ConnectEd
The California Center for College and Career

Transforming today's education
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Linked Learning San Bernardino: Accelerating College and Career Readiness in Low-Performing Schools

PROJECT NARRATIVE

In response to CFDA 84.411C

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August 16, 2013

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Linked Learning San Bernardino: Accelerating College and Career Readiness in Low Performing Schools

ConnectEd: The California Center for College and Career—in collaboration with the San Bernardino County Office of Education (SBCOE), the San Bernardino City Unified School District (SBCUSD), SRI International (SRI), the Institute for Evidence-Based Change (IEBC), and the Alliance for a Better Community (ABC)—is pleased to propose a novel approach to addressing i3 Absolute Priority 2—Improving Low Performing Schools. Our proposal focuses on using Linked Learning: Pathways to College and Career Success to provide low performing high schools a structure and supports for offering students a rigorous academic curriculum linked to identified requirements for postsecondary success and grounded in local employment needs. This approach to high school transformation is producing increasingly promising evidence of positive effects on student motivation and engagement, achievement, on-time grade-to-grade transition, high school completion, credit accumulation in academic courses required for postsecondary admission, and rates of postsecondary transition, persistence, and completion.

Significance of the Project

For very large numbers of this nation's young people, high school is not working. Every year, more than 1.2 million students drop out of high school, an average of 7,000 each day (Stillwell, 2011). In large urban districts like New York, Los Angeles, Chicago, Houston, and many others, as many as half of students starting ninth grade do not finish high school, and the rates are even lower for black and Latino males. The personal and social costs of dropping out are incalculable; the economic cost presently runs about $154 billion annually in foregone lifetime earnings for each cohort (Alliance for Excellent Education, 2011). In an era of rapidly increasing global competitiveness, where quality of life in the United States depends on the

continued development of cognitive and non-cognitive knowledge and skills well beyond high school, we are relegating unconscionable numbers of young people to lives on the margin, barely subsisting in an underground economy of low wages and unimaginable turmoil. Individually or collectively, this is not a recipe for success in 21st Century America.

Every state in the country is struggling to address this problem. In California, with unprecedented leadership and financial support from The James Irvine Foundation, *Linked Learning: Pathways to College and Career Success* is emerging as a promising solution, not just in a few isolated islands of excellence but in a growing number of large school districts constituting the kind of critical mass that could lead to a true transformation in high school education. For the past five years, ConnectEd and a growing number of partners have been leading and supporting nine large school districts in designing and implementing district-wide systems of Linked Learning pathways as their primary approach to high school improvement. This is "The California Linked Learning District Initiative." [1]

Over the first five years of this demonstration, an independent, quasi-experimental longitudinal evaluation conducted by SRI International has studied the progress of this Initiative. In each of the initial nine districts, student participation in Linked Learning pathways has grown enormously, exceeding 35 percent of enrollment in most and on a trajectory to exceed 50 percent

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[1] To date, Linked Learning has been primarily a California Initiative. However, in January 2013, with support from The Ford Foundation and The Skillman Foundation, ConnectEd launched Linked Learning Detroit. Additionally, ConnectEd is supporting Linked Learning initiatives in Houston, Texas and in a growing number of regions in Wyoming, which offers the opportunity to better understand how best to adapt Linked Learning to more rural areas with small schools and a less diverse employer base.

or more in nearly all nine LEAs by 2015.[2] Most importantly, the evaluation is producing evidence that the Initiative is achieving significant improvements in a range of important student outcomes—motivation and engagement, attendance, achievement, credit accumulation, on-time grade-to-grade transition, high school completion, to name just a few (Guha et al., 2012).

Responding to the growing interest in Linked Learning, as well as the preliminary evaluation results, the California Legislature in 2012 enacted AB790, which directed the California State Department of Education (CDE) to establish a Linked Learning Pilot that would invite additional LEAs to undertake implementation of Linked Learning. Though there was no assurance of state funding (California is just now emerging from its worst fiscal crisis in history), district interest in becoming part of the pilot was overwhelming. In January 2013, CDE announced the selection of twenty new pilots, which collectively included more than 50 new LEAs. Combined with the original nine districts in the California Linked Learning District Initiative, the AB790 pilots represent more than one-third of all high school students in the state.

One of these pilots is *Linked Learning San Bernardino*, a countywide consortium comprised of five LEAs, including San Bernardino City Unified School District, the primary focus of this proposed project. Covering more than 20,000 square miles, San Bernardino County is the largest county in the United States. Its county seat, the city of San Bernardino, has a population of 210,000, the 17th largest city in California and the 99th largest city in the United States. Until Detroit's recent filing, the city of San Bernardino had the unfortunate distinction of being the largest city in the country to file for protection under Chapter 9 of the U.S. Bankruptcy code.

