

Building Assets Reducing Risks – Table of Contents

Priorities	1
Absolute Priority 1(Improving the Effectiveness of Teachers)	
Absolute Priority 5 (Serving Rural Communities)	
Competitive Priorities 5 &7 (Broad Adoption of Effective Practices & Novice Applicant)	
A. Significance.....	3
Unmet Needs	
Feasibility of National Expansion	
B. Project Design.....	8
Need for Improved Teacher Effectiveness: Positive Relationships	
Goals, Objectives, and Strategies.....	10
Goal 1: Increase student achievement and growth by increasing teacher team effectiveness as measured by an RCT in 12 high schools in Maine and California (Absolute Priority 1)	
Goal 2: Develop a model for broad adoption of BARR across the state of Maine	
Barriers and Solutions to Achieving Proposed Level of Scale	
C. Management Plan.....	20
Partners	
Cost of the Project	
D. Personnel.....	24
E. Project Evaluation.....	27
Research Design	
Sample Size and Minimum Detectable Effect Sizes	
Data Sources	
Implementation Fidelity	
Analytic Approach	

PRIORITIES

Absolute Priority 1 (Improving the Effectiveness of Teachers)

The Building Assets Reducing Risks (BARR) program is an innovative, school-based program designed to increase academic growth and achievement for ninth-grade students in low-performing schools by improving the *effectiveness of their teacher teams*, with specific attention to *extending highly effective teachers' reach to serve more students*. BARR extends the reach of highly effective teachers by maximizing opportunities for these teachers to elevate the teaching practices of their peers, both within and across BARR schools. Within schools, BARR restructures the ninth grade into blocks of three-person teacher teams, each of which includes at least one experienced and highly effective teacher. Teams engage in collaborative assessment, problem solving and planning on a weekly basis. This program design ensures that high-need students have direct access to at least one highly effective teacher (by systematically placing a highly effective teacher in each block), and it extends the impact of these highly effective teachers into all of these students' core classrooms (through the collaborative problem solving model). Across schools, BARR maximizes the impact of highly effective teachers by involving experienced BARR educators in supporting those at new BARR schools. The program uses in-situation coaching, quarterly site-to-site mentoring visits and technology enabled learning opportunities to disseminate the knowledge and expertise of highly effective teachers to other teachers as they learn to implement BARR in their classrooms.

Absolute Priority 5 (Serving Rural Communities)

Building on the successful implementation of BARR within a variety of settings (rural, suburban and urban) during the i3 Development project, the Validation project will involve schools from diverse settings, with an emphasis on serving rural communities. The Randomized Control Study will include 8,123 students, 53.8% of whom reside in federally designated rural

areas in Maine. As part of the Validation project, Spurwink and its partners will also test a statewide dissemination model in order to prepare for broad adoption of the BARR program across the nation. The dissemination component will serve an additional 9,000 students at 45 schools in Maine, ensuring the majority are rural, thus reaching a total of 17,123 students and 816 teachers. The evaluation plan will assess the effectiveness of BARR in rural settings and identify processes and supports crucial to helping rural schools implement BARR with fidelity. This project will contribute to the knowledge base of effective strategies for helping rural schools implement evidence-based programs as well as equip Spurwink and its partners to disseminate the program to rural communities across the U.S.

Competitive Priorities 5&7 (Broad Adoption of Effective Practices & Novice Applicant)

Spurwink and its partners will research the most effective ways to broadly disseminate the BARR program and test an organized, state-level dissemination approach in partnership with Hazelden Publishing. Hazelden has supported and participated in multiple state-level dissemination efforts with its Olweus Bullying Prevention Program (OBPP). Olweus is utilized in thousands of schools across the country, and Hazelden developed dissemination strategies they will adapt for BARR. In Pennsylvania, Hazelden partnered with the state Department of Education to disseminate OBPP to more than 200 schools. With the Maine DOE, Hazelden will create a model for a large scale roll-out of BARR that maintains high fidelity to the program design and retains positive academic and social outcomes over time. Hazelden will utilize program partners to increase BARR training capacity, implement a mini-grant program with 15 additional Maine schools annually in years 2-4, evaluate BARR implementation and outcomes at participating schools, and produce a coherent, comprehensive plan and toolkit for statewide BARR implementation, which can then be used to replicate the program across other states.

Spurwink Services has never applied for i3 funding from the U.S. Department of Education.

A. SIGNIFICANCE

Unmet Needs

The widespread recognition that 9th grade is a “make it or break it” year for students will create ongoing demand for the BARR program. Students beginning high school commonly experience increased stress and behavior problems alongside declines in grades, attendance, interest in school, and perceptions of academic competence and self-esteem (Alvidrez & Weinstein, 1993; Reyes et al., 2000). Research indicates that, relative to students who graduate from high school, those who leave school prematurely are more likely to have experienced deeper 9th grade declines (Reyes et al, 2000; Roderick, 1995). BARR enables schools to target students at a critical moment in their academic lives and to produce effects that will help to prevent school failure and dropout for these students in the years that follow.

BARR is built upon the knowledge that teacher effectiveness is essential to student success and school turnaround, and that it is impacted by a number of intersecting variables, including the extent to which teachers have (1) opportunities for peer-to-peer learning and collaboration, (2) capacity to build positive, intentional relationships with their colleagues and students, and (3) contextual support from parents and school leaders. BARR creates highly effective teacher teams using a unique blend of interrelated approaches designed to impact these three critical variables.

The fundamental importance of highly effective and well-supported teachers to student success has been amply documented (e.g., Chetty, Friedman, & Rockoff, 2012; Jackson & Bruegman, 2009; Pederson, Faucher, & Eaton, 1978). Research demonstrates that a teacher’s relative effectiveness is the most important school-level factor influencing student performance (Hanushek, Kain & Rivkin, 2009; Rivkin, Hanushek, & Kain, 2005; Rockoff, 2004). Results

from the first two years of the BARR i3 Development grant reveal that investment in effective teacher teams has direct benefit for students. In the BARR Randomized Control Trial, students in the intervention group earned a greater number of credits in core classes, demonstrated more growth in NWEA Reading and Mathematics scores in the Spring, and had higher cumulative Grade Point Averages compared to the control group. These results, all of which meet the What Works Clearinghouse standards, provide a convergence of evidence showing that the BARR program is effective in increasing student academic achievement. (See Appendices D and J3 for study details and implementation results.)

The need for schools to implement comprehensive, innovative, proven teacher effectiveness interventions such as BARR will increase the likelihood that this project will reach the proposed level of scale. The demand for BARR is fueled by the fact that it maximizes the impact of a school's greatest resource—its highly effective teachers—on other teachers and students. By reorganizing teachers into block teams, BARR intentionally increases opportunities for highly effective teachers to collaborate with peers. Social network analyses have identified a “spillover effect” that occurs when teachers work together (Penuel et al., 2012); such effects have been directly linked to student academic outcomes. Jackson and Bruegmann (2009) found that teachers with effective colleagues experience peer-related learning that results in improved test scores for their own students. A study conducted with 452 Midwestern teachers found a positive correlation between teacher collaboration and student achievement in reading and mathematics (Goddard, Goddard & Taschannen-Moran, 2007). BARR effectively uses peer collaboration to extend the reach of highly effective teachers into their fellow teachers' classrooms. In June 2013, BARR surveyed teachers at its four i3 Development sites; 93% of respondents reported receiving helpful ideas about solving student learning problems from other teachers in their block teams.

