

## Emotion knowledge as a mediator of school readiness outcomes

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**Background:** Developmental conceptualizations of emotional competence have distinguished emotion knowledge from emotion regulation. Several theoretical models suggest that the acquisition of emotion knowledge makes differential contributions to child school readiness in both cognitive and behavioral domains. However, empirical research directly testing these unique associations remains limited.

**Objective:** This study examined the predicted associations in the context of an experimental intervention that used a social-emotional learning program to enhance children's emotional competence and school readiness. The goal of the study was to determine whether intervention effects on emotion knowledge mediated intervention effects on kindergarten readiness outcomes in areas of academic performance, learning behaviors, and social adjustment, while controlling for the effects of emotion regulation.

**Setting:** The intervention was conducted in 44 Head Start classrooms in Pennsylvania, located in three counties participating in the REDI program, representing a range of urban and rural regions of the state.

**Population:** Participants were 356 children (17% Latinx, 25% African American, and 58% European American; 54% girls;  $M_{\text{age}} = 4.59$  years at initial assessment) recruited from 44 Head Start classrooms. Most participating families had incomes that were below the federal poverty limit (median annual income = \$18,000).

**Intervention:** The Research-Based, Developmentally Informed (REDI) intervention is a curriculum-based intervention delivered by teachers. The intervention programming was integrated into ongoing Head Start classroom programs that were using either High/Scope or Creative Curriculum as their base curriculum, and incorporated curriculum components and teaching strategies designed to promote social-emotional learning and early language and literacy enrichment. Teachers completed 4 days of training workshops and received support in weekly mentoring sessions by REDI trainers.

The Preschool PATHS Curriculum (Domitrovich, Greenberg, Cortes, & Kusche, 1999) served as the foundation of the REDI program, which was designed to facilitate mastery of emotional competence. Following well-specified lesson plans, teachers used puppet characters, role-play demonstrations, and photographs as props in story modeling and discussions throughout the 33 weekly lessons. One lesson and one extension activity were implemented each week, which included group presentations/discussions followed by interactive, play-based extension activities (e.g., group games, cooperative art projects) to reinforce social-emotional concepts and provide opportunities to practice prosocial skills. Lessons in the feelings module utilized these strategies to explicitly introduce and review feelings, and included emotion coaching to help children learn to recognize and label feelings internally and for others. Lessons in the friendship module reinforced cooperative, prosocial skills such as sharing, taking turns, and helping. Through the self-regulation module, teachers modelled the steps of a behavioral

regulation strategy (i.e. “doing turtle”) that included stopping a behavior that was causing excessively disruptive emotions, going into the turtle shell (e.g., hugging themselves), taking a deep calming breath, and clearly stating the problem and emotion(s) they were experiencing. Practice of self-regulation was continually reinforced as teachers reminded children to practice “the turtle” in moments of emotional arousal.

The REDI program also incorporated interactive reading, in which teachers were trained to use open-ended questions, story discussion, and participatory story-retelling to encourage children to remember and process story details to increase their comprehension. The books used in these reading lessons were selected to synchronize with the PATHS themes and included discussions of emotions and social problem-solving, providing additional reinforcement for explicit emotions learning.

**Research Design:** Classrooms were stratified on location (county), length of program (half-day or full-day), and student demographics (% non-white) and then randomized to the intervention or control condition. Classrooms in the same center were always assigned to the same condition, to avoid inadvertent contamination of condition within centers. Racial composition was comparable across intervention and control groups (39% of minority students in the intervention group and 45% in the control group). In addition, the proportion of students who had attended a Head Start program the year prior (approximately 60%) was fairly evenly spread across the intervention and control conditions.

**Data Collection and Analysis:** Parents provided demographic information and ratings of their child’s behavioral adjustment in the first home visit (September – October; T1). Parents were subsequently visited at home to provide similar ratings at post-intervention at the end of the prekindergarten year (May – June; T2), and at a follow-up assessment near the end of the kindergarten year (May; T3).

After parent consent was acquired, baseline child assessments were scheduled at school (September – October; T1). A trained research assistant met with each child during two half-hour individual sessions scheduled outside of the classroom to administer the direct assessments. The same procedure was followed at the end of the year (April-May; T2), and for the follow-up assessments during the spring semester of kindergarten (March-April; T3). In kindergarten, this was a single 45-minute assessment.

Teacher ratings were completed independently by the lead and assistant Head Start teachers at the beginning (October; T1) and at the end of the prekindergarten year (May; T2). Kindergarten teachers were asked to provide similar ratings at the end of the kindergarten year (April; T3).

Data analysis utilized path analytic models to test the theory-based hypothesis that intervention effects on EK mediated later effects on kindergarten school adjustment in areas of academic competence, learning behaviors, and social competence. These models considered ER as a second potential mediator in these models, both to control for ER when testing the models of EK impact, and to identify potential contributions of ER on kindergarten outcomes. Control variables included child age, gender, verbal ability, maternal education, and pre-treatment measures of the outcomes. Bootstrapped confidence intervals were used to test mediation. Analyses were conducted using MPLUS 7. Missing values were estimated using maximum likelihood estimation.

**Results:** Emotion knowledge significantly mediated the effects of explicit SEL intervention on academic performance, prosocial behaviors, and aggressive behaviors, over and above the contributions of emotion regulation.

**Conclusions:** The findings underscore the utility of examining emotion knowledge as a distinct construct of emotional competence with unique contributions to early school adjustment.