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[2] The initial nine school districts included Antioch Unified, Long Beach Unified, Los Angeles Unified, Montebello Unified, Oakland Unified, Pasadena Unified, Porterville Unified, Sacramento City Unified, and West Contra Costa Unified.

San Bernardino City Unified School District (SBCUSD) enrolls 54,400 students, including 13,700 students in high school. Among the student population, 72 percent are Latino, 15 percent are African American, 85 percent qualify for free and reduced lunch, and 29 percent are English learners. Four of five of the district's long-established high schools are among the state's lowest performing high schools, classified as in either Tier 1, 2, or 3 of program improvement. A sixth high school, just opened last year, has not yet been open long enough to be assessed.

Linked Learning San Bernardino, like other members of the new AB790 Linked Learning Pilot and the California Linked Learning District Initiative, has embraced Linked Learning as its primary strategy for transforming high schools (and in many cases, K-12 education more broadly). The consortium's single largest LEA, San Bernardino City Unified, provides a unique opportunity to demonstrate, in four low-performing high schools, the effectiveness of Linked Learning in significantly raising the cognitive and non-cognitive proficiencies of young people, especially those most at risk of either dropping out of school or finishing high school inadequately prepared for lasting success in further education, career, and life.

A Novel and Unique Approach

Linked Learning is transforming education for California students by integrating rigorous academics with career-based learning and real-world workplace experiences. Linked Learning prepares young people for *both* college and career, not just one or the other. It ignites high school students' passions by creating meaningful learning experiences through career-oriented pathways in fields such as engineering, health care, digital media arts, law, and more. When students love what they're learning, they work harder, dream bigger, and learn more.

Each Linked Learning pathway—spanning grades 9 through 12 and enrolling about 300-400 students per pathway—consists of four essential components for *all* students: 1) rigorous

college-preparatory academics emphasizing real-world applications and preparing students for success in California's community colleges and universities, as well as in apprenticeships and other postsecondary programs; 2) career-based learning that delivers technical knowledge and skills through a cluster of four or more courses, emphasizing the practical application of academic learning and preparing students for high-skill, high-wage employment; 3) work-based learning via job shadowing, apprenticeships, internships, school-based enterprise, and professional skill-building opportunities—all giving students opportunities to interact with working adults around authentic problems and projects; and 4) personalized supports that include counseling and supplemental instruction in reading, writing, and math to help students master the rigorous academic and professional skills necessary for success in college and career.

Three features distinguish Linked Learning from other reform strategies. *First*, Linked Learning is an approach, not a model. There is no one right way to implement Linked Learning. It can be implemented through small theme-based high schools (e.g., Health Professions High School in Sacramento), theme-based small learning communities, National Academy Foundation Academies, career academies, California Partnership Academies, and other specialized approaches like Big Picture Schools, New Tech Schools, or High Tech High in San Diego. This feature has considerable advantages related to implementation fidelity and scaling up: reduced resource requirements, increased likelihood of buy-in among faculty and staff, and an ability to articulate with changing local employment needs.

Nevertheless, whatever the approach, the *second* feature of Linked Learning is strict adoption of the four essential components of Pathway design and a commitment to achieving formal Linked Learning *Certification* (Stearns, 2013). This Certification relies on specific detailed quality review criteria in four areas: 1) Pathway Design, 2) Engaged Learning, 3)

District System Support, and 4) Data and Impact (See Appendix J). Trained teams use these criteria and a *Certification Rubric* (See Appendix J) to determine whether a pathway is ready to be recognized as certified. In short, Certification establishes clear, specific criteria for what constitutes high quality pathway design and implementation. Based on these criteria, it recognizes and celebrates pathways that attain and sustain these standards of excellence.

In some respects, Linked Learning Pathways are not a new idea. Career academies and theme-based magnet schools have existed for some time (though rarely with careful attention to high quality design and implementation). However, more often than not, the best examples of academies and theme-based high schools exist *in spite of the system,* not because of it. Typically, they have been the product of a visionary school principal or a dedicated, innovative group of teachers. And all too often, when these founders depart, their innovations disappear.

Consequently, the *third* distinguishing feature of Linked Learning is unflagging attention to building a *systemic* district-wide—indeed community-wide—approach to Linked Learning. Within a district, or a larger region of districts, students have access to a menu of Linked Learning pathways, and there is ongoing attention to developing the district/regional infrastructure—stakeholder coalitions, policies, and procedures—that can improve, expand, and sustain high quality Linked Learning over time. Concretely, some of the systemic features that require attention include 1) commitment to Linked Learning as the central high school improvement strategy and making that commitment the top priority of at least one cabinet-level administrator, as well as the Superintendent and the School Board; 2) developing and adopting a district graduate profile that clearly outlines what the community expects students to know and be able to do to succeed in further education and career; 3) district policies regarding recruitment of high school principals and lead pathway teachers, 4) district polices with regard to school

choice; 5) regional/district strategies to scale work-based learning; 6) commitment to more and better learning time, through extended day, extended year, and better integration of after school activities; and 7) realigning high school master schedules to support cohort scheduling and students' active participation in a comprehensive, coherent program of study that includes core academics, technical courses, work-based learning, and personalized supports.