In addition to increasing opportunities for teacher collaboration, the BARR program offers something that few teacher effectiveness programs do: intensive professional development designed to equip teachers with relationship building skills. Researchers have noted that restructuring a school environment does not necessarily create positive outcomes if attention is not paid to the nature of teacher interaction (Graham, 2007; Levine, 2010). Unfortunately, while there exist numerous curricula aimed at facilitating positive peer relations and interpersonal problem solving among students, there is a dearth of professional resources designed to promote these same qualities and skills among teachers (Zins et al., 2004; Jennings 2007). BARR fills this gap by offering teachers a professional development curriculum founded upon the Developmental Assets Framework, a youth development model that builds the relationships, opportunities, values, and skills for school and life success (Benson, 1997).

Although comprehensive in its approach, BARR is “user friendly” for teachers and schools, because it creates an environment in which participants feel supported and effective. In the high-pressure atmosphere of U.S. high schools, isolation and emotional stress can cause teachers to experience depression, exhaustion, reduced empathy and a lack of feelings of personal accomplishment (Halbesleben, 2006; Mahan et al, 2010). Burned out teachers tend to disengage from the profession, distancing themselves emotionally and professionally from students and colleagues. BARR helps teachers develop their professional identities and promotes teacher retention by creating healthy working environments in which teachers feel supported by peers, parents and administrators. On the BARR teacher survey, 89% of respondents reported decreased feelings of isolation and strengthened teacher bonds, and 93% reported feeling proud of their team’s accomplishments. These results were true for novice and veteran teachers alike. Also, 80% reported BARR increased the effectiveness of their communication with administrators.

Interest in BARR is already substantial. It has been the focus of more than 100 presentations at conferences, including the American Association of School Administrators and American Educational Research Association. The relative cost-effectiveness of BARR increases program demand and promotes scalability. The USDOE's School Improvement Grant Program, which is aimed at turning around the nation's lowest-performing schools, awarded an average of \$910 per student per year in grantee high schools in 2010 (Hurlburt et al., 2011). As noted in Appendix J8, the cost of BARR decreases yearly until implementation is calculated at \$89 per student.

High levels of school satisfaction speak to BARR's potential to reach the proposed level of scale. The four schools currently implementing BARR as part of the i3 Development grant have all stated that, due to its effectiveness, they will continue to implement the program after the grant expires, and two of the four districts have already started expanding BARR concepts to the entire high school. At a recent BARR gathering in Minneapolis, all four schools sent district-level representatives (Superintendents and School Board) to discuss program sustainability after funding expires in September 2014. The commitment of these districts to continuing and expanding BARR reflects their strong belief in its efficacy and indicates the program's potential for widespread dissemination. In addition to the letters of support from current i3 Development grant leaders, support for the Validation project comes from Maine state leaders, including Commissioner of Education Stephen Bowen, U.S. Senators Angus King and Susan Collins, and U.S. Representative Chellie Pingree (see Appendix G). The following private sector supporters provided matching funds for the i3 Development Grant and have expressed a willingness to support the Validation Grant 1)The Rural School and Community Trust, 2)Best Buy Children's Foundation, 3) Cargill Foundation, 4) Target Foundation, 5) Curtis Carlson Foundation, 6) Minneapolis Foundation, 7) Bremer Foundation, and 8) Nellie Mae Foundation (new partner).

Feasibility of National Expansion

The future scaling of BARR is feasible and likely due to the demonstrated effectiveness of BARR, unmet need, and the capacity of the team assembled to implement this Validation Grant. Spurwink has a long history of successful partnerships and managing large projects (see Appendix C). Hazelden Publishing will play a central role in bringing the project to the proposed scale and preparing it for national expansion. Hazelden has a 60-year history of publishing evidence-based prevention programs for K-12 schools and youth-serving organizations. Hazelden has extensive experience in supporting large scale-up efforts, including dissemination of the OBPP in Pennsylvania, Virginia, Iowa and Florida. All other project partners (AIR, Vision Training, Search Institute, Capitol Youth Strategies, Inc.) are national in scope and have been involved in scaling-up related educational research projects and initiatives. Detailed descriptions of key organizations can be found in the Management section of this narrative.

The existing i3 Development grant has demonstrated that the project team and partners are capable of managing a complex project involving schools on both coasts (Maine and California) and in the Midwest (Minnesota). Issues and complications involved in scaling up a project have already been identified and effectively managed. Future scalability is feasible due to the ability of the program to be implemented in all high schools in the country—large, medium, small, urban, suburban and rural. BARR is not a niche program for specific types of schools in specific areas; it is potentially attractive to every one of the 26,000+ public high schools in the U.S.

Finally, if BARR continues to show effectiveness, there are existing funding streams and incentives available to encourage its expansion and adoption. As a school reform and teacher effectiveness model, BARR is an ideal intervention for school turnaround efforts funded through the federal School Improvement Grant (SIG) program. Over \$5 billion in grants has been

awarded through SIG over the past four years, and states are demanding effective interventions as part of their efforts to turn around their lowest achieving schools. BARR will also be in demand by the states operating under an NCLB waiver from the U.S. DOE. Thirty-nine states have been provided waivers, and each must commit to turning around the 5% of lowest performing schools in the state (i.e., “priority schools”). An additional six states are waiting for waiver approval, which will only add to the demand for BARR. These states and schools are looking for effective interventions and have the incentive and funding to implement BARR.

B. PROJECT DESIGN

Need for Improved Teacher Effectiveness: Positive Relationships

Two fundamental approaches in BARR are *creating, positive intentional relationships* and *using real time student data in collaborative problem solving* settings to guide instructional action. Several independent evaluations suggest BARR is effective in improving student academic performance. In one study, students in the BARR program earned more academic credits by the end of their 9th grade year, and also produced higher quality work (higher GPA) compared to the control students. This improvement in quality is also consistent with BARR student growth in NWEA Mathematics scores from 8th grade equivalent to 10th grade equivalent. (See Appendices D and J3.)

Schools have a tremendous need for evidence-based, cost-effective programs that help teachers promote academic growth for all students, including high need students. Spurwink’s Validation project addresses *Absolute Priority 1: Improving the Effectiveness of Teachers or Principals*, focusing on extending highly effective teachers’ reach to serve more students, and *Absolute Priority 5: Serving Rural Communities* by conducting a Randomized Controlled Trial of BARR at 12 low-performing, predominantly rural schools in California and Maine, and by

