Social-Emotional Learning Foundations (SELF) for K-1 students at Risk for EBD: First Year Findings

As many as 20% of children enter school exhibiting aggressive, non-compliant, and disruptive behaviors that impact their ability to fully benefit from early educational experiences (Cooper, Masi, & Vick, 2009; World Health Organization, 2004) and increase their risk for long-term academic and behavioral problems (O'Connor, Dearing, & Collins, 2011). Teachers cite behavioral issues as one of their most pressing concerns (Meister & Melnick, 2003; Pavri, 2004), and children as young as pre-Kindergarten have been removed from school because of their behavior (Gilliam & Shahar, 2006; U.S. Department of Education Office for Civil Rights, 2014). In the current context of high stakes evaluations and initiatives (Every Student Succeeds Act, 2015), many school professionals focus heavily on developing academic skills to the neglect of social-emotional learning (SEL), even though children's early school success depends heavily on successful social-emotional development (see e.g., Blair & Diamond, 2008; Downer & Pianta, 2006). An increasing number of researchers (Hemmeter, Ostrosky, & Fox, 2006; Riggs, Greenberg, Kusche´, & Pence, 2006; Zins, Bloodworth, Weissberg, & Walberg, 2004) emphasize the role that motivation, self-esteem, and self-regulation play in a child's adjustment and connection to school, particularly at the critical transition from pre-school settings to Kindergarten and the primary grades.

Since social-emotional growth and academic learning are inextricably connected (Blair & Diamond, 2008), it is conceptually and practically sound to integrate a SEL curriculum to reduce risk for emotional and behavioral disorders (EBD) within English language arts instruction. The Social-Emotional Learning Foundations (SELF) curriculum consists of a carefully coordinated set of materials and pedagogy selected to promote the development of language-supported self-regulation, specifically for primary grade children at early risk for EBD. SELF lessons incorporate instructional strategies that promote children's use of SEL related vocabulary, self-talk, critical thinking, and application of learned concepts through discourse focused on important social-emotional competencies. SELF small-group lessons maximize opportunities for teacher modeling and language interactions that incorporate vocabulary critical to social-emotional development. The integration of SEL and academic instruction is critical for supporting both behavioral and learning related outcomes.

Theoretical framework

Successful social-emotional growth requires the development of self-regulatory skills that underlie healthy social, emotional, and behavioral functioning (Blair & Diamond, 2008; Riggs et al., 2006). When these processes are under-developed, children may exhibit a variety of maladaptive behaviors that have a negative effect on their adjustment to school. For example, children with aggressive tendencies are often impulsive, tend to misinterpret others' intentions, lack appropriate social decision-making skills, and are often rejected by peers (Dodge et al., 2002). Behavioral difficulties tend to remain stable and are often predictive of problems in adolescence and adulthood (Bradley, Doolittle, & Bartolotta, 2008; Lochman, Dunn, & Klimes-Dougan, 1993).

Self-regulatory skills have been closely linked to neurocognitive mechanisms known as executive function (EF: Riggs & Greenberg, 2004; Blair & Razza, 2007). EF processes and skill development are thought to contribute significantly to a child's social-cognitive and behavioral functioning (Blakemore & Choudhury, 2006; Greenberg et al., 2004; Zelazo & Cunningham, 2007) and are closely related to the development of self-regulation (McClelland & Cameron, 2012). Emerging research indicates that students classified as having social, emotional, or behavior disorders in schools exhibit EF deficits (Feifer & Rattan, 2007; Mattison, Hooper, & Carlson 2006). Most important, teaching students to verbally identify and label their feelings can have a powerful effect on the ability to manage emotions and regulate behavior, and encouraging children to talk about emotional experiences further strengthens the neural integration that contributes to self-regulation (Greenberg, Kusche, & Riggs, 2004). Thus, SEL is dependent on integrated neurocognitive development that can be targeted by interventions such as SELF.

Method

Sample and setting

Our first-year findings are from a four-year federally funded efficacy study to evaluate the effects of SELF. In Year 1, we recruited 51 Kindergarten and 43 first grade teachers from 19 Title I schools across five school districts within one southeastern state. Our Year 1 student sample (n=359) consisted of 197 kindergarteners and 162 first graders, with 179 students participating in the SELF condition and 180 in the business as usual (BAU) condition. (Note: At the time of submission, complete demographic data were not available.)

