Abstract Title Page
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Title: Teacher Training, Classroom Consultation, and Child Outcomes in the Foundations of Learning Project

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Abstract Body

Background / Context: *Description of prior research and its intellectual context.*

Long-term studies indicate that quality preschool services offer significant benefits to disadvantaged children in the areas of lifetime educational attainment, earnings, and employment (Schweinhart et al., 2005; U.S. Dept. of Health and Human Services, 2003). Research also suggests that many children from disadvantaged backgrounds lack the social and emotional skills necessary to thrive in the preschool environment (Blanchard, Gurka, & Blackman, 2006; Fantuzzo, Bulotsky, McDermott, Mosca, & Lutz, 2003; Qi & Kaiser, 2003; Raver & Knitzer, 2002). Children with low levels of social competence and high rates of behavior problems represent an especially large percentage of school districts' high-expenditure pupils (Chambers, Kidron, & Spain, 2004). These children are more likely to repeat a grade early in elementary school (Beebe-Frankenberger, Bocian, MacMillan, & Gresham, 2004), and to receive special education services (National Center for Health Statistics, 2005; Wagner & Blackorby, 2002). They are also expelled at higher rates (Gilliam, 2005), and in addition to limiting their own learning, children with behavioral challenges inhibit the learning of peers by distracting and diverting teacher attention away from other students (Arnold, McWilliams, & Arnold, 1998; Raver, 2002).

Evidence from teachers supports this concern; preschool teachers in low-income neighborhoods report that between 15 and 30 percent of the young children in their classrooms exhibit clinically high levels of disruptive and challenging behaviors (Gross, Sambrook, & Fogg, 1999; Kuperschmidt, Bryant, & Willoughby, 2000; Rimm-Kaufman, Pianta, & Cox, 2000). Moreover, a nominal number (between 1-10%) receive services for these difficulties (Kazdin & Kendall, 1998; Pottick & Warner, 2002).

In general, educators have limited knowledge and receive very little training about how to address these issues (Weist, 2005). This is unfortunate since early childhood communities and schools are a logical choice for the delivery of supports to address children's challenging behavior. Emerging research in the prevention literature suggests that improving children's social and emotional skills may reduce problem behaviors (Raver, Jones, Li-Grining, Zhai, Metzger & Dub, 2009) and be an effective way to improve school readiness (Morris, Raver, Lloyd,& Millenky, 2009). In fact, teachers spend an average of 1080 hours per year with children (Weist, 2005), and this time lends itself to teachers engaging with children in a variety of ways including supporting their social and emotional development (Han Weiss, 2005; Durlack and Wells,1997).

Purpose / Objective / Research Question / Focus of Study: *Description of the focus of the research.*

This presentation will answer the following research questions:

What was the intended implementation of the training and coaching component of FOL?
To what extent was the training and consultation implemented as intended?
How did the combined training and coaching model utilized in the Foundations of Learning (FOL) project influence children's behavior and approaches to learning?

Setting: *Description of the research location.*

FOL emerged from early lessons from CSRP, a randomized trial of 18 Head Start centers directed by Dr. Cybele Raver that tested the effectiveness of a uniquely designed two-pronged integrated strategy that combined teacher training *and* classroom consultation (most models only utilize one of these methods). The FOL project was launched in Newark, NJ, in two phases: a smaller-scale pilot phase during the 2006-2007 school year, followed by a second larger scale phase in the 2007-2008 school year. In Chicago, IL, the project was launched during the 2008-2009 academic year.

Population / Participants / Subjects: *Description of the participants in the study: who, how many, key features or characteristics.*

The full scale FOL project in Newark included a total of 51 Head Start, public school, and privately operated preschool programs. Principals and Site Directors were asked to choose a single four-year-old classroom within their school or center to participate and each of the 51 classrooms was randomly assigned to either the treatment or control condition In Chicago, directors in 20 Head Start preschool programs selected two classrooms to participate and then random assignment was conducted at the program, or center, level. The Chicago classrooms included a greater mix of three- and four- year old children than in Newark. Approximately 600 children participated in each site.