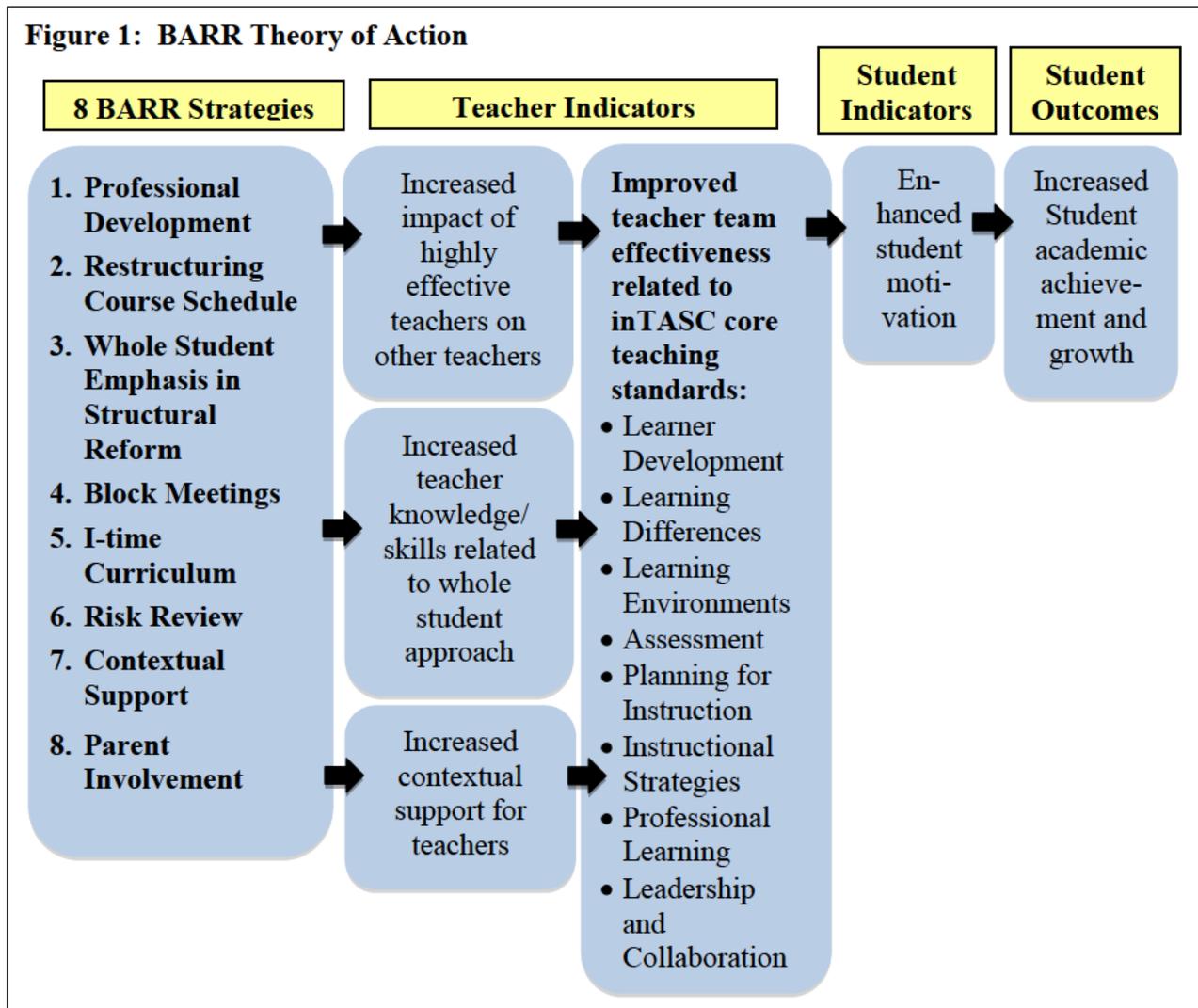
developing a model for broad adoption with an additional 45 schools across Maine.

The project extends the reach of highly effective teachers by restructuring the 9th-grade course schedule into blocks served by three-person teacher teams and ensuring the presence of at least one experienced, highly effective teacher on each team. Through training, in-situation coaching and monthly meetings, BARR facilitates collaborative problem-solving among these teachers, who use real-time data to identify and address the academic and non-academic needs of students in their blocks. By restructuring the curriculum and providing teachers with the tools to collaborate effectively, BARR enables highly effective teachers to (1) have a general, positive impact on the knowledge and skill sets of the other teachers on their teams, and (2) specifically assist these teachers in promoting classroom success and academic growth for their shared students. We have observed, for example, a highly effective mathematics teacher inspiring fellow team members to increase their level of teaching effort overall, while offering suggestions for strategies that promote a specific student's success in math, reading and social studies.

Across BARR implementation sites, highly effective teachers will help increase the teaching skills of novice and other teachers through BARR's Educational Technical Assistance (ETA) program, which offers quarterly mentoring site visits, web-based training and technical assistance, and training DVDs for new schools in the process of integrating BARR.

To meet ***Absolute Priority 5***, schools have been identified and recruited in Maine and California that are diverse, yet rural. Superintendents of all participating i3 Development schools are actively recruiting colleagues in neighboring communities due to their belief in BARR's effectiveness. Twelve schools have been identified as potential partners, and four have already committed to participate (see Appendix G). Due to the changing landscape of educational leaders, a list of alternate schools that meet the criteria of being low-performing and serving at

least 51% rural students is included.



The theory of action for BARR’s i3 Validation project is provided in **Figure 1** above. Goal 1 and its related objectives will be achieved by utilizing the eight strategies of the BARR program.



Goals, Objectives and Strategies

Goal 1: Increase student achievement and growth by increasing teacher team effectiveness as measured by an RCT in 12 high schools in Maine and California (*Absolute Priority 1*). Objective 1: Expand the reach of highly effective teachers by increasing their impact

on the teaching practices of their peers. Objective 2: Increase teacher knowledge and skills related to taking a whole-student approach both in and out of the classroom. Objective 3: Engage parents, principals and other school personnel in increasing contextual support for teachers.

Strategy 1: Relationship-Building Professional Development for Teachers, Counselors and Administrators. Professional development in many secondary schools concentrates on content, instructional recommendations, and analysis of achievement data. Often absent is training on the importance of the student-teacher relationship as the fundamental driver of achievement motivation, defining a positive framework for building relationships, creating a learning-oriented teacher-student experience, and using student-level data in real time to enhance motivation. Through BARR professional development, teachers learn to create asset-oriented relationships in their interactions with students, parents and colleagues. Professional development for 9th grade teachers begins with a two-day training institute prior to the school year and continues with daily, weekly and monthly team meetings and in-situation coaching. BARR teachers have access to ongoing support through Educational Technical Assistance, which offers quarterly mentoring visits, web-based support and training DVDs. *Result:* Teachers acquire the knowledge and skills to create positive, intentional relationships with students that enhance achievement motivation. Students increasingly experience their relationships with teachers as supportive and encouraging of them to do their best in school.

Strategy 2: Restructuring the High School Course Schedule. Often, course schedules are designed by administrators for maximum flexibility in making classes available to students and offering “singletons”—classes that are unique and require a specific instructor. Whether or not this scheduling benefits student achievement is seldom considered. In contrast, the BARR approach assists high school administrators with restructuring their 9th grade to maximize

learning. Teachers are formed into “blocks/teams” and are given a common preparation period in which they meet to monitor progress of students in their block. All 9th grade students are assigned to these blocks of teachers. Students share a common group of teachers in three core classes (English, Math, Science and/or Social Studies). *Result:* Altering the course schedule creates more personalized student-teacher relationships and enables highly effective teachers to assist their peers in making instructional decisions and addressing student learning barriers.