The project proposed here focuses on demonstrating and evaluating the impacts of Linked Learning on cognitive and non-cognitive student outcomes at the *school* level. Resource limitations, as well as the need for a tightly focused research design, will not allow us to evaluate the larger systemic strategies that are part of the Linked Learning approach. However, it is important to emphasize that this project will rest within a larger systemic framework, helping to ensure that the school improvements and student gains will be sustained.

Contribution to Theory, Knowledge, and Practice

The proposed project will contribute to theory, knowledge, and practice in two important domains: 1) greater understanding about how Linked Learning, and the career academy model on which Linked Learning builds, affects important student outcomes, both cognitive and non-cognitive; and 2) a deeper focus on Linked Learning's effects on non-cognitive student outcomes in low performing schools, particularly motivation, self-efficacy, engagement, and persistence.

Linked Learning, Career Academies, and Student Outcomes

Linked Learning builds on the career academy "model," which has become increasingly popular in a growing number of high schools throughout the United States. Linked Learning pathway design and implementation relies heavily on several important studies, perhaps most prominently the longitudinal experimental study of career academies, conducted by MDRC (Kemple, 2000, 2004, 2008). For a sample of nine academies operating in the mid-1990s, the

study compared students who were and were not randomly admitted to career academies from a pool of applicants. The academies were located in schools that served mainly low-income minority students. The research found that:

- Career academies improved attendance, increased academic course taking, and increased the likelihood of earning enough credits to graduate on time.
- Among students who were most at risk of dropping out of high school, career academies were effective in keeping students in school through their senior year.
- The career academies produced sustained earnings gains, averaging 11 percent (or $2,088) more per year for academy group members than for those in the non-academy group—a $16,704 boost in total earnings over eight years of follow-up (in 2006 dollars).
- Labor market impacts were concentrated among young men of color, a group that has recently experienced a severe real earnings decline. As a result of increased wages, hours worked, and employment stability, real earnings for young men in the academy group increased by $3,731 (17 percent) per year—nearly $30,000 over eight years.

The MDRC study found that academy students performed no better, and no worse, on standardized tests of academic achievement than their peers in the control group. In some respects, this result is not surprising as the curriculum and instruction in the core academic courses in academies in the late 1990s were not substantially different from curriculum and instruction received by the control group. In English, biology, or algebra, for example, there was little or no attention to project-based learning and other forms of authentic application that can deepen students understanding and engagement by helping them better understand why they need to know what they are being asked to learn.

Additionally, while the MDRC study was cognizant of the importance of fidelity of

implementation, its ability to define and assess quality of academy design and implementation was very limited. The researchers had few tools to measure quality or strategies to help ensure that the interventions under investigation were consistently designed and implemented.

Linked Learning has the benefit of such tools and strategies—including much greater clarity about the essential components of pathways and methods for assessing quality, as well as a growing library of "integrated" curriculum and project-based learning resources (now aligned to the Common Core) aimed at improving instruction in the core academic courses that are part of pathway design (Rustique, E & Stam, B, 2013). Hence, the study proposed here should contribute to a much better understanding about how to design and implement pathways, in the form of academies or other delivery strategies, contributing to better cognitive student outcomes.

Linked Learning's Impact on Students' Non-Cognitive Skills

Cognitive, or academic skills, only go so far in helping students achieve at high levels in high school, college, and life. Recent research indicates that non-cognitive skills, such as work habits, goal setting, and time management are equally or even more important influences on many academic and socioeconomic outcomes, including college graduation, earnings, and employment stability (Bowles et. al., 2001; Bowen et. al., 2009; Heckman, et. al., 2006). Closely related psychological traits, such as motivation, grit, and perseverance, and students' beliefs about their ability to succeed at challenging academic tasks (academic self-efficacy) are also key drivers of academic achievement independent of the effects of cognitive skills (Lennon, 2010).

These non-cognitive skills and psychological traits lead to important academic behaviors that characterize successful high school students and influence their grades: regularly coming to school, turning in quality work, and enrolling in and completing challenging courses. Fortunately, research on non-cognitive skills and traits indicates that these are not fixed behaviors or

personality characteristics and that specific programs and practices, such as modifying school structures and instruction, can improve students' motivation for high academic achievement and increase their engagement in learning (Schunk and Pajares, 2002; National Research Council and Institute of Medicine, 2004; Farrington et. al., 2010).

