

The BARR Program:

Impacting Social Emotional Skills and Academic Achievement of 9th grade students in 6 High Schools

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Background

Building Assets Reducing Risks (BARR)

- The BARR model builds positive, intentional, relationships among and between students and teachers.
- Ninth grade is restructured into teacher teams of shared students composed of three or four core academic teachers as well as one or more school counselors.
- BARR teachers use real-time student data to drive instructional change and identify nonacademic supports when needed.



Prior Research on BARR

- In 2011–12, a randomized controlled trial (RCT) in one large urban school district yielded positive impacts on students and teachers
- Compared with students not assigned to BARR:
 - BARR students earned more credits.
 - BARR students scored higher on both reading and mathematics standardized tests.
 - BARR students had fewer course failures than those not assigned to BARR.
 - BARR teachers felt more connected to students, other teachers, and their schools, and they reported higher levels of teacher effectiveness than those not implementing BARR.

Source: Corsello, Sharma & Jerabek, 2015.

Study Design

Study Overview

- Student level randomized controlled trial
- Three cohorts of students
 - 2014–15, 2015–16, and 2016–17
- Eleven schools total
- Participants in this study
 - All eligible ninth-grade students
 - Core academic teachers
 - School counselors, administrators, BARR coordinator
- Study includes measures of
 - Implementation
 - Student academic outcomes
 - Student and teacher perceptions

Research Questions

- What is the impact of BARR on ninth-grade students' academic achievement as measured by NWEA reading and mathematics tests?
- What is the impact of BARR on ninth-grade students' educational attainment as measured by the percentage of credits earned in core subjects?
- To what extent do students' self-ratings of proximal measures of student achievement (e.g., engagement, sense of belonging, and grit) differ between BARR and non-BARR students?
- To what extent do ratings of proximal measures of student achievement (e.g., teacher self-efficacy and use of data) differ between BARR and non-BARR teachers?

Data Sources

- Administrative student demographic records
- Administrative student academic, attendance, and discipline records
- NWEA MAP reading and mathematics scores
- Survey administered to students in Grade 9
- Survey administered to core subject teachers of Grade 9 students
- **Other data sources**
 - Interview data from core subject teachers
 - Interview data from BARR coordinators
 - Observation data from spring site visits to each school

Results: Cohorts 1 and 2 (2014–15 and 2015–16)

Sample

- Six schools
 - California (3); Maine (2); Minnesota (1)
- 2,172 students
 - BARR students = 981
 - Control students = 1,191
- Student sample:
 - 71% minority students
 - 70% Free or Reduced-Price Lunch
 - 21% English Language Learners
 - 8% Special Education Status

Student Outcomes

- NWEA MAP Reading scores
- NWEA MAP Mathematics scores
- Core credits earned
- Passing all core courses
- Student survey measures
 - Expectations and rigor
 - Engagement
 - Supportive relationships
 - Social and emotional learning
 - Sense of belonging
 - Grit

Student Outcomes—Survey

Construct	Scale Scores		Diff	Effect Size
	BARR	Control		
Expectations and rigor	51.2	48.9	2.3***	0.23
Student engagement	50.6	49.4	1.2*	0.12
Supportive relationships	51.8	48.4	3.4***	0.34
Social and emotional learning	50.0	50.0	0.0	0.00
Sense of belonging	50.2	49.8	0.4	0.04
Grit	49.8	50.2	-0.4	-0.04
<i>Sample size</i>	<i>730</i>	<i>801</i>		

Student Outcomes—NWEA Assessments

Measures of Academic Progress (MAP) scores

- There was a positive and **statistically significant** difference in the end-of-year MAP scores for BARR students compared to control students in both Reading and Math.

Outcome Measures	BARR	Control	Diff	<i>p</i> Value	Effect Size
Reading MAP Score	222.8	221.7	1.1	≤.05	0.08
Math MAP Score	231.2	229.7	1.5	≤.01	0.08
<i>Sample size</i>	740	891			

Student Outcomes—Core Credits

Outcome Measures (%)	BARR	Control	Diff	<i>p</i> Value	Effect Size
Total credits earned	84.3	79.0	5.3	≤.001	0.05
--ELA credits earned	87.4	76.9	10.5	≤.001	0.11
--Science credits earned	85.3	77.1	8.2	≤.001	0.08
--Math credits earned	79.1	81.3	-2.2	n.s.	-0.02
--Social Studies credits earned	98.2	97.8	0.4	n.s.	0.00
Passing all core courses	70.3	57.7	12.6	≤.001	0.25
<i>Sample size</i>	<i>824</i>	<i>1,004</i>			