Strategy 3: Whole Student Emphasis in Instructional Reform. Performance pressures and long-standing traditions in secondary schools can create responses to failing students that are reactive, disciplinary and deficit-oriented. An emphasis on tightening controls to motivate students is stressful for teachers, particularly when efforts are ineffective. These same efforts often have adverse effects on student academic motivation. BARR draws out teachers’ natural belief in a positive future for students by training them to look intentionally for student assets, integrate these into classroom motivational plans, and use them strategically with underachieving students. As teachers work collaboratively through the block meeting process and delivery of I-Time, they develop an understanding of how to work with the whole student. *Results:* Teachers expand their perceptions of their roles as educators. When multiple adults interact with students collaboratively, instructional reform and responses to underachieving students become positive and productive, leading to greater school motivation for staff and students.

Strategy 4: Block Meetings, Collaborative Problem Solving. Secondary teachers work in silos. Teachers are often applauded for managing their classroom and not consulting and/or referring students. Across departments there are seldom discussions about curricula, much less students. BARR creates an opportunity for collaborative problem solving among core class teachers and provides training on the knowledge and skills needed for successful intervention

with failing students. With BARR, in addition to the structure being changed, but unlike typical 9th-grade academies, the process skills necessary for effective collaboration are articulated and coached. Core class teachers meet several days per week in their blocks to monitor progress of all the students in their block. High-risk students are identified and referrals are made. At minimum weekly, the counselor, social worker, BARR coordinator, and administrator in charge of discipline meet with each block to facilitate review and referrals. Action plans incorporate student assets. *Results:* Interview data suggest that students now discuss their progress, that teachers' interest is energized by the opportunity to work together, and that course grades improve, especially among students with unrealized potential.

Strategy 5: Developmental Assets Curriculum (I-Time). The typical high school can be similar to a factory assembly line. Workers take pride in a finished product, but do not intentionally form a bond with the product. School motivation does not thrive in this production-oriented environment. Particularly for the underachieving student or for students who are passive in high school, an environment charged with learning-enabling relationships is key to improved achievement. The BARR I-Time Curriculum stimulates social-emotional learning in a broad range of assets-based topics. Students receive, from their content block teachers, a 30-minute lesson each week from the I-Time Curriculum. This is a strength-based, relationship-focused curriculum. *Results:* Experience with the I-Time curriculum shows that high school students are enthusiastic about talking about their personal development with teachers and peers. Trust among peers and the quality of student relationships is enhanced. Teachers show their “human side,” which draws students closer to them; this in turn allows teachers to make greater performance demands on students and students to feel a greater sense of purpose in their work.

Strategy 6: Risk Review for Persistently Failing Students. About 15% of students in a

typical high school will continue to fail classes they are capable of passing, even when teachers, counselors, and administrators work to find solutions to unleash their potential. Continuous, but unsuccessful, support for troubled students can affirm that the student is a failure and simultaneously engender teacher frustration and resentment. Most recommended solutions for failing students do not offer an option for non-responsive students. The BARR approach trains teachers to recognize tier-3 students (persistently failing students). Teachers learn to accept the limits of their interventions and to act assertively by transferring problem-solving responsibility to the Risk Review team. In Risk Review Meetings, teachers and counselors learn how to engage in collaborative problem solving to utilize school and community resources. *Results:* Risk Review preserves the willingness of classroom teachers to problem solve collaboratively even when they are at times unsuccessful. It finds solutions when only complex interventions will be sufficient. It promotes effective community collaboration and assures administrators that procedures are in place that will always show a commitment to every student.

A key facet of both *Strategy 4* and *Strategy 6* is the use of **real-time data**. Block-team and Risk Review members access academic records via PowerSchool, Infinite Campus, or Aeries in real time while a student is being reviewed, in order to identify and address the academic and non-academic needs of the student and guide practice.

Strategy 7: Contextual Support (Focus on Leadership). Administrative leadership plays a critical role in a high school's operational effectiveness. While leadership research, training institutes, and consultations abound, rarely are these integrated with evidence-based instructional reform for teachers or a developmental view of adolescents. The BARR approach taps into the motivations of nearly all educational administrators to "do what is right for the kids." Administrators gain a perspective on their leadership style and affirm and expand their actions in

support of change. BARR helps district-level and building-level administrators review their leadership style with reference to Marzano et al.'s (2005) *School Leadership that Works. Results: Administrative leaders are more supportive of BARR reforms and give active assistance to the designated BARR coordinator. Administrator-teacher communication is enhanced.* Administrators highlight successes with their district trustees and with the public, actions that enhance sustainability.

Strategy 8: Parent Involvement to Support High School Reform. 9th grade parents are often unclear about what their role is as their child enters high school. 9th grade orientations traditionally address the “nuts and bolts” of high school credit acquisition and school rules; they do little to set the stage for the necessary student-teacher relationships that foster student achievement. BARR facilitates a new approach to parent involvement. It focuses on parent and adolescent assets, bringing recognition to the shared interest of parents and teachers in developing striving children, and provides explicit opportunities for effective parent-teacher collaboration. Parental involvement is fostered through a parent orientation conducted in the summer, followed by an invitation for all parents of 9th graders to join a parent advisory committee. *Results:* Parents learn about the needs of students transitioning into high school, how they can support their child in school, and how the BARR approach builds an asset-oriented learning environment to meet student needs. Parent-teacher collaboration increases.

Together, the eight BARR Strategies address many aspects of teacher effectiveness, as it has been defined by the Council of Chief State School Officers in their InTasc (Interstate Teacher Assessment and Support Consortium) Model Core Teaching Standards (adopted in April 2011). A chart aligning BARR to the InTasc standards is attached in Appendix J10. These measures will be utilized as the Teacher Indicators for the project.

At the core of BARR is the Academic Motivation Theory of Change. Drawing from social-cognitive theories (e.g., Wentzel and Wigfield, 2009), one of the underlying bases of BARR is the motivational significance of adolescents' beliefs about their abilities, self-efficacy, and expectancies for success; attributions and beliefs about intelligence; and sense of control over outcomes. The nature and quality of secondary students' relationships with their teachers play a critical and central role in motivating and engaging students to do their best. The BARR approach is designed around the fundamental conviction that when a school reorganizes to enhance adult and student relationships that are emotionally safe and trusting, that provide access to instrumental help, then student success in school will be maximized. Enhanced student motivation is a student indicator of the BARR program and will be measured in our evaluation.

Implementation of our Validation Project will occur in conjunction with the following LEA partners: Brewer, Gardiner, Lewiston, Nokomis, (all in ME), and Hemet, CA. The design phases BARR into twelve low performing schools over a three year period with five schools each beginning implementation in 2014 (cohort 1), 2015 (cohort 2) and two schools beginning in 2016 (cohort 3). (See chart on Appendix J1 for additional schools and their demographics). Modeling the successful RCT evaluation plan from the Development Grant, one half of the ninth grade teachers will instruct in the BARR model during the first year of school BARR implementation. In subsequent years, all students and teachers in 9th grade will utilize the BARR model. The Management Plan clearly articulates the plan to successfully implement this study (Appendix J7)

Goal 2: Develop a model for broad adoption of BARR across the State of Maine.

