

Paper title:

Experimental impacts of the 4Rs+MTP Program on teachers' well-being, classroom interactions, and children's social-emotional and academic development

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Background/Context:

Programs and curricular strategies to promote social and emotional learning in education settings have largely been separate from those designed to improve academic learning. Yet, national consensus among scientists and practitioners indicates that children's social-emotional development and academic learning are deeply interconnected. Consequently, school-based programs that integrate intentional practices to promote social-emotional competencies together with academic content are likely effective ways to promote students' positive development across both domains (Berman et al, 2018; Jones & Kahn, 2017). However, evidence from rigorously designed studies on causal links between integrated intervention efforts and children's social-emotional and academic outcomes is limited, particularly during middle childhood, with ambiguous impacts across intervention programs and developmental outcomes (Jones, Barnes, Bailey & Doolittle, 2017; Rimm-Kaufman & Hulleman, 2016). Further, while current evidence suggests that training and supporting teachers in implementing social-emotional learning programs can increase teachers' sense of personal accomplishment and efficacy for managing student behavior (Domitrovich et al., 2016), reduce job-related anxiety and depression (Tyson et al., 2009), and promote higher-quality classroom interactions (Abry et al., 2013; Castillo et al., 2013), the impacts of integrated programs on teachers' functioning and classroom interactions is little understood.

Research Questions:

The purpose of the present study was to examine the experimental impacts of a universal intervention (4Rs+MTP) that integrates the teaching of social-emotional skills into a literacy-based curriculum on teachers' well-being, the observed quality of classroom interactions, and students' social-emotional and academic outcomes. We hypothesized that teachers and students in schools randomly assigned to receive the 4Rs+MTP intervention would show greater improvements over one school year in indicators of teacher well-being, observed classroom interaction quality, and student social-emotional and academic outcomes relative to teachers and students in control schools.

Setting:

This study was conducted in 60 public elementary schools located in the Bronx and Manhattan boroughs of New York City.

Participants:

Participants were third- and fourth-grade teachers ($n = 331$) and students ($n = 5,112$) (see Table 1). Teachers were predominantly White (38.9%), Hispanic/Latino (27.8%) and Black/African American (21.9%) and had, on average, 10.5 years of teaching experience ($SD = 7.6$ years). Students were predominantly Hispanic/Latino (65.3%) and Black/African American (22.3%). One-quarter (25%) had an Individualized Education Plan (IEP) and 84% were eligible for free or reduced-priced lunch.

Intervention:

4Rs+MTP combines two evidence-based programs. Reading, Writing, Respect and Resolution (4Rs) is a 7-unit curriculum centered around children's books that address social-emotional themes (e.g., listening, managing anger, negotiation; Jones et al., 2011). MyTeachingPartner (MTP) is an approach to coaching teachers that involves ongoing, video-based feedback and support centered on teacher-student interactions that promote curriculum effectiveness (Allen et al., 2011; Downer et al., 2011). The integrated 4Rs+MTP program was implemented over one school year and included (i) a 4Rs Introductory Course spanning 36 hours over 6 separate days, (ii) three start-of-the-year school visits to teachers by their 4Rs Coach, (iii) eight video-based feedback cycles, and (iv) web-based resources, including a 4Rs lesson tracker, and short and full-length videos of effective classroom interactions and lesson implementation.

Research Design:

This study employed a school-level RCT, with schools randomized across two sequential cohorts into 4Rs+MTP intervention ($n = 31$) and control ($n = 29$) conditions.