Intervention description

SELF consists of a carefully coordinated set of materials and pedagogy selected to promote the development of language-supported self-regulation, specifically for primary grade children at early risk for EBD. SELF lessons (approximately 50 at each grade level) are organized around 17 important SEL topics within five critical competencies. Using authentic children's literature, SELF teachers explicitly instruct students in age-appropriate critical competencies of social-emotional learning using targeted vocabulary instruction and the interactive storybook reading strategy of dialogic reading. They incorporate instructional strategies that promote children's use of SEL related vocabulary, self-talk, critical thinking, and application of learned concepts. Application activities require social decision making and help children transfer (generalize) what they have learned in SELF lessons to other contexts. SELF application activities also help students understand story structure, compare and contrast key events in a story, and summarize social-emotional concepts. As such, SELF provides evidence-based comprehension instruction integrated within social-emotional learning topics, originating with the storybook read-aloud and culminating with activities that highlight story elements (Lynch & van den Broek, 2007) and foster social-emotional competence. SELF combines whole-group (the first in each topic) and small-group lessons (the 2nd and 3rd in each topic) to maximize opportunities for teacher modeling and language interactions and offers a feasible and substantial opportunity within the classroom setting to provide a small-group social-emotional learning intervention integrated with K-1 literacy-related

instruction for students at risk.

Research procedures

Once participating teachers were selected and prior to random assignment to treatment or BAU, we asked each teacher to identify and rank 8 students (4 with internalizing and 4 with externalizing behaviors) using The *Systematic Screening for Behavior Disorders* (SSBD; Walker & Severson, 1992) who might be at risk for EBD. We solicited parental consent for 4 students per class to participate in the project and informed parents about assessment and the possibility of small-group instruction in the SELF curriculum. We trained all teachers and research project staff on the informed consent process to assure compliance with human subject protection, and we followed our institution's participant consent protocols.

Study design

The study design is a pretest-posttest cluster randomized efficacy trial with one fixed between-subjects factor to test treatment effects against the effects of BAU. Schools are randomly assigned to condition; randomization at the school level addresses potential contamination between classrooms within schools, as most elementary schools operate with grade level teams who interact on a regular basis. In addition, teachers are nested in schools and are a second random factor. Initial assessments completed by teachers in Year 1 followed professional development (PD); thus we are labeling them "post PD" rather than "pre" assessments. We collected post PD and year-end (following intervention) data for all outcomes.

Data sources

Measures used to assess condition effects included:
  o The *Behavior Rating Inventory of Executive Function- Teacher Form* (BRIEF-T; Gioia, Isquith, Guy, & Kenworthy, 2000) was used to evaluate emotional and behavioral self-regulation and contains 86 items comprising 8 clinical scales that form the Behavioral Regulation Index (BRI), Cognitive Regulation Index (MI), and the Emotion Regulation Index (ERI). The BRIEF assesses behavioral aspects of children's EF from respondents with knowledge relevant to self-regulation in the school environment.
  o The *Clinical Assessment of Behavior Teacher Rating Form* (CAB-T; Bracken & Keith, 2004) consists of 70 questions that comprise 3 clinical scales, 3 adaptive scales, and 4 educationally related clinical clusters. We analyzed scores from 4 subscales: internalizing, externalizing, social skills, and competence.
  o Devereux Student Strengths Assessment (DESSA; LeBuffe, Shapiro, & Naglieri, 2008) is a 72-item, standardized, norm-referenced behavior rating scale measuring SEL competencies that serve as protective factors for children in grades K - 8.
  o The *Student Knowledge Questionnaire* (SKQ), developed by the researchers, assesses how much students know about concepts taught directly in SELF and related to SEL competencies espoused by the Collaborative for Academic, Social, and Emotional Learning (CASEL; see Zins et al., 2004). They include self-awareness, self-management, social awareness, relationship management, and responsible decision-making.
  o *Head-Toes-Knees-Shoulders* (HTKS; Cameron, Ponitz, McClelland, Matthews, & Morrison, 2009) was developed as an easy to administer, direct assessment of self-

regulation for children ages 4-6. Particularly relevant to this study, the HTKS assesses how well children apply cognitive skills to overt behavior, a process required in classrooms settings.

- ⊖ *SELF Vocabulary Assessment.* The researchers designed this curriculum-based measure during SELF development to assess knowledge of key social-emotional learning related vocabulary, measuring both receptive and expressive vocabulary (van der Wissel, 1988). Each item includes 3 tasks: (a) give a definition, (b) use the vocabulary word in an example, and (c) apply the word by answering a multiple-choice question.