Objective 1: Disseminate BARR program to 45 additional schools in years 2-4. Objective 2: Create adoption plan for effective BARR dissemination nationally. Expected outcomes: (1) Participating schools across Maine implement BARR with fidelity. (2) Toolkit ready for

effective BARR dissemination nationally. This goal addresses the *Competitive Preference Priority 2*—Enabling Broad Adoption of Effective Practices. As part of this i3 Validation Grant, we will research the most effective way to disseminate the BARR program to a larger number of schools using an organized, state-level method. Hazelden has supported and participated in multiple state-level dissemination efforts with its Olweus Bullying Prevention Program (OBPP). The dissemination efforts outlined below are based on the experience and success Hazelden has had in scaling larger dissemination of its programs in Pennsylvania, Florida, Virginia, and Illinois. These efforts will establish the necessary infrastructure within the state of Maine to more widely disseminate the BARR program, with the eventual goal of reaching all schools in the state. A Broad Adoption plan will be developed that will include partnering with the Maine Department of Education to coordinate the state-level implementation. A full-time position at Spurwink (Broad Adoption Coordinator) will be established to serve as project coordinator. In conjunction with this person, Hazelden will coordinate Train the Trainer events in Maine to increase the capacity of BARR trainers. Once trainers are in place, the BARR partners and the Maine Department of Education will implement a competitive mini-grant program, designed similarly to the prior, successful OBPP mini-grant programs. Mini-grants of \$15,000 will be awarded to up to 45, mainly rural, schools in Maine—15 each year in years 2-4 of the grant. These mini-grants will pay for all program materials, initial staff training and ongoing technical assistance during the first year of implementation. Maine trainers from Vision Training Associates will provide both the staff training and technical assistance, with coordination from Hazelden. Selected schools will provide in-kind support in the form of a school-based program coordinator, payment for substitutes to allow teachers to attend trainings, and ancillary materials required to implement the program. Selected schools will also commit to participating in

evaluation of these dissemination efforts. The overall goal of this state-level dissemination is to create a model of how BARR could be implemented in a large scale roll-out, while still maintaining high fidelity and positive academic and social outcomes over time. The Broad Adoption Strategy will include the following:

a) Practices proposed for broad adoption. Although the BARR program has formal program materials, this dissemination effort will look at what other tools are needed to effectively implement a large scale roll-out of the program. This will include revising training materials for presentation in a Train the Trainer format. Resources to promote and implement the mini-grant programs will be developed including readiness assessment tools, fidelity implementation tools and survey instruments. A large scale dissemination plan will be developed that can be used to duplicate efforts in other states or large school districts.

b) A significant focus of this dissemination effort will be analyzing the components of BARR as they are used in larger numbers of schools. Questions include: (1) What is the best way to roll out all components of BARR in a large number of schools to ensure fidelity and sustainability? (2) What level of technical assistance is most often needed by schools to implement BARR effectively and with fidelity? (3) What are the pre-implementation practices that effectively garner support and adoption of the program by a large number of schools? (4) In what ways do schools adapt the program to meet their individual student populations and needs? (5) What strategies are needed to sustain the program in a large number of schools over time?

c) An outcome of this larger scale-up effort will be a written dissemination plan that can be duplicated by other states or large school districts. The plan will include supporting resources, such as mini-grant promotional materials and applications, informational Webinars, readiness assessment tools, fidelity checklists, technical assistance protocols, and trainer strategies.

d) Selected schools will provide pre-implementation data and post-implementation data in the form of student achievement scores, student attendance, truancy and suspensions. Post-implementation data will also be collected through surveys given to each school’s program coordinator, teachers, students and parents. In addition, each school will be assessed using fidelity measures. These measures will assess the replicability of BARR.

Barriers and Solutions to Achieving Proposed Level of Scale

The i3-BARR Development team has made notable progress with implementation at high schools. Data reveal a high fidelity to the model and positive impact even after less than two years of funding (see Appendix D). Lessons learned are woven into this Validation application. In order to fill programmatic gaps identified in the i3 Development study, we propose to implement a supplemental strategy under BARR Strategy 1: Professional Development.

Supplementary Strategy: Educational Technical Assistance. Although the overall BARR training has been shown to be effective, research has shown the need for ongoing support, especially for novice teachers. It is evident that some teachers need more training to make most effective use of Block Meetings and Risk Reviews. Collaborative problem solving processes and maintaining a focus on assuring that students’ academic and nonacademic needs are met requires more skill building. Especially important is members’ assessment and planning with real-time data. The BARR approach has designed a continuing education model, called “Educational Technical Assistance” (ETA) that uses teachers, guidance counselors, and administrators with experience in the BARR approach to mentor others. Teachers/counselors from high-functioning BARR schools visit quarterly at newly implementing schools. [REDACTED]

[REDACTED]

[REDACTED] *Results:* This supplementary strategy raises

implementation fidelity, elevates staff's sense of pride in their accomplishments, assures administrators that change is taking root, and builds a foundation for sustainability.

C. Management Plan

The key to the success of the i3 BARR Validation project is the quality and commitment of the project partners, each bringing a unique set of skills and experience that will move the project forward with excellence. Spurwink has assembled an exceptional team with all the expertise needed to ensure the effective implementation and evaluation of BARR. This team brings to the project up-to-date knowledge about teacher effectiveness, school reform, school climate, and the supports that both teachers and students need to succeed. At Spurwink, Co-Directors Angela Jerabek and Susan Savell will provide overall leadership and oversight of all program activities across the team partners (see Organization Chart in Appendix J6). Jerabek will be responsible for managing program implementation, timelines, partners and technical assistance provided to the participating schools. Savell will be responsible for overall project oversight and key personnel. Dr. Maryann Corsello (Spurwink's Research Scientist), with the assistance of Dr. Anu Sharma, (Research Advisor and current i3 Development grant Lead Evaluator) will insure the quality of all reports and deliverables to USDOE, working closely with the AIR evaluation team members. The external evaluation will be conducted by AIR, under the direction of Drs. Johannes Bos (Methodological Expert) and David Osher (Content Expert). Dr. Hinojosa will serve as the Principal Investigator and Dr. Stephan will be the Project Director. Search Institute, Hazelden and Vision Training Associates will provide training and implementation support to the schools in specialized areas designed to enhance the effectiveness of BARR. The i3 BARR Development grant team has worked with Search Institute and Spurwink for the past two years. Spurwink is moving into the lead agency role because of its capacity to manage and scale up the program in

partnership with Hazelden during and after the grant period. The project team has articulated a detailed plan to evaluate the success and challenges of the project and use feedback to make project improvements (Appendix J7 – Project Milestones, Tasks, and Timelines). The metrics in this plan will be reviewed weekly by the project Directors and quarterly by the Management team to monitor progress and determine if the project is achieving its goals. Adjustments to the project will be made as needed based on this review. The schools will monitor their progress implementing BARR using a detailed plan in the BARR Manual (pages 14-17), in addition to receiving implementation feedback from the evaluators and ETA providers. These tools will assist the schools to make necessary adjustments to ensure successful BARR implementation.

Partners

Spurwink is a preeminent education, mental and behavioral health organization, dedicated to enhancing the quality of education, health, and youth development programs, with 960 employees and 70 offices, schools and residences. In FY 2014, the agency expects to operate on program funding of approximately \$68 million from a variety of sources. Spurwink has a strong Research Department, and has been a leader in moving evidence-based behavioral health practices into public and private schools throughout Maine and New Hampshire. Spurwink has a strong track record of improving student achievement through its direct work with districts and schools across Maine and New Hampshire (see Appendix C). Key to the success of Spurwink is the ability to collaborate productively with other organizations and agencies, forging strategic alliances for added value and efficiency. With the proposed partners, Spurwink has the requisite personnel, financial, and management resources to bring the BARR project to scale on a state, regional and national level.