In this proposal, motivation and self-efficacy are the major intervening non-cognitive/psychological factors in our model of Linked Learning's effects on student academic achievement. Academic engagement (school attendance, and GPA[3]) and academic persistence (college-preparatory course completion) are the key intervening academic behaviors.

How does Linked Learning influence the non-cognitive skills, psychological traits, and academic behaviors that lead to high academic achievement? Linked Learning pathway design and recruitment practices, and coaching and professional development, as well as new learning and teaching strategies, directly foster intrinsic academic motivation and self-efficacy by (1) requiring districts and high schools to choose pathway themes that address student interest; (2) allowing and supporting students to choose a pathway that is based on their personal interest, (3) engaging students in authentic, career-related academic projects and tasks that are motivating and engaging because they are relevant to local communities and students' lives; and (4) helping students develop the learning strategies and higher-order thinking skills, such as meta-cognition, goal-setting, time management, problem-solving, critical thinking, and reasoning, that lead to

[3] Researchers have shown that GPA is a stronger predictor of high school and college performance and completion than are standardized test scores. They attribute this effect to the dual influences on a student's grade point: content knowledge and academic behaviors, such as applying good learning and study skills, turning in homework, and attending and participating regularly in class (Bowen et. al., 2006; Farrington et. al., 2010).

academic self-efficacy and are essential for success in challenging academic work (National High School Center, 2007; Farrington et al., 2010).

Students engage deeply in Linked Learning's authentic career-related lessons and interdisciplinary projects because they believe the problems are important, worthwhile, and personally meaningful. For example, for several years students in a digital media arts pathway in San Diego worked with a local advertising agency on all phases of a public service campaign—including creating a website and print materials—to clean up local beaches. This type of problem and inquiry-based instruction—including on-going formative feedback from teachers and industry partners—helps build complex thinking and problem-solving skills and intrinsic academic motivation, enhancing students' desire for academic achievement, and empowering them to become both autonomous and collaborative learners.

Improvement in Outcomes

"Rigor, relevance, and relationships" has become a mantra for K-12 education reforms, and especially for high school-focused initiatives. However, a clear and strong strategy to create *relevance* has been missing from most approaches to improve students' cognitive and non-cognitive outcomes. Linked Learning establishes relevance throughout a comprehensive program of study in high school—in all courses that are part of the academic core in grades 9-12; in the cluster of four or more technical courses; in work-based learning; and in supplemental instruction in reading, writing, and mathematics. Even most career academy models have not done a good job of infusing real-world application into academic offerings and significantly changing teaching and learning in conventional English, mathematics, science, social studies, and world language offerings. Does Linked Learning's more concentrated and comprehensive infusion of relevance produce better results? Early evidence is promising, and the proposed

project will deepen our understanding considerably.

Quality of the Project Design

How the Project Addresses Absolute Priority 2

The proposed project introduces the Linked Learning approach into four of California's lowest performing high schools, all located in one of most economically disadvantaged cities in the country. Although the research will focus on school and student outcomes, the initiative is not simply a "school" turn-around strategy; it is a *district*—or even more appropriately a *community and regional*—turn-around strategy. The Linked Learning approach recognizes that addressing individual low-performing schools—without attention to the surrounding district, community, and regional factors that can contribute to true and lasting improvement—is not likely to succeed.

Additionally, the proposed project has an explicit and highly developed strategy for infusing relevance throughout a rigorous academic and technical program of study in ways that are likely to increase not only cognitive student outcomes, but also the non-cognitive outcomes that are the focus of Sub-Priority (b). In the Linked Learning approach, relevance permeates all aspects of students' high school experience, not just isolated courses or after-school experiences.

Project Goals and Plan to Achieve Them

Improving low performing schools is hard, slow work. It requires clarity about college *and* career readiness, major changes in school and district culture, different approaches to teaching and learning, new forms of assessment, and innovative ways to engage employers in work-based learning opportunities with real knowledge transfer rather than low-level volunteerism. At the heart of this work is a commitment to being student-centered. "Why do I need to know this?" is a fair question. Rarely do we educators provide thoughtful, honest, and appealing responses.

Linked Learning and its systemic approach to design and implementation offer a very promising answer. Linked Learning not only emphasizes real-world application of challenging academic and technical knowledge, but it also provides students with a flexible pathway to further postsecondary education and career success. Its objective is not to force students to "choose" a career, especially in a world where young people will move through multiple careers, many not yet even defined. Rather, the industry theme provides focus, context, and coherence for mastering a generic foundation of academic and technical knowledge and skill that enables lifelong learning and career success. Linked Learning also provides a powerful framework for engaging employers in school partnerships that go well beyond painting hallways on the weekend or simply writing a check.