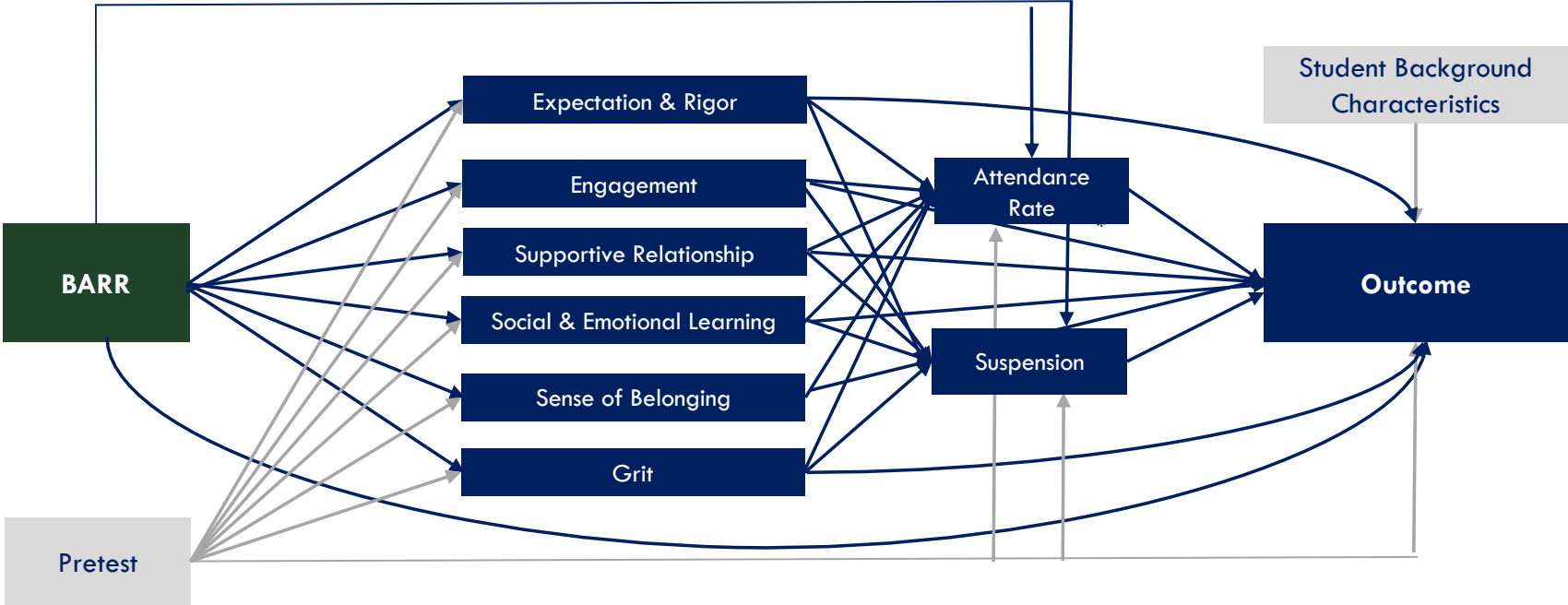
Note: n.s. = not statistically significant, $p > .05$.

