestEd maintains 25 switches and 20 routers.

Internet access is provided through multiple T1 lines that connect the Los Alamitos and San Francisco offices. All offices with more than 10 staff have LANs that are connected via T1 and DSL. These LANs make up WestEd's enterprise WAN, which is managed from the San Francisco and Los Alamitos offices. Remote access to the email system is also available via DSL, Internet Service Providers, and an internal dial-up modem system. In total, the agency's telecommunications includes 245 telephone lines, 11 T1 lines, and 17 DSL lines.

WestEd's Web-hosting facilities use Apache Web server software, MySQL database software, extensive PERL scripts operating under ModPERL, and JAVA and PHP scripts. The agency maintains its organizational, project, and client Web sites on a series of Linux servers configured to provide backup capacity in the event of a hardware failure. These servers are located at two location facilities. One is a commercial provider, 365 Main, a state-of-the-art facility located in San Francisco. The other facility is in a California State University Network Operations Center located in the WestEd office building in Los Alamitos, California. Both locations have multiple high-speed backbone connections, battery-based backup power and long-term generator backup systems, 24 by 7 security, and extensive fire protection.

WestEd schedules upgrades of its hardware, software, and networking capabilities to keep up with changes in technology. The agency recognizes the increasingly significant role that media, computing, and information technology play in the lives, work, and continuing education of its staff and clients. A primary WestEd objective is to selectively apply effective technologies in ways that will significantly extend the work of staff and clients to meet the increasing needs of students in America's knowledge-based economy.

WREL TECHNICAL PROPOSAL

**SUMMARIES OF
PAST WORK**

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WREL TECHNICAL PROPOSAL

**SMALL BUSINESS
SUBCONTRACTING
PLAN**

(b)(4)

Institutional Overview

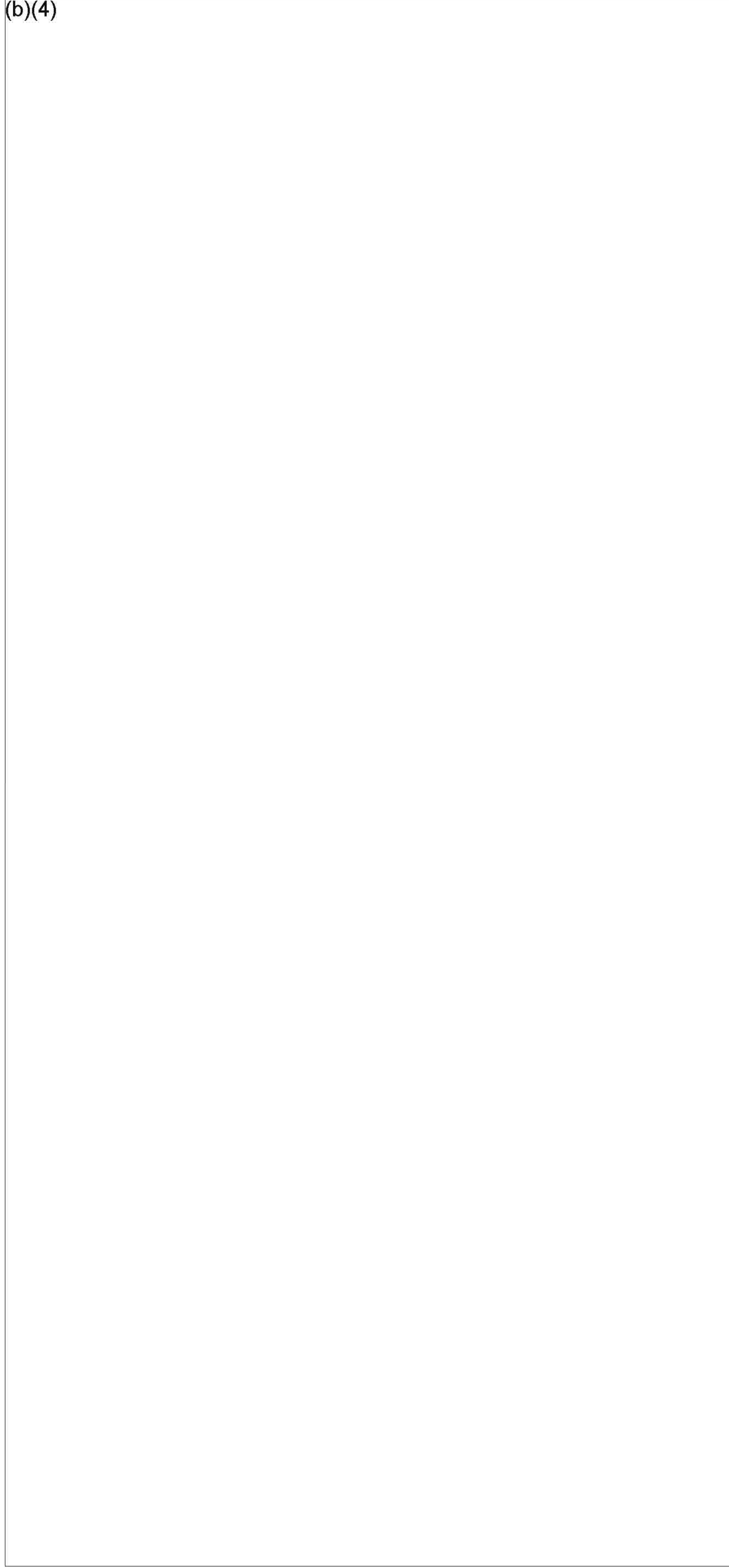
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Table 1. WREL Subcontracting Goals

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