With this conceptual underpinning, the proposed project has six objectives:

1. In two low-performing high schools, San Bernardino High and Arroyo High, each with two existing California Partnership Academies (CPAs) serving as the foundation for developing *certified* Linked Learning pathways, within three years achieve a level of high quality pathway implementation that leads to Linked Learning Certification and produces statistically significant gains on a range of cognitive and non-cognitive student outcomes, in comparison to similar students not participating in Linked Learning Pathways. By the end of the project, these 4 pathways will grow to enroll as many as 1,600 students in grades 9-12.
2. In San Bernardino High School and Arroyo High School, as well as in two other low-performing high schools (San Gorgonio High and Pacific High), design and implement at least two *new* Linked Learning Pathways in each high school, which by the end of four years have achieved a level of high quality implementation that leads to Linked

Learning Certification, and produces significantly measureable gains on a range of cognitive and non-cognitive student outcomes. By the end of the project, as many as 3,200 additional students will participate in these new pathways annually.

3. By the end of year four, more than 35 percent of SBCUSD high school students will enroll in these twelve high quality, *certified* Linked Learning pathways and provide credible evidence of improved student performance with respect to attendance, discipline, on-time grade-to-grade transition, credit accumulation in rigorous academic and technical courses, achievement on standardized tests, completion of *juried* work-based learning experiences, and production of high quality student work resulting from systematically assessed, cross-disciplinary project-based learning experiences in grades nine through twelve.
4. In SBCUSD, develop the policies and systems—e.g., school choice, transportation, recruitment and placement of school principals, internal coaching and professional development, intra- and inter-school scheduling, common planning time, team teaching, work-based learning coordination, and postsecondary articulation—that can support, expand, and sustain Linked Learning;
5. Develop, implement, and use a system of Linked Learning student performance metrics, data collection, analysis, and reporting that can support rigorous evaluation and continuous improvement at the pathway, school, district, and regional levels;
6. Following a well developed logic model (Exhibit 1, Appendix J), conduct a rigorous, quasi-experimental longitudinal evaluation tracking pathway students' cognitive and non-cognitive performance versus similar students not participating in pathways and also assessing fidelity of implementation at the school, district, and regional levels.

From the work we have done over the past five years in the nine large California districts making up the California Linked Learning District Initiative, we have learned that the key strategies for accomplishing these objectives include the following: 1) in-depth needs and capacity assessment and implementation planning; 2) intensive "transformational" coaching at the pathway, school, and district levels; 3) ongoing leadership and professional development that build communities of practice across schools and districts; 4) community/regional coalition building among key stakeholder communities, especially to support work-based learning for all students; 5) strategic communications to build awareness and understanding among employers, parents, and community leaders; 6) online support for professional development, work-based learning, and communities of practice, 7) agreement on quantifiable metrics for college and career readiness and the data systems to produce, analyze, and report progress in a timely and effective way, and 8) reporting systems that support external evaluation and continuous program improvement.

Potential Risks and Strategies for Mitigating

The single most important lesson we have learned over the past five years of work in California is that success depends on *sustained* leadership at the district, school, and pathway levels. The departure of a superintendent, a school principal, or lead teachers (both academic and technical) can disrupt a reform strategy that takes at least four to five years to take root firmly and begin to thrive without external supports. During the past five years, California's fiscal crisis, requiring spending cuts of 20 to 30 percent in most LEAs, has produced teacher layoffs that have undermined critical investments in professional development to build teachers' capacity to teach differently in ways that emphasize real-world application, interdisciplinary project-based learning, team teaching, and work-based learning. Our close attention to district policies that

stress the qualities of superintendents, principals, and teachers needed to sustain this work has helped to mitigate (though admittedly not eliminate) the deleterious effects of turnover. Fortunately, California's emergence from fiscal crisis and planned restoration of school funding over the next five years should significantly reduce the degree of teacher turnover in pathways, and our continued emphasis on leadership development and systemic policies will help further mitigate the effects of "normal" changes in leadership.

Management Plan

ConnectEd, along with SBCOE, will have primary responsibility for technical assistance and professional development, including: 1) pathway design and program of study, 2) project-based learning, curriculum integration, and team teaching, 3) work-based learning and performance assessment, 4) building SBCUSD's internal capacity to coach high school principals and pathway lead teachers, and 5) using the data dashboard and formative evaluation results for continuous improvement. IEBC will be responsible for helping SBCUSD develop the Linked Learning Data Dashboard and support data development, collection, and reporting, as well as integrating this effort with their current Linked Learning Data Collection and Reporting System. SRI International will conduct the independent, quasi-experimental evaluation. The Alliance for a Better Community will focus on strategic communications and building buy-in among parents and employers. We propose a four-year time line for the project, with a budget of $3 million. The James Irvine Foundation has already committed a matching grant of $1.4 million.