Intervention / Program / Practice: *Description of the intervention, program or practice, including details of administration and duration.*

Throughout the course of an academic year (September 2008-May 2009 in Chicago), treatment classrooms received the following:

1. Teacher Training: Lead and Assistant Teachers were invited to attend five six-hour training sessions designed to provide teachers with concrete strategies for addressing challenging behaviors and developing positive relationships with their students. The training was based on Carolyn Webster Stratton's *Incredible Years* curriculum and included role-playing, vignettes, small-group discussions, and structured planning time for teachers.
2. Classroom Consultation: Treatment classrooms were assigned a Master's level Clinical Classroom Consultant (CCC) to work with them on managing challenging behavior in the classroom. The goal of the classroom consultation model was to provide a resource to help teachers implement the strategies learned at the training and to provide one-on-one clinical interventions for children at highest risk.
3. Stress Management: During the winter, the CCC and the CCC Coordinator provided customized Stress Management Workshops for all program teachers. The workshops were designed to help teachers identify sources of stress and develop concrete strategies for addressing them while maintaining a positive atmosphere in the classroom. In the months leading up to and following the workshop, the CCCs helped reinforce the stress management skills and techniques with teachers.

Research Design: *Description of research design (e.g., qualitative case study, quasi-experimental design, secondary analysis, analytic essay, randomized field trial).*

The FOL project used a randomized experimental-control design to assess the impact of the model, the program group received the full, integrated intervention combining teacher training with classroom consultation, and the control condition continued their standard program operations without any enhanced services. In Newark, randomization occurred within blocks; in Chicago, randomization was conducted in matched pairs. In addition, a qualitative research component was included to better understand the implementation and replication processes for the intervention. The qualitative component included attention to the dosage and quality all of the intervention components including training, coaching, and stress management services.

Data Collection and Analysis:
Description of the methods for collecting and analyzing data.

In the Chicago findings that are the center of the analysis presented here, the implementation analysis triangulated data from qualitative interviews and focus groups with teachers and consultants, teacher surveys and evaluations, classroom observations, field notes, and research meetings along with data from a structured template completed by consultants on a weekly basis (the Service Provision Form) to draw conclusions about implementation dosage and quality for all of the intervention components. Dosage data (including Service Provision Form data) was analyzed using SAS. Interview transcripts were transcribed and subsequently coded in NVivo using a constant comparative method (Glaser and Strauss, 1967) which allowed key themes to emerge. To assure reliability in coding two members of the team met regularly to develop and review the initial codes, generate data categories, and review interpretations of the data.

The impact analysis draws from baseline and follow-up teacher reports of children's behavior and self regulation in the classroom and direct child assessments conducted in the spring of the intervention year. In the analyses presented, regression-adjusted means are compared for FOL and control classrooms and children. Controls for matched-pair assignment are included in all regression models. In addition, a grand mean imputation strategy was used for missing site, teacher and student baseline characteristics in this analysis.

Random assignment at the center level and inclusion of two classrooms per participating Head Start center necessitated that a three level model would be used for tests of program impacts on child level outcomes. The child-level regression includes controls for matched-pair assignment, baseline child and teacher characteristics, and a limited number of baseline site characteristics. The model for the teacher outcomes adds additional teacher covariates to control for teacher characteristics that could have affected teachers' reporting on these outcomes

Findings / Results: *Description of the main findings with specific details.*

Preliminary analysis of dosage and implementation data indicates the following:

- **We find high levels of dosage of the teacher training.** The large majority of lead and assistant teachers attended the full dosage of the program.
- **Ratings of teacher satisfaction with the trainings were quite high**. Exit surveys conducted at the end of each training session found that the average rating ranged from 4.2 to 4.6 (out of a 1 to 5 rating system) that the teachers strongly agreed that the training content was clear, the training environment was conducive to learning, the trainers themselves were effective and clear, and the training enhanced the teachers' professional development.
- **There were high levels of classroom consultation.** Clinical Classroom Consultants (CCCs) were placed for one day per week in treatment classrooms. Consultants provided an average 217 hours of consultation services per classroom over the course of the academic year out of an expected 253 hours.
- **Consultants were critical in supporting intervention implementation.** The collaboration between consultants and teachers (in addition to an evidenced based training approach and stress management) appears to offer significant advantages to supporting implementation.
- **Manualization and technical assistance around the consultation model was key.** CCCs benefitted from written guidance about the stages of intervention implementation, and found value in being able to not only access clinical supervision but also support around intervention fidelity issues in order to conduct their jobs successfully.