The American Institutes for Research (AIR), is a not-for-profit corporation engaged in

independent research, development, evaluation, and analysis in the behavioral and social sciences. It will be responsible for the impact and implementation evaluation of BARR. AIR has nearly 1,700 employees and accrued nearly \$300 million of revenue. The emphasis of AIR's work is ultimately to improve the operation and impact of education systems, including enhancing a wide range of student outcomes, such as achievement, and social and emotional well-being. AIR's national centers—the National High School Center and the National Comprehensive Center for Teacher Quality – provide state and local education agencies (LEAs) and individual schools with research-based information to improve their practice. The organization's wide-ranging and diverse expertise includes a deep understanding of the developmental assets approach, program evaluation within schools, research methodology, and statistical and qualitative analytic methods. The proposed AIR staff brings extensive experience in large-scale random assignment studies conducted in schools.

Search Institute is a nonprofit organization dedicated to discovering what students need to succeed in their schools, families, and communities. For this i3 Validation project, Search Institute will research and offer professional development opportunities regarding developmental relationships and their contribution to educational success. Search is currently the lead agency in the BARR i3 development grant. Their participation in this Validation study will ensure a seamless program partnership and add their expertise to our efforts to study innovative strategies to improve teacher effectiveness.

Hazelden will drive the broad dissemination of the BARR program both during and following the grant period. Hazelden Foundation is known internationally as one of the leading publishers of evidence based, NREPP approved programs, having 10 programs currently on the NREPP listing. Hazelden serves K-16 schools, school districts and local education agencies,

state and federal departments of education colleges/universities and other prevention providers. On an annual basis, Hazelden reaches over 380,000 customers. In 2013, Hazelden became the publisher of the *Building Assets, Reducing Risks* (BARR) program.

Vision Training Associates will provide on-the-ground training in Maine for the BARR project, as they have for the BARR i3 Development grant. Vision Training has worked with over 150,000 educators and 1800 districts since 2000. All partners in the i3 BARR Validation project have strong operating budgets that support this work.

Cost of the Project

The estimated cost of the project over five years is \$13,199,999, of which \$1,980,000 is devoted to conducting the impact and implementation evaluation. All salaries and resources were calculated into the cost of the operating costs of the project. Direct operating costs include a 50% time BARR coordinator at each school, costs for one daily preparation period for 9th grade teachers, BARR materials, training and coaching at each site (ETA wages and travel costs, supplies and materials), and the on-going cost of quality control and management (salaries and supplies for BARR staff, meetings and travel). There is a notable cost difference for the program to be evaluated in a RCT versus the Broad Dissemination Strategy.

To forecast replication costs going forward in providing the BARR program to new schools at a national level, we assumed the following: (1) scale up takes four academic years, until the first 9th grade cohort reaches the senior year and the program stabilizes in the school, (2) the scale-up has funds to pay teachers for participating in BARR block meetings, (3) first year professional development costs of \$15,000, (3) a 0.50 FTE BARR coordinator for four years costs \$80,000, (4) ETA cost of \$12,000, and (5) 300 9th grade students enter the school each year. *These assumptions result in a per student cost of \$89 (\$107,000/1,200).* The per student

cost is lower in large schools and higher in small schools. Using this multiplier, the estimated cost is \$8,900,000, \$22,550,000, and \$44,500,000 for 100,000 students, 250,000 students, and 500,000 students, respectively. The projected costs of dissemination of BARR to turnaround low-achieving schools is a sensible and sound use of limited resources, especially when examined in the context of other school turnaround efforts. (See Appendix J9 for cost details.)

D. Personnel

Angela Jerabek, M.S., BARR Program Director, Center for Positive Youth

Development (CPYD) at Spurwink (100%). Angela Jerabek developed the i3 BARR Program. As director of the current i3 development grant, Jerabek is responsible for implementation of BARR at participating schools, including providing technical assistance and acting as a liaison to oversee research and evaluation. She is a licensed school counselor, teacher, author, speaker, and innovator in the education sector. She has developed numerous educational programs and coordinated evaluation efforts in schools across the country. Specifically, her expertise lies in high school reform, youth development, school safety, counseling adolescents and families, and data-driven decision making in schools. Jerabek has trained schools in BARR and has been the coordinator of BARR at St Louis Park High School for the past 15 years.

Susan Savell, M.A., Director, CPYD at Spurwink (50%), will provide administrative and conceptual leadership and oversight in all areas of the contract, particularly in regard to promotion of positive school climates and youth development strategies. Savell has 18 years of experience creating and directing positive youth development initiatives for two Governors of the State of Maine and Spurwink. In the Governor’s Cabinets, she created a statewide initiative known as *Communities for Children and Youth*, whose primary goal was to “improve the academic performance of all Maine students.” At Spurwink, she is the Co-Principal Investigator

on an NIH funded RAND Corporation study entitled “Getting to Outcomes with Developmental Assets.” Savell has managed many federal grants.

Mary Ellen Kavanaugh, M.A., Project Manager (100%). Kavanaugh, a former high school educator for 16 years, is the current manager of the i3 BARR Development grant and will continue managing the administrative operations of the project. Kavanaugh brings three years of experience with USDOE i3 requirements and will ensure the smooth continuation of the project.

Linda Butler, PhD., Director, Research Department at Spurwink (10%). Butler has been in Clinical Administrative leadership at Spurwink for 18 years and offers the agency a network of professional social service and academic contacts. She will serve as an advisor to the project.

Justin Barbeau, Technical Assistance Coordinator (100%). Barbeau is a licensed secondary teacher who taught in the BARR program for 7 years and is currently providing technical assistance to the i3 Development schools. He facilitates Block Meetings, analyzes school data, and assists classroom teachers in the development of student remediation and acceleration strategies. He will oversee the Educational Technical Assistance implementation.

Susan Lieberman, Broad Adoption Coordinator (50%). Lieberman has worked on many projects directed by Savell for two Governors’ Children’s Cabinets, including “*Keeping Maine Children Connected*,” a statewide network of school staff. Lieberman will recruit and support the large network of Maine schools that will participate in Hazelden’s Broad Adoption Strategy.

Maryann Corsello, PhD., Professor Emeritus at the University of New England, and Spurwink Research Scientist (50%). Corsello serves as the Associate Director of the CPYD at Spurwink, and directs Spurwink’s statewide REACH (Research Evaluation Assistance for Change) Collaborative, consisting of 8 Maine colleges and universities committed to assisting schools and community organizations to conduct effective program evaluation. Corsello will

develop and monitor the metrics that will be used to assess the progress of the project.

Johannes M. Bos, PhD (5%), Vice President, will serve as a senior advisor, monitoring quality assurance and providing content and methodological advice to the project team. He is a vice president in AIR's Education program and a nationally recognized expert in the conduct of randomized controlled trials in education and other areas of social policy research.

David Osher, PhD (4%), Vice President in Education, Human Development and the Workforce at the AIR. His work focuses on collaboration, children's services, prevention, social emotional learning, youth development, the social and emotional conditions for learning, healthy development, and culturally competent interventions for children and youth with mental health problems and disorders. He has studied school and community change at a local, state, federal, and international level. He has also led the development of tools to study, monitor, and intervene regarding school improvement (surveys, score cards, tools to identify interventions).