Commitment of Key Partners and Stakeholders

Appendix G contains Memoranda of Understanding (MOUs) with each of our partners—SBCUSD, SBCOE, SRI, IEBC, and ABC. It also verifies the private sector match of $1.4 million provided by The James Irvine Foundation, which more than triples the 15 percent matching

requirement. It includes a letter of commitment from the *San Bernardino Alliance for Education,* a long-standing and extraordinarily active partnership of business and educators in the San Bernardino region. Equally important, we have documented the strong support of the California legislature and the statewide Linked Learning Alliance, key stakeholders in continuing to scale Linked Learning in California, building on the experience of *Linked Learning San Bernardino* and other regions embracing Linked Learning.

Ensuring Feedback and Continuous Improvement

To provide feedback and promote continuous improvement, we will employ two strategies. First, IEBC will work with SBCUSD to implement the Linked Learning Data Dashboard, which is required for all districts in the Linked Learning Initiative. The Data Dashboard tracks key indicators of 1) Engagement (e.g., attendance, high school completion, suspensions and disciplinary actions), 2) Achievement (e.g., GPA, "a to g" course completion, math and ELA test scores), 3) Work-based Learning (e.g., internships, skill certificates earned), and 4) Postsecondary Outcomes (e.g., dual enrollment, postsecondary enrollment, 1st-year credits earned, persistence, and attainment). Second, as part of its ongoing four-year evaluation (see below), SRI will produce qualitative and teacher survey data that will provide formative feedback; describe the development of pathways over time; ensure successful project implementation; identify factors that support pathway development; and describe facilitators and barriers for developing pathways in other schools and districts. ConnectEd, in partnership with IEBC and SRI, will conduct annual workshops with district and school leadership on using information from the Data Dashboard and Formative Evaluation for ongoing improvements in Linked Learning pathway design and implementation in SBCUSD.

Personnel

Staffing Plan and Assigned Responsibilities

Jennifer Phillips, M.A and M.A.T, ConnectEd's Director for Pathway Learning and Teaching, will serve as Project Director. Prior to joining ConnectEd, she was Vice-President for Teaching and Learning at Envision Schools and also has many years of experience as a transformational coach for Oakland Unified School District. **Roman Stearns, Ed. M.**, ConnectEd's Director for Leadership Development, who also leads the California Linked Learning District Initiative, will assist her. **Gary Hoachlander, Ph.D.**—President of ConnectEd and one of the nation's leading authorities on Linked Learning, career and technical education, and high school reform—will serve as an advisor to Ms. Phillips and Mr. Stearns.

For SRI International, **Nancy Adelman, Ed.D.**, will serve as senior advisor, with **Roneeta Guha, Ed.M.,** serving as principal investigator and **Nicole L. Arshan, Ph.D.**, as project director and lead quantitative analyst. Dr. Adelman has over 20 years of evaluation experience, including her role as principal investigator on the Irvine Foundation's evaluation of Linked Learning. Ms. Guha has over ten years of evaluation experience and currently serves as the project director of the California Linked Learning District Initiative evaluation. Dr. Arshan specializes in causal design and experimental and quasi-experimental evaluation of education interventions; she currently is lead quantitative analyst for the California Linked Learning District Initiative evaluation and the National Writing Project's College Ready Writer's Project, an i3-funded RCT.

Lauren Davis Sosenko, M.S. will lead the i3 data collection efforts for IEBC. Ms. Sosenko has led the data efforts for the Linked Learning District Data Initiative over the last two years. Her team worked with districts to collect relevant data, linked these data across several sources, and provided data back to the sites through online analytic tools. Prior to joining IEBC, she

served as Associate Director for Special Projects for the California Partnership for Achieving Student Success (Cal-PASS). Prior to Cal-PASS, she was a research associate at WestEd where she directed evaluations of dropout prevention and college preparation materials.

Year One Detail

The chart below details, for Year One of the project, the major tasks and responsibilities of ConnectEd and each supporting partner.