Preliminary analyses of outcomes for children in Chicago indicate the following:

Impacts of FOL-Chicago varied across outcomes assessed, as well as by the source of that information (See Tables 1, 2 and 3). More specifically, we find some evidence of positive impacts of the model on observer reports and direct assessments of children's approach to learning (positive engagement, executive function, and self-regulation- see Table 1), but less consistent effects for outcomes less centrally targeted by the intervention (social problem solving skills and academic skills- see Table 2). And, information collected from teachers shows no benefits of the program on both targeted and nontargeted outcomes; even though information collected from assessors does show some benefits of the intervention (see Table 3).

Impacts from FOL-Chicago are summarized in Figure 1 in the context of findings from CSRP and FOL-Newark, as they build off of the findings from the earlier two trials. Favorable effects are denoted by + signs, unfavorable by – signs, no effect as 0, and if the construct was not measured, as n.a. or not available.

Conclusions:
Description of conclusions, recommendations, and limitations based on findings.

The implementation and impact findings in Chicago, coupled with the earlier analysis of the Chicago School Readiness Project and FOL-Newark, indicate a positive benefit to classrooms and students for the combined training and consultation model. Classrooms appear to be better managed by teachers, and students are more positively engaged and exhibit less conflictual

behavior. Notably, having an explicit and manualized process for consultation and clear standards and access to support about the various phases of consultation, was a critical driver of the intervention implementation process and provided a standard from which to understand if consultation occurred as intended.

However, the data varied slightly across these studies and follow up data is limited in FOL. Further studies would benefit from a consistency in measures across sites and include pre and post measurement of both classrooms and children. As mentioned in the finding sections, independent observations and assessments appear to be less biased, more fine-tuned instruments for illustrating the differences across groups of children and classrooms. In addition, while there has been some focus and follow up on outcomes for children beyond the intervention year, further data collection on the impact of the model on teachers in subsequent years could more fully illustrate the model's potential impact.

Appendices

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Appendix A. References

Arnold, D. H., McWilliams, L., & Arnold, E. H. (1998). Teacher discipline and child misbehavior in preschool: Untangling causality with correlational data. *Developmental Psychology, 34,* 276-287

Beebe-Frankenberger, M., Bocian, K. M., MacMillan, D. L., & Gresham, F. M. (2004). Sorting second-grade students: Differentiating those retained from those promoted. *Journal of Educational Psychology*, *96*, 204-215.

Blanchard, L. T., Gurka, M. J., & Blackman, J. A. (2006). Emotional, developmental, and behavioral health of American children and their families: A report from the 2003 National Survey of Children's Health. *Pediatrics, 117*(6), e1202-e1212.

Chambers, J. G., Kidron, Y., & Spain, A. K. (2004). *Characteristics of high-expenditure students with disabilities, 1999 – 2000*. Washington, DC: American Institutes for Research.

Durlak, J.A., & Wells, A. M. (1997). Primary prevention mental health programs for children and adolescents: A meta-analytic review. *American Journal of Community Psychology.* 25 (2), 115-152.

Fantuzzo, J., Bulotsky, R., McDermott, P., Mosca, S., & Lutz, M. N. (2003). A multivariate analysis of emotional and behavioral adjustment and preschool educational outcomes. *School Psychology Review, 32*(2), 185-203.

Glaser, B. G., & Strauss, A. L. (1967). *The discovery of grounded theory: strategies for qualitative research*. Piscataway, NJ: Transaction Publishers.