Data analyses

To examine the effect of SELF on each outcome variable, we used a 3-level MANOVA model

$$Y_{ijkt} = \gamma_{0t} + \gamma_{1t}Z_k + u_{jkt} + u_{kt} + \varepsilon_{ijkt}$$

where Y_{ijkt} is the score at times $t = 1$ and 2 for student i, in class j, in school k, Z_k is a dummy code (0 for BAU and 1 for SELF) indicating the condition to which school k was assigned and u_{jkt}, u_{kt}, and ε_{ijkt} are class-, school-, and student-level residuals, respectively, at time t; γ_{1t} is the treatment effect for the SELF and BAU groups at time t. Residuals at each level were specified to correlate over time points. We used full information maximum likelihood to estimate coefficients and test hypotheses.

In addition to testing hypotheses about group differences post PD and at year-end (post intervention), we tested hypotheses comparing mean gain for BAU and SELF and determined standardized mean difference effect sizes for between-group differences in means obtained post PD, those obtained at year-end, and gains from post PD to year-end.

Results

Our findings to date indicate that SELF had a positive effect on measures of self-regulation (BRIEF indices), general behavioral functioning (CAB subscales), and SEL (DESSA subscales and SKQ). All mean gain score comparisons between SELF and BAU indicated that the scores of students in the SELF condition improved more than those of comparable (at-risk) students in the BAU condition. Gain score mean differences for Kindergarten students were significant for the Emotion Regulation Index of the BRIEF, Competence and Social Skills subscales of the CAB, the Self-Awareness and Relationship Skills subscales of the DESSA, the SKQ (knowledge about SEL concepts taught in SELF), and for two subscales (definition and example) and the total score on the SELF Vocabulary Assessment. For first grade students, gain score mean differences were significant and positive on all measures except for the Relationship subscale of the DESSA, all scores on the SELF Vocabulary Assessment, and the HTKS. In addition, effect sizes for post intervention mean differences indicated that teacher ratings of students in the SELF condition were more positive than ratings of BAU students. All results are specified in Tables 1-6. In addition to these promising findings, feedback from teachers involved with the intervention indicated SELF could be implemented feasibly within the school day and was viewed as socially valid and effective.

Scientific or scholarly significance of the study or work

Our intent was to develop and test a SEL intervention targeting students at risk for emotional or behavioral problems that could be feasibly implemented in Kindergarten and first grade general education classrooms. SELF provides an opportunity to teach SEL skills during typical academic instruction by integrating SEL with literacy, most prominently, reading comprehension. It is both feasible and efficient, therefore, as storybook reading is a common K-1 activity, and the selected books in SELF allow the teacher to address SEL and literacy development simultaneously. Moreover, teaching SELF lessons in both whole class and small group settings provides a comprehensive approach to differentiated support for students at the universal (Tier 1) level and addresses the needs of students at risk for emotional or behavioral problems (Tier 2) who need more intensive instruction.

Initial first year evidence about the efficacy of SELF is promising, as we obtained positive effect sizes related to SEL, self-regulation, and general behavioral functioning. We realize these are preliminary findings based on the first-year sample only, and it would be premature to draw conclusions at this early stage of our research. We are hopeful, however, that SELF, and other interventions that explicitly teach social-emotional language and SEL competencies through interactive storybook reading, teacher modeling, and social decision-making scenarios will continue to be the focus of rigorous investigations and be incorporated into educational practices to benefit children in the primary grades. As part of our efforts, we aim to offer significant contributions through public scholarship, bridging the research-to-practice gap, providing school professionals with effective practices for students with intrapersonal and interpersonal needs, and disseminating our findings to researchers and practitioners. In addition, we promote public scholarship by maintaining a website devoted to our research, providing public school personnel with summaries of study findings, and continuing collaborative efforts with district and school personnel. Thus, the findings of our study can help guide future research and inform practice for students with social-emotional needs, resulting in improved educational outcomes, particularly for students at risk for EBD.