Data Collection and Analysis:

Assessments of teachers, students, and classrooms were conducted in fall/winter (Time 1) and spring (Time 2) during one school year. Teachers reported on their experiences of depression, anxiety, and stress (DASS: $\alpha = .87-.94$; Lovibond & Lovibond, 1995), psychological well-being ($\alpha = .86-.93$; Ryff & Keyes, 1995), professional burnout ($\alpha = .86$; Maslach, Jackson & Leiter, 1997), positive and negative affect ($\alpha = .86-.93$; Watson, Clark, & Tellegen, 1988), and attitudes about social and character development activities with students (SACD Research Consortium). Classroom interactions, specifically, emotional support, organization, and instructional support, were observed and rated by trained research staff using the CLASS-UE (Pianta, LaParo, &

Hamre, 2003). Children reported on their own hostile attribution bias ($\alpha=.74-.78$) and aggressive interpersonal strategies ($\alpha=.86-.87$; Dodge et al., 2002), aggressive behavior ($\alpha=.80-.81$; Orpinas & Frankowski, 2001), and internalizing symptoms ($\alpha=.82-.87$; Reynolds & Kamphaus, 1998). Teachers reported on children's social competence ($\alpha=.97$; CPPRG, 1999), aggressive behaviors and conduct problems ($\alpha=.76-.95$; Reynolds & Kamphaus, 1998), language and literacy skills ($\alpha=.98$; ECLS-K), and student-teacher relationship closeness and conflict ($\alpha=.86-.93$; Pianta, 1992). Teacher demographics were self-reported; the NYC DOE provided child demographics and state ELA and Math test scores.

Results:

Analyses were conducted using Mplus (7.4). Two-level models (teacher/classroom, school) were estimated, predicting Time 2 teacher and classroom-interaction outcomes from school-level random assignment status, controlling for Time 1 scores, teacher and classroom characteristics, and cohort (see Table 2). Teachers in intervention schools reported marginally lower total DASS scores ($B = -0.055$, $p < .10$, accounted for by significantly lower levels of anxiety, $B = -0.084$, $p < .05$ and marginally lower levels of stress, $B = -0.094$, $p < .10$). Classrooms of teachers in the intervention group were also rated as significantly higher in emotionally supportive interactions than classrooms of teachers in the control condition ($B = 0.214$, $p < .05$). Three-level models (child, teacher/classroom, school) were estimated in Mplus (7.4) predicting Time 2 child outcomes from school-level random-assignment status, controlling for Time 1 scores, child, teacher, and classroom characteristics, and cohort. Significant or marginally significant positive impacts were found for three of six teacher-reported outcomes. Children in intervention schools received end-of-year ratings that were lower on aggressive behavior ($B = -0.04$, $p < .01$) and conduct problems ($B = -0.01$, $p < .10$) and higher on social competence ($B = 0.08$, $p < .001$) than children in control schools (see Table 3). No significant direct effects were observed for child-reported outcomes.

Conclusions:

Findings suggest modest positive effects of 4Rs+MTP on key indicators of teachers' well-being, quality of classroom emotional support, and children's behavioral skills and social competence. Program impacts on students' state ELA and Math test scores, and moderating effects by student behavioral risk at Time 1, will also be presented. This study addresses the intersection of education, prevention, and developmental sciences, and discussion will focus on implications of results for practice and policy.

References:

- Abry, T., Rimm-Kaufman, S.E., Larsen, R.A., & Brewer, A.J. (2013). The influence of fidelity of implementation on teacher–student interaction quality in the context of a randomized controlled trial of the Responsive Classroom approach. *Journal of School Psychology, 51*, 437–453.
- Allen, J.P., Pianta, R.C., Gregory, A., Mikami, A.Y., Lun, J. (2011). An interaction-based approach to enhancing secondary school instruction and student achievement. *Science, 333*, 1034-1037.
- Berman, S., Chaffee, S. & Sarmiento, J. (2018). *The practice base for how we learn: Supporting students' social, emotional, and academic development*. Consensus Statements of Practice, Council of Distinguished Educators, National Commission on Social, Emotional, and Academic Development. The Aspen Institute.
- Castillo, R., Fernández-Berrocal, P., & Brackett, M.A. (2013). Enhancing teacher effectiveness in Spain: A pilot study of The RULER approach to social and emotional learning. *Journal of Education and Training Studies, 1* (2).
- Dodge, K. A., Laird, R., Lochman, J. E., Zelli, A., & Conduct Problems Prevention Research Group (2002). Multidimensional latent-construct analysis of children's social-information processing patterns: Correlations with aggressive behavior problems. *Psychological Assessment, 14*(1), 60–73.
- Downer, J., Pianta, R., Fan, X., Hamre, B., Mashburn, A., & Justice, L. (2011). Effects of web-mediated teacher professional development on the language and literacy skills of children enrolled in pre-kindergarten programs. *NHSA Dialog, 14*(4), 189–212. doi:10.1080/15240754.2011.613129.
- Ialongo, N. (2016). How do school-based prevention programs impact teachers? Findings from a randomized trial of an integrated classroom management and social-emotional program. *Prevention Science, 17*, 325-337.
- Jones, S.M., Barnes, S.P., Bailey, R., & Doolittle, E.J. (2017). Promoting social and emotional competencies in elementary school. *The Future of Children, 27*, pp. 49-72. Princeton University. <https://www.jstor.org/stable/44219021>
- Jones, S.M., Brown, J.L., & Aber, J.L. (2011). Two year impacts of a universal school-based social-emotional and literacy intervention: An experiment in translational developmental research. *Child Development, 82*, 533-554.
- Jones, S.M. & Kahn, J. (2017). *The evidence base for how we learn: Supporting students' social, emotional, and academic development*. Consensus Statements of Evidence, Council of Distinguished Scientists, National Commission on Social, Emotional, and Academic Development. The Aspen Institute.
- Lovibond, S.H. & Lovibond, P.F. (1995). *Manual for the Depression Anxiety Stress Scales. (2nd. Ed.)* Sydney: Psychology Foundation.
- Maslach, C., Jackson, S. E., & Leiter, M. P. (1997). Maslach Burnout Inventory. In C. P. Zalaquett & R. J. Wood (Eds.), *Evaluating stress: A book of resources* (pp. 191-218). Lanham, MD: Scarecrow Education.
- Orpinas, P., & Frankowski, R. (2001). The Aggression Scale: A self-report measure of aggressive behavior for young adolescents. *Journal of Early Adolescence, 21*, 50-67.
- Pianta, R. (1992). *Student-Teacher Relationship Scale*. Charlottesville, VA: University of Virginia.

- Reynolds, C.R., & Kamphaus, R.W. (1998). *Behavioral Assessment System for Children*. Circle Pines, MN: American Guidance Service Inc.
- Rimm-Kaufman, S. E. & Hulleman, C.S. (2015). SEL in elementary school settings: Identifying mechanisms that matter. In J.A. Durlak, C.E. Domitrovich, R.P. Weissberg, & T. P. Gullotta (Eds.), *Handbook of Social and Emotional Learning: Research and Practice* (pp. 151-166). New York: Guilford.
- Ryff, C. D. & Keyes, C. L. M. (1995). The structure of psychological well-being revisited. *Journal of Personality and Social Psychology*, 69(4), 719-727.
- Social and Character Development (SACD) Research Consortium (2004). *Social and Character Development Research Program Evaluation Instrument*. Washington, DC: Institute of Education Sciences, U.S. Department of Education.
- Tyson, O., Roberts, C.M., & Kane, R. (2009). Can implementation of a resilience program for primary school children enhance the mental health of teachers? *Australian Journal of Guidance & Counselling*, 19, 116–130.
- Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS. *Journal of Personality and Social Psychology*, 54, 1063-1070.