Gilliam, W. (2005). Prekindergarteners left behind: Expulsion rates in state prekindergarten systems. New Haven: Yale University Child Study Center.

Gross, D., Sambrook, A., & Fogg, L. (1999). Behavior Problems among young children in low-income urban day care. *Research in Nursing & Health, 22*, 15-25.

Han, S., & Weiss, Bahr. (2005). Sustainability of teacher implementation of school-based mental health programs. *Journal of Abnormal Child Psychology, 33 (6), 665-679.*

Kazdin, A. E., & Kendall, P. C. (1998). Current progress and future plans for developing effective treatments: Comments and perspectives. *Journal of Clinical Child Psychology, 27*(2), 138-145.

Kuperschmidt, J. B., Bryant, D., & Willoughby, M. (2000). Prevalence of aggressive behaviors among preschoolers in Head Start and community child care programs. *Behavioral Disorders, 26,* 42-52.

Morris, P., Raver, C., Lloyd, C., & Millenky, M. (2009). *Can teacher training in classroom management make a difference for children's experiences in preschool?* New York, NY: MDRC.

National Center for Health Statistics. (2005). *NCHS data about special education*. Atlanta, GA: Center for Disease Control.

Pottick, K. J., & Warner, L. A. (2002). *More than 115,000 disadvantaged preschoolers receive mental health services. Update: Latest Findings in Children's Mental Health.* Policy Report Vol.1 (2) submitted to the Annie E. Casey Foundation. New Brunswick, NJ: Institute for Health, Health Care Policy, and Aging Research, Rutgers University.

Qi, C., & Kaiser, A. P. (2003). Behavior problems of preschool children from low-income families: Review of the literature. *Topics in Early Childhood Special Education*, 23(4), 188-216.

Raver, C. C., & Knitzer, J. (2002). *Ready to enter: What research tells policymakers about strategies to promote social and emotional school readiness among three- and four-year-old children*. New York, NY: National Center for Children in Poverty, Columbia University Mailman School of Public Health.

Raver, C. C., Jones, S. M., Li-Grining, C. P., Zhai, F., Metzger, M. W., & Solomon, B. (2009). *Targeting children's behavior problems in preschool classrooms: A cluster-randomized controlled trial.* Journal of Consulting and Clinical Psychology, 77, 302-316.

Rimm-Kaufman, S., Pianta, R., & Cox, M. (2000). Teachers' judgments of problems in the transition to Kindergarten. *Early Childhood Research Quarterly, 15*, 147-166.

Schweinhart, L. J., Montie, J., Xiang, Z. Barnett, W. S., Belfield, C. R., & Nores, M. (2005). *Lifetime effects: The High/Scope Perry Preschool Study through age 40*. Ypsilanti, MI: High/Scope Press.

U.S. Dept. of Health and Human Services, Administration for Children and Families. (2003). *Early Head Start Research and Evaluation (EHSRE) Study, 1996-2001*. Princeton, NJ: Mathematica Policy Research.

Wagner, M., & Blackorby, J. (2002). *Disability profiles of elementary and middle school students with disabilities*. Washington, DC: Office of Special Education Programs, U.S. Department of Education.