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Table 1

Inferential Results for Treatment Effects on BRIEF2 Subscales by Grade and Variable

Subscale	Grade	Variable	Estimate	SE	z	p	ES
BRI	K	Post PD	0.929	1.637	0.567	0.570	0.099
		Posttest	-0.550	1.573	-0.350	0.727	-0.062
		Gain	-1.478	0.995	-1.485	0.137	-0.167
	First	Post PD	1.408	1.489	0.946	0.344	0.188
		Posttest	-2.495	1.871	-1.334	0.182	-0.306
		Gain	-3.903	1.769	-2.207	0.027	-0.479
CRI	K	Post PD	2.549	4.227	0.603	0.547	0.146
		Posttest	-1.512	4.594	-0.329	0.742	-0.082
		Gain	-4.060	2.301	-1.765	0.078	-0.221
	First	Post PD	1.143	3.217	0.355	0.722	0.07
		Posttest	-9.587	3.295	-2.909	0.004	-0.59
		Gain	-10.729	4.419	-2.428	0.015	-0.661
ERI	K	Post PD	2.279	1.822	1.251	0.211	0.253
		Posttest	0.057	1.707	0.033	0.973	0.006
		Gain	-2.222	1.134	-1.960	0.050	-0.253
	First	Post PD	1.512	2.061	0.733	0.463	0.173
		Posttest	-3.733	1.918	-1.946	0.052	-0.457
		Gain	-5.245	2.421	-2.167	0.030	-0.642

Note. BRI = Behavior Regulation Index; CRI = Cognitive Regulation Index; ERI = Emotion Regulation Index; K = kindergarten; Post PD = post professional development.

Table 2

Inferential Results for Treatment Effects on CAB Subscales by Grade and Variable

Subscale	Grade	Variable	Estimate	SE	z	p	ES
COM	K	Post PD	-1.464	3.053	-0.480	0.631	-0.099
		Posttest	3.241	3.524	0.920	0.358	0.206
		Gain	4.705	1.920	2.451	0.014	0.299
	First	Post PD	-2.796	2.396	-1.167	0.243	-0.204
		Posttest	6.663	4.131	1.613	0.107	0.445
		Gain	9.459	3.506	2.698	0.007	0.632
EXT	K	Post PD	-0.677	3.593	-0.188	0.851	-0.031
		Posttest	3.161	3.421	0.924	0.355	0.164
		Gain	3.838	2.178	1.762	0.078	0.199
	First	Post PD	-5.452	3.698	-1.474	0.140	-0.294
		Posttest	3.004	4.636	0.648	0.517	0.154
		Gain	8.456	2.477	3.414	0.001	0.434
INT	K	Post PD	-0.145	2.490	-0.058	0.954	-0.013
		Posttest	4.567	2.648	1.725	0.085	0.395
		Gain	4.712	2.646	1.781	0.075	0.408
	First	Post PD	-1.839	2.281	-0.806	0.420	-0.168
		Posttest	5.521	3.083	1.791	0.073	0.501
		Gain	7.360	3.257	2.260	0.024	0.669
SOC	K	Post PD	-1.317	2.854	-0.461	0.645	-0.083
		Posttest	3.645	2.970	1.227	0.220	0.238
		Gain	4.962	2.040	2.432	0.015	0.325
	First	Post PD	-5.128	1.853	-2.768	0.006	-0.378
		Posttest	4.947	2.525	1.960	0.050	0.323
		Gain	10.074	4.338	2.322	0.020	0.657

Note. COM = Competence; EXT = Externalizing Behaviors; INT = Internalizing Behaviors; SOC = Social Skills; K = kindergarten; Post PD = post professional development.

Table 3

Inferential Results for Treatment Effects on DESSA Subscales by Grade and Variable