	Year 1			
Major Tasks by Partner	**2013-2014**			
	Fall	**Winter**	**Spring**	**Summer**
ConnectED/SBCOE				
One-Day Linked Learning Orientation Workshop	x			
Two-Day Needs and Capacity Assessment Workshop	x			
School Pathway Coaching—.5 day per week per school		x	x	
Pathway Planning Workshop		x		
2014-15 Pathway Implementation Plan			x	
Linked Learning Summer Institute				x
Institute for Evidence-Based Change (IEBC)				
Assessment of SBCUSD existing data capacity	x			
Plan for Developing Data Dashboard	**x**			
Plan Data Collection with SRI	x	**x**	**x**	
Student Outcome Data Collection				**x**
Prepare and transfer data files to SRI				**x**
SRI International (see Appendix J for detailed Evaluation Gantt Chart)				
Qualitative Data Collection		**x**	**x**	**x**
Student Outcomes Data Collection				**x**
Teacher Outcomes Data Collection			**x**	**x**
Implementation Fidelity Measures	x			
Analysis and Reporting				**x**
Alliance for a Better Community				
Communications Plan		x		
Parent Workshop		x		

	Year 1			
Major Tasks by Partner	**2013-2014**			
	Fall	**Winter**	**Spring**	**Summer**
Employer Workshop		x		
Management & Communication				
Monthly Management Mtgs for all partners	x	x	x	x

Evaluation Plan

Overview of the Project Evaluation Design

ConnectEd has engaged SRI International as the independent evaluator of *Linked Learning San Bernardino*. The evaluation will include: (1) a formative assessment to provide feedback for improvement, (2) a rigorous quasi-experimental design (QED) to assess the impact of *Linked Learning San Bernardino* on student outcomes, and (3) quantitative and qualitative measures of implementation with an eye towards replication of the project. SRI will share findings through annual memos and regular project briefings, providing ConnectEd and collaborating partners the data necessary to support implementation of the Linked Learning approach with fidelity. Two reports, one at baseline and the other at the conclusion, will summarize evaluation findings.

Evaluation Questions

SRI will address the following research questions: (1) *Distal outcomes*: What is the impact of *Linked Learning San Bernardino* on student outcomes, including measures of student non-cognitive, school achievement, and learning gains? (2) *Proximal outcomes:* To what extent do pathway teachers implement the core components of the Linked Learning approach? (3) *Implementation fidelity:* To what extent do pathway teachers participate in coaching and professional development related to *Linked Learning San Bernardino*? (4) *Replication:* What contextual factors impede or enhance implementation of *Linked Learning San Bernardino*? The evaluation follows the logic model included in Appendix J. This appendix also includes a

full four-year Evaluation Plan Gantt Chart.)

Data Collection

To answer the research questions above, SRI will collect data from multiple sources. Timelines are presented in Appendix J.

Extant Student Data. To assess students' school success and learning gains, SRI will collect extant district data for students in all four schools from IEBC. These longitudinal files will include: student demographics; pathway participation; standardized test scores; attendance; graduation; and course data.

Student Surveys. SRI will develop a student survey to assess non-cognitive skills and psychological traits (e.g., motivation and self-efficacy), drawing on scales validated with high school populations. SRI plans to use the Sources of Academic Self-Efficacy Scale (α=.91) and Academic Motivation Scale, (α=.64 to .93, depending on sub-scale). SRI will work with both IEBC and SBCUSD to ensure that student survey data will be linked to extant student data.

Teacher Surveys. SRI will develop and annually administer a teacher survey aligned to the Linked Learning Certification Rubric. SRI will administer these surveys to all teachers. For teachers affiliated with a pathway, questions will ask about pathway and non-pathway classes separately, to allow for within teacher comparisons of pathway and non-pathway classes. These surveys will provide systematic, annual data on the extent to which pathway teachers implement the elements of the Linked Learning approach and the extent to which district-provided supports and structures impact their work.

Phone Interviews and Site Visits. SRI will conduct site visits to the four schools at the beginning and end of the grant period to understand the baseline conditions and development of the pathways over the grant period. In other years, SRI will conduct phone interviews with key

stakeholders, school and pathway leaders, and professional development and technical assistance providers. Qualitative data collection will focus on the school and district policies and practices shaping implementation; perceptions of implementation; supports and barriers to successful implementation; development of key pathway features; and perceived outcomes.

Participation Monitoring. To measure implementation fidelity, SRI will collect records from ConnectEd on both the dosage and topics of support provided to assist teachers and school leadership in pathway development.

Design and Data Analysis

Student outcomes. SRI will take advantage of the differing levels of pathway implementation at baseline (i.e., existing CPAs in San Bernardino High and Arroyo High that serve grades 10-12 and new pathways developed at all four schools to serve grades 9-12) by conducting two separate QEDs to assess the effect of *Linked Learning San Bernardino* on students' non-cognitive, school success, and learning gains. QED 1 will follow a single cohort of students at two schools with pre-existing CPAs through the 12th grade and will include student surveys in addition to extant student data. QED 2 will look at 9th grade outcomes of students at all four schools in new pathways developed during the grant period and rely on extant student data. SRI will collect qualitative and teacher survey data at all schools and pathways. By concentrating data collection efforts on the mature pathways and analyzing only extant data on students in the developing pathways, this dual QED design maximizes both project resources and the opportunity to learn about student and teacher outcomes as pathways develop.