Table 1. Sample Demographic Characteristics

Student Characteristics	Intervention (<i>n</i> = 2,332)			Control (<i>n</i> = 2,780)			Total Sample (<i>n</i> = 5,112)		
	Mean/%	SD	Range	Mean/%	SD	Range	Mean/%	SD	Range
Age (years)	8.79	0.79	6.0-12.0	8.81	0.80	5.0-12.0	8.80	0.79	5.0-12.0
Gender									
Female	52.70		0-100	51.23		0-100	51.90		0-100
Male	47.30		0-100	48.77		0-100	48.10		0-100
Race/Ethnicity									
White	4.90		0-100	7.10		0-100	6.10		0-100
Hispanic/Latino	64.50		0-100	66.00		0-100	65.30		0-100
Black/African American	26.60		0-100	18.70		0-100	22.30		0-100
Multi-racial	0.80		0-100	0.70		0-100	0.70		0-100
Asian	2.10		0-100	6.50		0-100	4.50		0-100
Native American	0.40		0-100	0.40		0-100	0.40		0-100
Individualized Education Plan (IEP)	25.00		0-100	25.00		0-100	25.00		0-100
Free/reduced priced lunch eligibility	87.00		0-100	81.00		0-100	84.00		0-100
Teacher Characteristics									
	Intervention (<i>n</i> = 151)			Control (<i>n</i> = 183)			Total Sample (<i>n</i> = 334)		
	Mean/%	SD	Range	Mean/%	SD	Range	Mean/%	SD	Range
Years of teaching experience	11.99	8.60	1-40	9.54	6.39	1-28	10.66	7.57	1-40
Gender									
Female	90.67		0-100	91.11		0-100	90.91		0-100
Male	9.33		0-100	8.89		0-100	9.09		0-100
Race/Ethnicity									
White	32.62		0-100	44.24		0-100	38.89		0-100
Hispanic/Latino	28.37		0-100	27.27		0-100	27.78		0-100
Black/African American	29.08		0-100	15.76		0-100	21.90		0-100
Multi-racial	5.67		0-100	9.09		0-100	7.52		0-100
Asian or Other	4.26		0-100	3.64		0-100	3.92		0-100

Table 2. Results of Two-Level Models Estimating 4Rs+MTP Program Impacts on Teacher Outcomes and Classroom Interactions

Teacher Self-Reported Outcomes	Estimate	(SE)
Depression, Anxiety & Stress	-0.055 ^t	(0.03)
Depression	-0.036	(0.04)
Anxiety	-0.084*	(0.04)
Stress	-0.094 ^t	(0.05)
Psychological Well-Being	0.074	(0.05)
Professional Burnout	-0.055	(0.08)
Positive Affect	-0.018	(0.08)
Negative Affect	-0.100	(0.07)
Attitudes about Soc & Char Dev	0.160**	(0.06)
Observed Classroom Interaction Quality	Estimate	(SE)
Emotional Support	0.214*	(0.10)
Classroom Organization	-0.034	(0.09)
Instructional Support	0.018	(0.10)

Note. Intervention group = 1; Control group =0

^tp <= .10. *p <= .05. **p <= .01. ***p <= .001.

Table 3. Results of Three-Level Models Estimating 4Rs+MTP Program Impacts on Student Social-Emotional and Academic Outcomes

Student Outcomes	Estimate	(SE)
Social Competence ^a	0.076***	(0.02)
Aggressive Behavior ^a	-0.039**	(0.01)
Conduct Problems ^a	-0.005 ^t	(0.00)
Teacher-Child Closeness ^a	0.036	(0.04)
Teacher-Child Conflict ^a	-0.057	(0.04)
Language and Literacy Skills ^a	0.053	(0.05)
Hostile Attribution Bias ^b	0.013	(0.01)
Aggressive Interpersonal Strategies ^b	0.013	(0.01)
Aggressive Behavior ^b	0.000	(0.03)
Internalizing Problems ^b	-0.006	(0.01)

Note. Intervention group = 1; Control group =0

^aTeacher reported; ^b Student reported.

^tp <= .10. *p <= .05. **p <= .01. ***p <= .001.