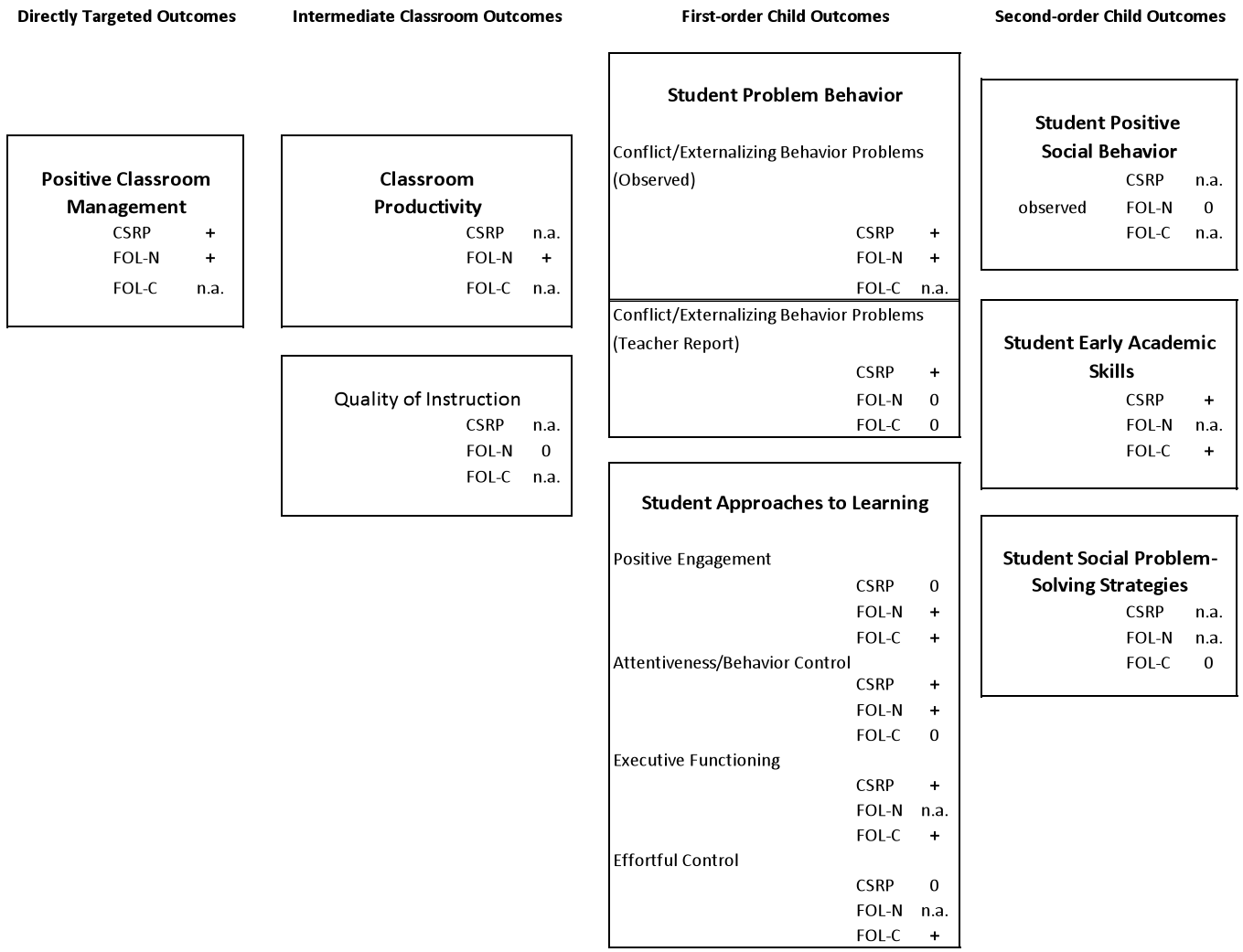
Weist, M. D. (2005). Fulfilling the promise of school-based mental health: Moving toward a public mental health promotion approach. *Journal of Abnormal Child Psychology*, 6, 735-741.

Appendix B. Tables and Figures

Foundations of Learning Demonstration

Figure 1

Summary of Findings across Studies: CSRP, FOL-Newark (FOL-N), and FOL-Chicago (FOL-C)



Foundations of Learning

Table

Program Impacts on Directly Targeted Outcomes: Approaches to Child Behavior Observed and

Outcom	FOL Only Differenc (Impact	Standar Erro	Effec Siz	P-
Approaches to				
Positive engagement/emotion	0.14 **	0.03	0.34	0.01
Attentiveness/inhibitory control	0.04	0.09	0.07	0.66
Executive Functioning (Fine Motor,	0.03	0.05	0.07	0.65
Executive Functioning (Gross Motor,	2.38 *	1.06	0.38	0.06
Effortful Control	7.92 *	3.76	0.32	0.07
Sample	308			