Mediation Analysis

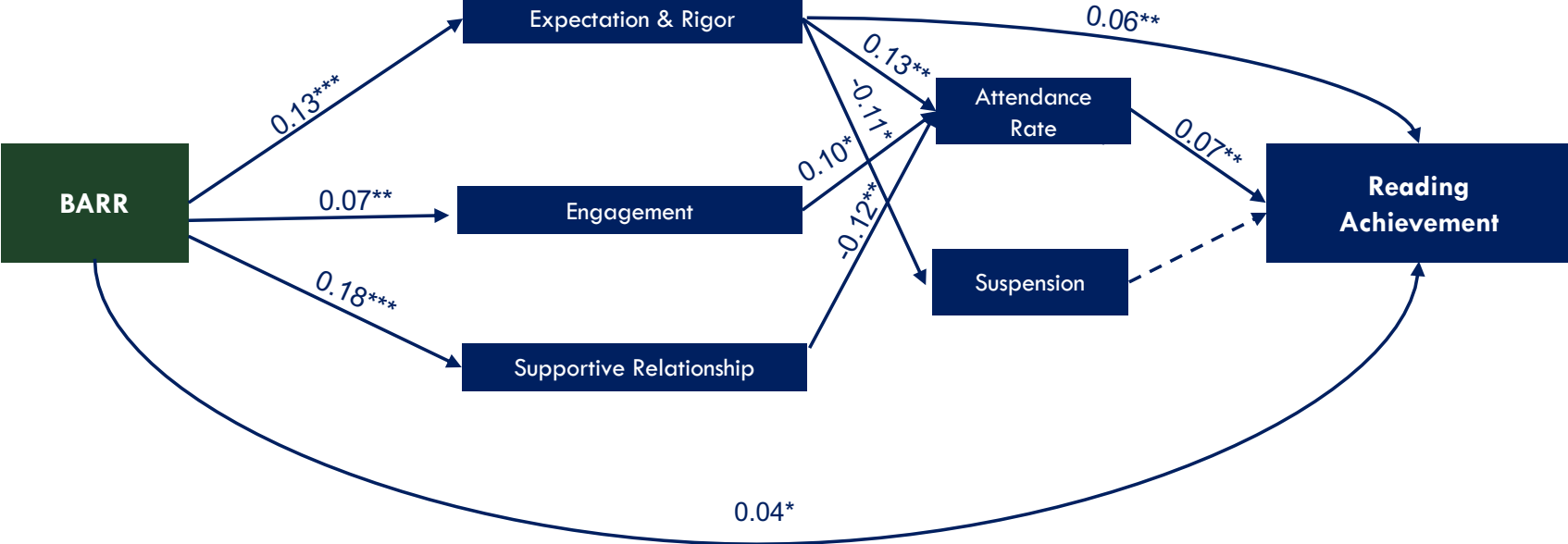
Exploration of Mediation Analysis

- **Mediators**
 - Six student survey scale scores (representing student experiences)
 - Student attendance rate (%) during the year
 - Total suspensions a student received during the year
- **Academic achievement outcomes**
 - NWEA scale scores (Reading and Math)
 - Core credits earned
- **Additional variables in the model**
 - Pretest NWEA scores
 - Student background characteristics