Both QEDs will examine the effect of *Linked Learning San Bernardino* on behavioral and school success outcomes, including attendance, credit accumulation, course failures, GPAs, and completion of courses required for enrolling in California's state university systems. The design

studying more mature implementation will also include the student survey outcomes and standardized test scores, discussed below. Both QEDs will use propensity score matching to compare students enrolled in the Linked Learning pathways to similar students (i.e., students not in a pathway) in the same school, creating groups that are equivalent at baseline on demographic factors as well as baseline measurements of achievement, behavioral, and schooling outcomes available in district data. SRI will employ Ordinary Least Squares (OLS) models using fixed effects to control for school level differences and a binary indicator for student enrollment in a pathway to estimate the effects of the treatment. This school fixed effects model does not treat pathways as representative of the population of such pathways and, as such, does not require the clustered power required of an HLM model (Kemple & Wilner, 2008). These QEDs allow for an MDES of .17 and .18, respectively, providing adequate power to detect an effect of the intervention.[4]

QED 1. For the pathways that can more quickly and fully develop from CPAs into Linked Learning pathways over the timeframe of the intervention, SRI will estimate the longer-term effects of the Linked Learning approach. Pathway students in QED 1 will be matched according to demographics and prior achievement measures from 8th and 9th grade. In addition to those

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[4] We estimated an MDES for standardized test scores in QED 1 and school success outcomes in QED 2 given the availability of outcome data. For QED 1, each of the four CPAs currently enrolls an average of 79 10th graders. Allowing for 15% attrition by 12th grade (far higher than observed in the SRI evaluation of the California Linked Learning District Initiative) this gives a treatment group size of 269 in 12th grade, with an assumed average student-level R^2 of .77 (Hedges & Hedberg, 2007). For QED 2, we assumed eight new pathways developed with similar average enrollment as existing CPAs. We allow for a smaller R^2 of .5, given that school success outcomes may have more measurement error.

described above, outcome measures in QED 1 will include both English language arts (ELA) and mathematics scores from the California High School Exit Exam (10th grade) and Smarter Balanced assessment (11th grade). In QED 1, SRI will administer student surveys to students in the 9th and 12th grades, providing measurements of student motivation and self-efficacy as both a prior achievement and outcome variable. Including the non-cognitive measures generally cited as unobserved in such studies will minimize the selection bias inherent in many QEDs, providing stronger evidence as to the effectiveness of the program (Murnane & Willet, 2010).

QED 2. QED 2 will focus on new Linked Learning pathways developed during the grant period. SRI will match students according to demographic and outcome measures collected from students' middle school years and assess outcome measures in the students' 9th grade year.[5] QED 2 will allow SRI to assess the effect of pathways developed in a relatively short span of time without the benefit of building on existing CPAs.

Pathway outcomes. SRI will monitor and assess the development of pathways using both interview and teacher survey data. SRI will compare teacher survey data from pathway teachers in pathway classes to answers from (1) these same teachers in their non-pathway classes and (2) teachers who are not affiliated with a pathway. These results will be analyzed both at the individual pathway level, to track the development of pathways over time, and at the district level to assess the overall impact of *Linked Learning San Bernardino* on teacher practice.

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[5] SRI will monitor pathway development over time using both the teacher survey and qualitative data collection. If pathways mature fast enough to include 10th grade outcomes (i.e. for those cohorts beginning in the 2014-15 or 2015-16 school years), analyses for QED 2 will include not only the school success and attendance outcomes, but also 10th grade California High School Exit Exam scores.

Implementation and replication. Annually, SRI will analyze participation monitoring data to measure dosage and content of the professional development and other supports provided by ConnectEd to pathways, providing a measure of implementation fidelity. SRI will use teacher survey data to assess the extent to which teachers adopt pathway features in their classrooms and participate in Linked Learning skill development activities not captured in ConnectEd records. SRI will transcribe and code data from interviews and triangulate these results with quantitative implementation data. Analyses of these data will also examine similarities and differences across pathways and schools to inform replication in other schools and districts.

Formative Feedback. Qualitative and teacher survey data will inform formative feedback to ConnectEd to: describe the development of pathways over time; ensure successful project implementation; identify factors that support pathway development; and describe facilitators and barriers for developing pathways in other schools and districts.

Conclusion

By turning high school education into a personally relevant, engaging experience for all students, Linked Learning exposes them to previously unimagined college and career opportunities; and academic rigor does not have to be compromised to do so. A growing body of evidence shows that Linked Learning students have higher rates of engagement and higher graduation rates than their peers at traditional high schools. This approach to education is helping to create an engaged, disciplined, and productive future workforce for California, ready to succeed in college, career, and life. We would welcome the opportunity to demonstrate the approach in San Bernardino Unified School District, for the expanded benefit of California and the nation at large.