SOURCES: MDRC calculations using Interviewer Assessment observations and direct child assessments Apri-May

NOTE : Statistical levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10

The table estimates of program impact in a model that adjusts for random assignment matched child's teacher reported baseline Behavior Problem Index score, child gender and age, teacher age and level education, additional site level staff present, and site level percentage of children with single

"Positive engagement/emotion" and "Attentiveness/inhibitory control" refer to observer reports of dimension on the PSRA Assessor Report. "Executive Functioning, Fine Motor" refers to percent correct on "Pencil Tap" measure, "Executive Functioning Gross Motor refers to scores on the "Head to Toes"

Foundations of Learning Demonstration

Table 2

Program Impacts on Pre-Academic Skills and Social Problem-solving Skills

Outcome	FOL Chicago Only Difference (Impact)	Standard Error	P-value
Pre-Academic skills			
Early literacy (assessed)	2.36	1.95	0.27
Early math (assessed)	5.10 **	1.81	0.03
Social Problem-solving skills			
Adaptive problem solving (assessed)	0.11	0.37	0.77
Sample size	308		

SOURCES: MDRC calculations using direct child assessments in April-May 2009.

NOTES: Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.

The table presents estimates of program impact in a model that adjusts for random assignment matched pairs, child's teacher reported baseline Behavior Problem Index score, child gender and age, teacher age and level of education, additional site level staff present, and site level percentage of children with single parents

"Early literacy" refers to score on the Letter-Word Identification subtest and "Early math" refers to score on the Applied Prolems subtest of the Woodcock-Johnson. "Early language" refers to score on Peabody Picture Vocabulary Test. "Adaptive problem solving composite" refers to the Challenging Situations Task (CST).

Foundations of Learning Demonstration

Table 3

Program Impacts on Teacher Reported Child Outcomes

Outcome	FOL Chicago Only Difference (Impact)	Standard Error	Effect Size	P-value
Problem behavior				
Internalizing problems	0.99 **	0.42	0.41	0.05
Externalizing problems	0.76	0.92	0.13	0.44
Teacher-Student conflict	-0.41	1.28	-0.07	0.76
Attention problems	0.61	1.21	0.13	0.63
Approaches to learning				
Work-Related skills	-0.12	0.19	-0.10	0.56
Positive social behavior				
Compliance with teachers' directives	-0.07	0.15	-0.09	0.68
Social competence	-0.13	0.14	-0.22	0.40
Teacher-Student closeness	-0.08	1.30	-0.02	0.95
Pre-Academic skills				
Early academic skills	-0.19	0.52	-0.16	0.29
Sample size	526			

SOURCE: Based on MDRC calculations from responses to teacher survey in September 2008 and April-May 2009.

NOTES: Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.

The table presents estimates of program impact in a model that adjust for random assignment matched pairs, child's teacher reported baseline Behavior Problems Index (BPI) score, child gender and age, teacher age, teacher level of education, teacher psychological distress, teacher born in the U.S., teacher confidence in job skills, additional site level staff present, and site level percentage of children with single parents.

Outcome controls for the child's baseline score on a given measure, when available. These include baseline measures for Cooper Farran Behavioral Ratings Scale, BPI, and Positive Behavior Scale.

"Internalizing problems" and "Externalizing problems" refer to the internalizing and externalizing subscales of the BPI. BPI internalizing and externalizing scales were created based on factor analysis work. "Teacher-Student conflict" and "Teacher-Student closeness" refer to the Student-Teacher Relationship Scale conflict and closeness subscales. "Attention problems" refers to the Caregiver-Teacher Report Form attention problems subscale. "Compliance with teachers' directives" and "Social competence" refer to the Positive Behavior Scale compliance and social competence subscales. "Work-Related skills" refers to the Cooper Farran Behavioral Ratings Scale work-related skills subscale. "Early academic skills" refers to the Academic Rating Scale reports of teachers' perceptions of children's language, literacy, math and general knowledge skills.