

Efficacy of a K-1 Social-Emotional Learning Intervention for Students At-Risk for EBD: Initial Findings

Background/Context

In the current context of high stakes 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 Nix, Bierman, Domitrovich, & Gill, 2013; Taylor, Oberle, Durlak, & Weissberg, 2017). Researchers (e.g., Denham & Brown, 2010; Hemmeter, Ostrosky, & Fox, 2006) emphasize the role that motivation, self-esteem, and self-regulation play in a child's adjustment to school. Self-regulatory skill development is thought to contribute significantly to a child's social-cognitive and behavioral functioning (Greenberg et al., 2004; Zelazo & Cunningham, 2007). 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). As social-emotional growth and academic learning are inextricably connected (Blair & Diamond, 2008; Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011), it is conceptually and practically sound to integrate a SEL curriculum within English Language Arts instruction to reduce risk for emotional and behavioral disorders (EBD).

Purpose/ Research Question

The purpose of this poster presentation is to report on findings from the first two years of a three-year federally funded efficacy study to evaluate the effects of the Social-Emotional Learning Foundations (SELF) curriculum. Our primary research questions concern the efficacy of SELF compared to business as usual (BAU) for improving outcomes related to social-emotional competence, language development, self-regulatory skills, and school adjustment among Kindergarten and First Grade children at risk for EBD.

Setting

Participating teachers were recruited from 39 Title I schools in 9 diverse (e.g., urban, rural, small city) districts within one southeastern state.

Participants

Participating students were from 122 Kindergarten and 100 first grade classrooms. The target student sample (N=876) consisted of 495 Kindergarteners and 381 first graders, with 437 students participating in the SELF condition and 439 in the BAU condition. Target students were identified by teachers as potentially at risk for EBD. (Note: We will report specific demographic characteristics in the completed poster.)

Intervention

The Social-Emotional Learning Foundations (SELF) curriculum integrates SEL and literacy-related instruction and was designed to promote the development of language-supported self-regulation, specifically for K-1 grade children at early risk for EBD. SELF incorporates instructional strategies that promote children's use of SEL related vocabulary, self-talk, and critical thinking within 5 critical social-emotional competencies. Lessons (approximately 50 at each grade level) are organized around 17 SEL topics, each with a designated storybook, and combine whole-group (first lesson per topic) and small-group instruction (2nd and 3rd lessons per topic). Small-group lessons, taught to targeted students, maximize opportunities for teacher modeling and language interactions that incorporate vocabulary critical to SEL and self-regulation. Thus, SELF offers a feasible opportunity for classroom-based SEL instruction integrated with academics for students at risk.

Research Design

Prior to random assignment of schools to condition, we asked each participating teacher to identify and rank 6-8 students, 3-4 with internalizing and 3-4 with externalizing behaviors, using *The Systematic Screening for Behavior Disorders* (SSBD; Walker & Severson, 1992). We solicited parental consent for 4 target students per class. Randomization at the school level addressed potential contamination within schools. We trained all teachers and project staff on the consent process to assure compliance with human subject protection. **The study design** is a pretest-posttest cluster randomized efficacy trial with two between-subjects factors: intervention (SELF and BAU) and grade (Kindergarten and First Grade). Teachers are nested in schools and are a second random factor.

Data Collection and Analysis

We collected the first wave of data from all teachers following professional development (PD; thus using the label "post PD", rather than "pre") and at posttest using the following measures: *Behavior Rating Inventory of Executive Function- Teacher Form* (BRIEF-T; Gioia, Isquith, Guy, & Kenworthy, 2000), *Clinical Assessment of Behavior Teacher Rating Form* (CAB-T; Bracken & Keith, 2004), the Devereux Student Strengths Assessment (DESSA; LeBuffe, Shapiro, & Naglieri, 2008), and the *SELF Student Knowledge Questionnaire* (SKQ), a researcher designed measure of key SEL concepts. All target students were individually assessed by assessors blind to condition post PD and post on the *SELF Vocabulary Assessment* and the *HTKS*, a published measure of self-regulation (Ponitz, et al., 2008).

To analyze the data, we used a 3-level MANOVA model

$$Y_{ijkt} = \gamma_{0t} + \gamma_{1t}T_k + \gamma_{2t}G_{jk} + \gamma_{3t}T_k \times G_{jk} + u_{jkt} + u_{kt} + \varepsilon_{ijkt}$$

where Y_{ijkt} is the score at times $t = 1$ and 2 for student i , in class j , in school k , Z_k is coded $-.5$ for BAU and $.5$ for SELF indicating the condition to which school k was assigned, G_{jk} is coded $-.5$ for Kindergarten and $.5$ for First Grade, 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, γ_{2t} is

the grade effect, and γ_{3t} is the treatment by grade (TxG) interaction 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.