Trisha Hinojosa, PhD (20%), will serve as the principal investigator (PI) for this project. Hinojosa has more than 10 years of experience in education research. Her work focuses on designing and running large-scale district wide, statewide, and nationwide studies examining programmatic impact on student, school, district, and community outcomes. She has served as a principal investigator and lead analyst on a number of comparable studies, including a nationwide quasi-experimental study of the federal Rural and Low-Income Schools (RLIS) program and a study that examined impact on student academic achievement and teacher outcomes. Hinojosa will oversee all aspects of the study design and execution, advising the project director to ensure methodological rigor.

Jennifer Stephan, PhD (30%), will serve as the project director. She has more than 14 years of experience in conducting quantitative analysis. Stephan is currently co- principal investigator

of a study on predictors of college readiness using state data and an analyst for an evaluation of Early College High Schools. Her responsibilities for this project will include leading instrument development, data collection, analysis, and reporting.

E. Project Evaluation

The BARR Validation project aims to provide a tested solution to the persistent problem of low academic performance in high poverty schools. The proposed study will contribute to the development of this solution through a rigorous evaluation of the impact of the BARR program on student achievement and teacher effectiveness, with special attention to its effectiveness in rural schools. **Confirmatory questions** pertain to student achievement outcomes:

1. Does the BARR program impact the total number of credits completed in three core subjects (e.g., English, mathematics, and social studies)?
2. Does the BARR program impact student test scores on the Northwest Evaluation Association's Measures of Academic Progress (NWEA MAP) English language arts and mathematics tests?

In addition, the study will answer several **exploratory questions** related to differential effectiveness by examining outcomes for subgroups of students, outcomes across varying locales (rural versus non-rural), and the relationship between variation in implementation and outcomes. Exploratory questions related to outcomes will also address change in teacher effectiveness, student motivation, and outcomes for students over time. The study's exploratory questions are:

3. How do the impacts of BARR differ for student subgroups (e.g., students eligible to receive free or reduced price lunch versus those not eligible)?
4. How do the impacts of BARR differ across school locale (i.e., rural vs. non rural)?
5. Does the BARR program impact teacher efficacy and teacher working conditions?
6. Does the BARR program impact students' academic motivation?

7. Do students assigned to BARR in 9th grade accumulate a different number of course credits (in core courses) at the end of 10th, 11th, and 12th grades than students not assigned to BARR?

The evaluation will include an implementation study utilizing materials and processes developed and tested during prior work on the development of the BARR program through its i3 Development Grant. The **implementation fidelity questions** are:

8. To what extent are the eight BARR strategies implemented as intended?
9. What are the facilitators and barriers to successful implementation?

Finally, in an effort to understand the relationship between level and quality of implementation on outcomes this research project will explore the answers to one additional question:

10. To what extent is implementation fidelity related to impact on student achievement?

Research Design

The proposed research design is a student-level Randomized Controlled Trial. Implementation of this research design will yield causal estimates of programmatic impact on student achievement for three cohorts of 9th grade students in 12 schools (See appendix J8, Table J.1). The one-year intervention will be studied in 5 schools in the first full academic year of the grant period (2014-15), followed by 5 additional schools the next year (2015-16), and concluding with implementation and study in two schools in a third academic year of the grant period (2016-17). Currently, 4 schools have agreed to participate in this study and 8 schools will be recruited. See Appendix J8, Table J8.2 for a list of schools. See Appendix G for signed letters of commitment.

Each year, the research team at AIR will randomly assign all 9th grade students (except those taking alternative core classes) within a school to take three of their core academic classes with either BARR teachers (treatment group) or non-BARR teachers (control group). Students in the treatment condition will be taught by teams of teachers working together. Students in the control

condition will be served by teachers operating under business-as-usual (e.g., no teacher teams).

This research design will produce evidence of the effectiveness of the BARR program that meets What Works Clearinghouse (WWC) standards for evidence without reservations assuming low levels of attrition. Although high levels of overall, differential, or nonrandom attrition would threaten the validity of the results, we expect attrition to be low because schools have volunteered for this study, because prior implementation of BARR has shown no teacher attrition and low levels of student attrition on the key outcome measure of credits accumulated (2.2% in the treatment group and 1.4% in the control group), and because the study only requires teachers to remain in the assigned conditions for one year. Specific steps, however, will be taken to address potential attrition and crossover in this study (see Appendix J8). If, despite these efforts, attrition proves to be high, we will examine baseline equivalence of the analytic sample on observable characteristics obtained prior to the intervention in an effort to meet WWC standards with reservations.

Sample Size and Minimum Detectable Effect Sizes (MDES)

Power calculations were targeted toward having adequate sensitivity to detect contrasts specified in confirmatory research questions, namely, the contrast between academic achievement measures for students in treatment and control groups after one year of the intervention. Consistent with this objective and the proposed analytic method, we determined the sample size needed to detect impacts using a two-tailed test for comparing means on each of the three outcome measures and using a Bonferroni-adjusted significance level of 0.0167 ($=0.05/3$). These outcomes comprise two types of data: interval and ordinal. Power calculations were carried out for both.

Power calculations for the NWEA MAP scale scores (the interval measure) are based on in a two-level hierarchical analysis (students in schools). The analysis assumed a minimum detectable effect size (MDES) of 0.15; statistical power equal to 0.8; an equal number of students assigned to

experimental conditions; an average number of students per school equal to 100, and the contribution of a single level-1 covariate to explain variation in the outcomes of $r^2=0.50$ (Bloom, Richburg, Hayes & Black, 2007). Given these assumptions, 10 schools are needed. To manage the potential threat of school attrition, two additional schools (an additional 20% to the sample size) will be recruited for a total sample size of 12 schools serving no less than 1,200 9th grade students each year¹. With 12 schools in the study sample, MDES drops to an even lower 0.13.

The power analysis for credit completion assumes credits completed have a Poisson distribution with a baseline of 5.41 credits, which is the mean number of credits completed by the control group in the i3 development study. This power analysis does not account for the clustering of students within schools or for student-level explanatory variables. Consequently, the power analysis for credit completion provides a conservative estimate (Hedges & Rhoades, 2008). Given 10 schools are recruited this study, we would have the power to detect a 9 percent increase in credits accumulated. The MDES drops to 8 percent if 12 schools remain in the sample (see appendix J8 for additional information on power calculations.)

While the confirmatory analyses are sufficiently powered to assess the efficacy of the BARR program, the exploratory analyses are in some cases underpowered. These exploratory analyses focus on important components of this research project including exploration of differential outcomes for subgroups of students and for students in different locales, effects on student motivation, and the lasting effects of the 9th grade-only BARR program on later high school academic achievement. Results of these analyses, although underpowered, may suggest hypotheses for more rigorous examination in future studies (Schochet, 2008). (See Appendix J8).

Data Sources

¹ The actual number of students served annually will likely be much higher as those schools that have already been recruited for this study, each have greater than 100 students.