Subscale	Grade	Variable	Estimate	SE	Z	P	ES
Decision Making							
	K	Post PD	-0.636	1.357	-0.469	0.639	-0.102
		Posttest	0.797	1.492	0.534	0.593	0.115
		Gain	1.433	1.060	1.351	0.177	0.208
	First	Post PD	-3.33	1.056	-3.153	0.002	-0.627
		Posttest	1.529	1.962	0.780	0.436	0.233
		Gain	4.859	1.556	3.122	0.002	0.739
Relationship Skills							
	K	Post PD	-1.503	1.730	-0.869	0.385	-0.194
		Posttest	1.137	1.810	0.628	0.530	0.139
		Gain	2.64	1.224	2.157	0.031	0.322
	First	Post PD	-3.645	2.678	-1.361	0.173	-0.526
		Posttest	2.808	3.716	0.755	0.450	0.337
		Gain	6.453	5.219	1.236	0.216	0.774
Self- Awareness							
	K	Post PD	-0.805	1.180	-0.682	0.495	-0.152
		Posttest	1.405	1.344	1.045	0.296	0.239
		Gain	2.210	0.848	2.607	0.009	0.377
	First	Post PD	-3.459	1.014	-3.409	0.001	-0.750
		Posttest	1.996	1.968	1.014	0.310	0.366
		Gain	5.454	1.834	2.974	0.003	1.001
Self- Management							
	K	Post PD	-0.676	1.658	-0.408	0.683	-0.083
		Posttest	0.451	2.096	0.215	0.830	0.049
		Gain	1.128	1.404	0.803	0.422	0.123
	First	Post PD	-4.242	1.627	-2.608	0.009	-0.623
		Posttest	3.537	2.638	1.341	0.180	0.419
		Gain	7.778	2.548	3.052	0.002	0.920
Social Awareness							
	K	Post PD	-0.291	1.433	-0.203	0.839	-0.043
		Posttest	1.223	1.468	0.833	0.405	0.163
		Gain	1.514	1.22	1.241	0.215	0.201
	First	Post PD	-3.132	1.449	-2.162	0.031	-0.515
		Posttest	2.322	2.431	0.955	0.339	0.324
		Gain	5.454	1.925	2.833	0.005	0.761

Note. K = kindergarten; Post PD = post professional development.

Table 4

Inferential Results for Treatment Effects on Head Toes Knees Shoulders Test of Executive Function by Grade

Grade	Variable	Estimate	SE	z	p	ES
K	Post PD	-0.157	2.340	-0.067	0.947	-0.013
	Posttest	-0.665	2.721	-0.244	0.807	-0.069
	Gain	-0.508	1.189	-0.427	0.669	-0.052
First	Post PD	-1.366	2.457	-0.556	0.578	-0.214
	Posttest	0.922	0.903	1.022	0.307	0.172
	Gain	2.288	2.794	0.819	0.413	0.426

Note. K = kindergarten; Post PD = post professional development.

Table 5

Inferential Results for Treatment Effects on SELF Vocabulary Assessment Subscales and Total Score by Grade

Subscale	Grade	Variable	Estimate	SE	*z*	*p*	ES
Definition	K	Post PD	-0.836	1.010	-0.828	0.408	-0.177
		Posttest	1.515	1.251	1.211	0.226	0.247
		Gain	2.351	0.796	2.955	0.003	0.383
	First	Post PD	2.280	1.145	1.990	0.047	0.41
		Posttest	2.895	1.217	2.379	0.017	0.488
		Gain	0.616	1.329	0.463	0.643	0.104
Example	K	Post PD	-0.152	1.378	-0.110	0.912	-0.021
		Posttest	3.138	1.901	1.651	0.099	0.405
		Gain	3.29	1.474	2.232	0.026	0.425
	First	Post PD	1.523	1.048	1.453	0.146	0.182
		Posttest	4.278	1.196	3.577	<0.001	0.540
		Gain	2.755	1.470	1.875	0.061	0.348
Recognition	K	Post PD	-0.107	0.754	-0.142	0.887	-0.032
		Posttest	0.196	0.848	0.231	0.817	0.055
		Gain	0.303	0.629	0.481	0.630	0.085
	First	Post PD	0.798	0.654	1.220	0.222	0.232
		Posttest	1.842	0.490	3.762	<0.001	0.634
		Gain	1.044	0.646	1.616	0.106	0.36
Total	K	Post PD	-1.174	2.872	-0.409	0.683	-0.086
		Posttest	4.997	3.790	1.318	0.187	0.317
		Gain	6.170	1.773	3.480	0.001	0.391
	First	Post PD	4.575	2.484	1.842	0.065	0.294
		Posttest	8.997	2.504	3.593	<0.001	0.599
		Gain	4.421	2.932	1.508	0.131	0.294

Note. K = kindergarten; Post PD = post professional development.

Table 6

Inferential Results for Treatment Effects on Student Knowledge Questionaire by Grade

Grade	Variable	Estimate	SE	z	p	ES
K	Post PD	-3.694	1.186	-3.114	0.002	-0.748
	Posttest	1.718	1.479	1.162	0.245	0.300
	Gain	5.412	1.264	4.281	<0.001	0.946
First	Post PD	-4.259	1.039	-4.099	<0.001	-0.893
	Posttest	3.431	1.737	1.975	0.048	0.613
	Gain	7.690	1.290	5.960	<0.001	1.374

Note. K = kindergarten; Post PD = post professional development.