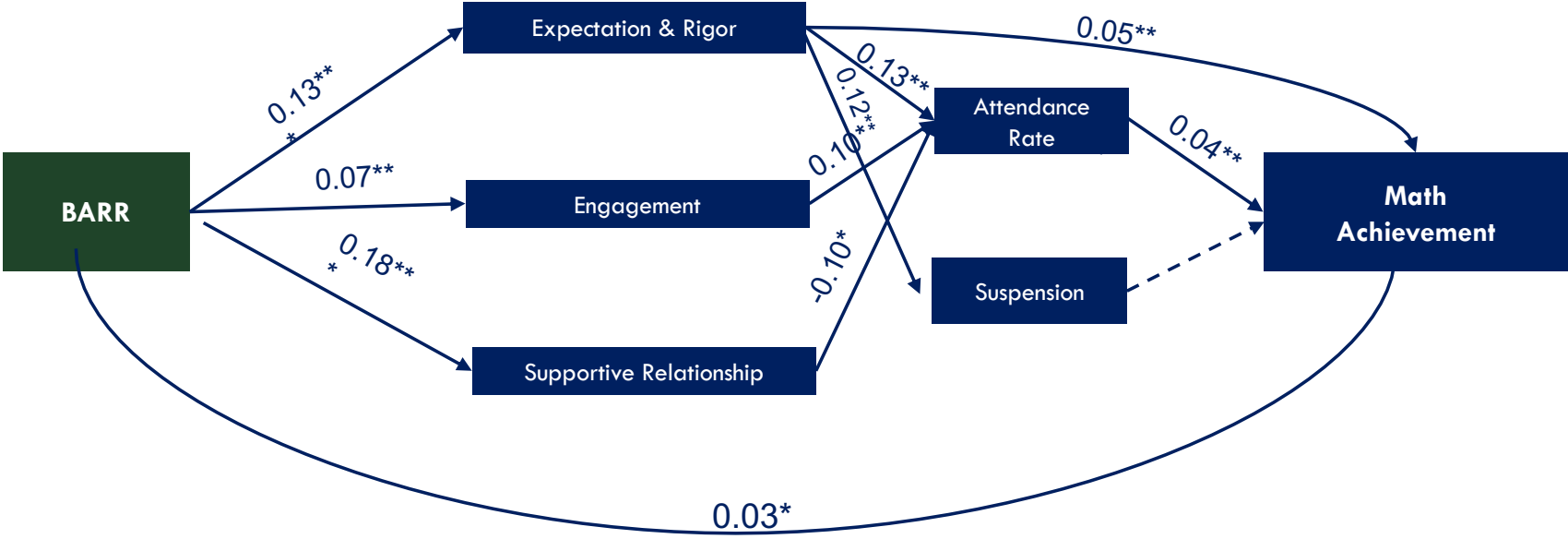
BARR MEDIATION MODEL



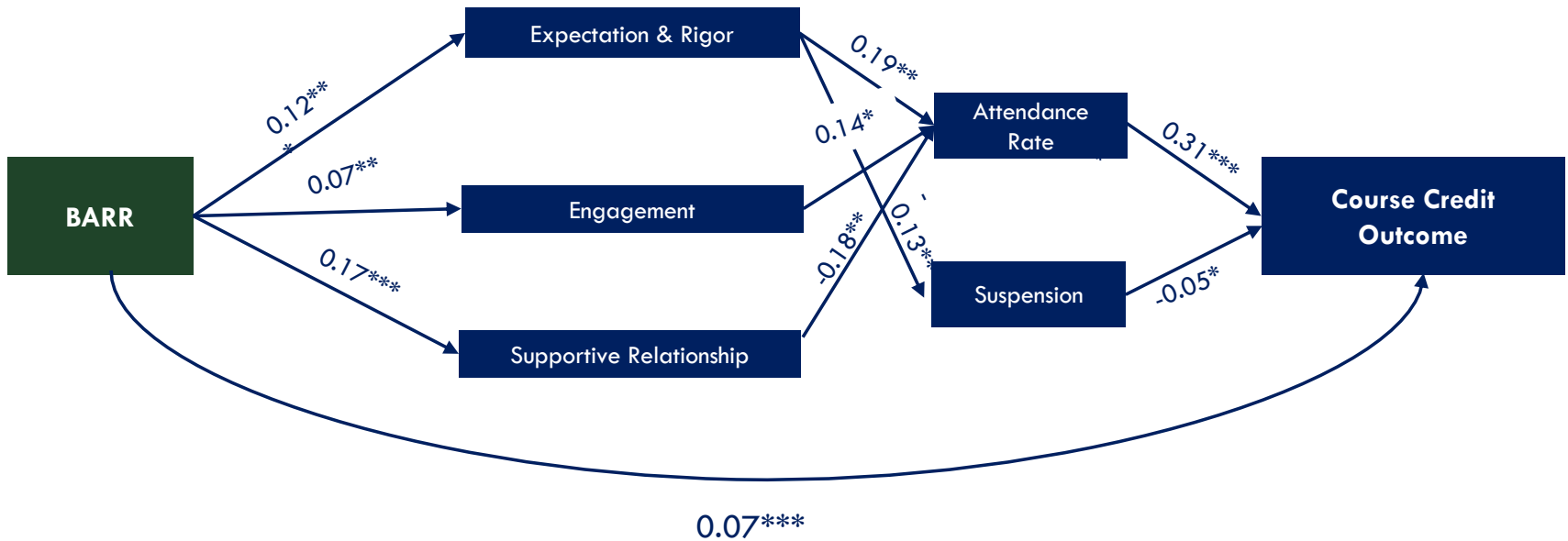
BARR IMPACT ON READING ACHIEVEMENT



BARR IMPACT ON MATH ACHIEVEMENT



BARR IMPACT ON COURSE CREDIT OUTCOME



Caveats

- These are formative findings from an ongoing three-cohort study
- Teachers were not randomly assigned to BARR: The effects of the program cannot be disentangled from those resulting from systematic differences in teacher effectiveness.

Conclusions

- Prior research shows that BARR has a positive impact on student achievement in the 9th grade
- This study replicates those findings with two additional cohorts of 9th grade students
- Further, this study demonstrates that increases in academic achievement are mediated through improvements in student engagement and expectation, stronger and more supportive relationships, better attendance rates, and lower suspension rates.

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