A variety of data sources will be used to answer research questions regarding the impact and implementation of the BARR program. These include: (1) student- and school-level administrative data collected by schools and districts related to student demographics (e.g., race/ethnicity and free and reduced price lunch status) and student achievement (i.e., prior test scores, and high school transcripts); (2) (NWEA) MAP test scores in English and mathematics administered in the fall and spring to all 9th grade students in both treatment and control conditions; (3) a student survey administered in the spring to all 9th grade students in both treatment and control conditions; (4) a teacher survey administered in the spring of the year prior to random assignment and the spring after the treatment period; (5) interviews with the following individuals: at least 6, 9th grade teachers (3 BARR and 3 non-BARR), the school-based BARR coordinator, and the principal at each school, conducted in the spring of each year that a school participates in the RCT (i.e., each school's first implementation year); [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Implementation Fidelity

This evaluation will measure both implementation of fidelity (e.g., summer professional development, weekly block meetings) as well as intervention fidelity (e.g., counselor referrals and parent teacher meetings). Measurement will be periodic, occurring two times during the intervention study time period (i.e., the year that each school participates in the RCT), and will include

[REDACTED]

predetermined thresholds for assessing adequacy of program implementation.

To assess *implementation* fidelity, researchers will systematically examine the extent to which teachers and schools implemented the eight BARR strategies. Together, the research team and developers will define cut-points that signify whether that strategy was adequately implemented. For each indicator, researchers will assign a score of 0 to a school if a school scores below the cut-point and a score of 1 if a school scores at or above the cut-point. Summation of these indicator-based codes, divided by the number of indicators, will provide an overall “fidelity index” for each BARR strategy, the overall program, and each school.

To assess *intervention* fidelity, researchers will rely on interview data, observation data (using validated BARR rubrics) and validated survey scale scores on teacher effectiveness and student motivation. These data, in addition to providing the means for understanding change in intermediary outcomes, will provide the necessary measures to assess treatment differentiation (Cordray & Pion, 2006; Waltz, Addis, Koerner, & Jacobson, 1993). Treatment differentiation suggests that the underlying constructs embedded in the treatment should be stronger or different from the counterfactual condition. Measuring this differentiation requires a parallel “fidelity” assessment of programmatic components in both conditions (Hulleman & Cordray, 2009). This assessment is referred to as the achieved relative strength of the contrast (Cordray & Jacobs, 2005), or the difference between the treatment as implemented and the control as implemented (Hulleman & Cordray, 2009). To assess the achieved relative strength of the intervention, indices will be developed to contrast the teaching and learning conditions of treatment and control conditions within and across schools during the treatment year. (See table J8.5, Appendix J8).

Analytic Approach

Analyses for confirmatory research questions will provide estimates for the impact of the

BARR program on the three primary student outcomes: 1) credit accumulation in core courses (**RQ1**); 2) NWEA MAP English achievement; and, 3) NWEA MAP mathematics achievement (**RQ2**). To preserve the integrity of random assignment and account for possible cross-over, outcome analyses will include *all randomly assigned students*, whether or not they actually enrolled in the core classes to which they were assigned (an intent-to-treat analysis). The evaluation team will estimate program impacts by comparing outcomes for students assigned to the treatment group to outcomes of students assigned to the control group using a series of two-level nested models (students nested in schools). Each of the three models, corresponding to the three outcomes, will include student-level background characteristics (e.g., race, gender, FRPL status, limited English proficiency status), a test of prior student achievement (e.g., 8th grade standardized achievement test or a student's fall MAP scores), an indicator of a student's assignment to one of the experimental groups, and a set of dummy variables used to control for school fixed effects. (See Appendix J8). These analyses will provide rigorous evidence on the impact of BARR for improving student credit completion and achievement scores on two standardized tests.

Analyses conducted to answer exploratory questions **RQ3-RQ4** will provide estimates for the differential impact of BARR for subgroups of students and across different locales. These analyses will involve augmenting the models for RQ1 and RQ2 with an interaction term to indicate whether there is a statistically significant difference in the treatment effect by subgroup (Schochet, 2008).

To answer the research question regarding teacher efficacy and working conditions (**RQ5**), the team will use psychometrically validated scores derived from two scales: one which measures efficacy (the Long form of Teachers' Sense of Efficacy Scale [Tschannen-Moran & Woolfolk, 2001]), and the other which measures teacher working conditions such as relationships with students, supportive relationships with colleagues, and pedagogical practices (the Tripod teacher

survey [Tripod Project, 2011]). Differences between treatment and control teachers will be determined using a two-level hierarchical model with teachers nested in schools. Covariates include each teacher's scale score prior to the intervention and a set of time-invariant covariates related to teacher experience (e.g., certification status prior to program implementation), a treatment indicator variable, and a set of fixed effects dummy indicator variables for schools. To assess BARR's impact on student motivation (**RQ6**), data will be collected from students using the Jenkins (1997) school commitment subscale. This analysis will use a two-level hierarchical model with students nested in schools. Covariates include student demographic information, a treatment indicator variable, and a set of fixed effects dummy indicator variables for schools.

Although students receive only one year of treatment (in 9th grade), it is anticipated that program effects will be sustained throughout the remainder of the high school years. Therefore the research team will use a series of two-level hierarchical models to explore differences in credit accumulation between treatment and control students after the treatment period year (**RQ7**). This analysis will be conducted using data from three cohorts of 10th graders, two cohorts of 11th graders, and one cohort of 12th graders (See Table J1 in Appendix J8). The three outcomes for this analysis will be core credits accumulated by end of 10th grade, by the end of 11th grade, and by end of 12th grade. The covariates will include student level demographic variables, a treatment indicator variable, a measure of academic skill level measured prior to the intervention (e.g., MAP scores), and a set of dummy variables to account for school fixed effects.

Importantly, this research will also include an implementation study to help contextualize the estimated program impacts, improve the program and its implementation, and facilitate replication of the BARR intervention in other settings. A variety of data sources, both quantitative and qualitative will be used to examine the extent to which BARR strategies are implemented as

intended and to identify the facilitators and barriers to implementation (**RQ8 and RQ9**). To provide information for program improvement, the research team will analyze interview data and open ended survey response data as outlined by Miles and Huberman (1994). First, transcriptions of the interviews will be reviewed for clarity and to identify themes that might be included in the coding structure. Second, transcripts will be coded using qualitative research software. The coding will be cross-checked by a second coder to ensure codes are appropriately and consistently applied. Third, summaries and data displays will be created and analyzed. These summaries will allow analysts to develop data displays that compare one unit of analysis (e.g., school) to another across the same topic (e.g., facilitators to implementation) and to gain an overview of the unit of analysis across different areas (e.g., facilitators *and* barriers to implementation). During this phase of the analysis, two researchers will work together to design, complete, and analyze the data displays. Information displays will be continually cross-checked against the coded interview transcripts to ensure accuracy. The analysis team will then create a description of key findings supporting a quantitative description of the data with quotes and examples that can provide context for the reader.

Finally, this evaluation will explore the relationship between implementation fidelity, mediating factors (i.e., teacher effectiveness and student motivation), and student achievement outcomes for treatment students (**RQ10**). These analyses will examine credit accumulation and test scores using a three-level hierarchical model with students nested in teacher teams nested in schools. Main effects estimation will generate insight into how the theory of action components relate to student achievement outcomes. Researchers will consider including interactions terms to provide a preliminary look at the interplay among implementation fidelity and mediating factors.