Results

Our findings indicate that SELF had significant positive effects on all outcome measures with the exception of HTKS with no moderation by grade. Effect sizes ranged from 0.25 (CAB Externalizing subscale) to 0.68 (SKQ). Descriptive statistics and results of inferential analyses for each measure are presented in Tables 1-12.

Conclusions/Limitations/Recommendations

Preliminary findings indicate that SELF improved multiple outcomes related to SEL and behavioral adjustment. SEL intervention can, therefore, be integrated with literacy instruction within the regular classroom setting and has promise for improving skills critical to success in school for children with early risk for EBD. We interpret these findings cautiously given that all but two measures were completed by teachers who implemented the intervention, but we plan to substantiate these results with additional direct assessments and potentially conduct follow-up studies to determine whether positive changes are sustained.

References

- Blair, C., & Diamond, A. (2008). Biological processes in prevention and intervention: The promotion of self-regulation as a means of preventing school failure. *Development and Psychopathology, 20*, 899-911.
- Bracken, B. A., & Keith, L. K. (2004). *Clinical Assessment of Behavior*. Lutz, FL: Psychological Assessment Resources.
- Denham, S. A., & Brown, C. (2010) "Plays nice with others": Social-emotional learning and academic success. *Early Education and Development, 21*(5), 652-680.
- Durlak, J. A., Weissberg, R. P., Dymnicki, A. B., Taylor, R. D., & Schellinger, K. B. (2011). The impact of enhancing students' social and emotional learning: A meta-analysis of school-based universal interventions. *Child Development, 82*(1), 405-432.
- ESSA (2015). Every Student Succeeds Act of 2015, Pub. L. No. 114-95 § 114 Stat. 1177 (2015-2016).
- Gioia, G. A., Isquith, P. K., Guy, S. C., & Kenworthy, L. (2000). *BRIEF2: Behavior Rating Inventory of Executive Function, second edition*. Lutz, FL: Psychological Assessment Resources, Inc.
- Greenberg, M. T., Kusche, C. A., & Riggs, N. (2004). The PATHS curriculum: Theory and research on neurocognitive development and school success. In J. E. Zins, R. P. Weissberg, M. C. Wang, & H. J. Walberg (Eds.), *Building academic success on social and emotional learning: What does the research say?* (170-188). New York: Teachers College Press.

- Hemmeter, M. L., Ostrosky, M., & Fox, L. (2006). Social and emotional foundations for early learning: A conceptual model for intervention. *School Psychology Review, 35*(4), 583-601.
- LeBuffe, P. A., Shapiro, V. B., & Naglieri, J. A. (2008). *The Devereux Student Strengths Assessment (DESSA)*. Lewisville, NC: Kaplan Company.
- Nix, R. L., Bierman, K. L., Domitrovich, C. E., & Gill, S. (2013). Promoting children's social-emotional skills in preschool can enhance academic and behavioral functioning in kindergarten: Findings from Head Start REDI. *Early Education and Development, 24*(7), 1000-1019.
- Ponitz, C. C., McClelland, M. M., Jewkes, A. M., Connor, C. M., Farris, C. L., & Morrison, F. J. (2008). Touch your toes! Developing a direct measure of behavioral regulation in early childhood. *Early Childhood Research Quarterly, 23*, 141-158.
- Taylor, R. D., Oberle, E., Durlak, J. A., & Weissberg, R. P. (2017). Promoting positive youth development through school-based social and emotional learning interventions: A meta-analysis of follow-up effects. *Child Development, 88*(4), 1156-1171.
- Walker, H. M., & Sevenson, H. H. (1992). *Systematic Screening for Behavior Disorders (SSBD): User's guide and administration manual*. Longmont, CO: Sopris West.
- Zelazo, P. D., & Cunningham, W. A. (2007). Executive Function: Mechanisms underlying emotion regulation. In J. Gross (Ed.), *Handbook of emotion regulation*. New York: Guilford.

Table 1

Descriptive Statistics for BRIEF2 Subscales by Grade and Treatment Group

Subscale	Grade	Group	Post PD			Post		
			N	Mean	SD	N	Mean	SD
BRI	K	Control	247	26.263	8.849	221	24.900	8.994
	K	SELF	231	26.706	9.026	207	23.449	8.477
	First	Control	188	27.495	8.102	160	26.400	8.098
	First	SELF	182	27.577	7.837	163	23.276	7.904
CRI	K	Control	247	59.757	18.182	221	57.014	19.358
	K	SELF	231	61.377	17.494	207	52.580	16.012
	First	Control	188	64.803	17.302	160	60.619	16.866
	First	SELF	182	63.582	17.662	163	52.595	17.381
ERI	K	Control	247	28.915	8.632	221	27.443	8.748
	K	SELF	231	29.823	8.819	207	25.696	8.452
	First	Control	188	30.771	9.069	160	28.569	8.648
	First	SELF	182	31.000	8.826	163	26.436	8.380

Notes. BRIEF2 = Behavior Rating Inventory of Executive Function, Second Edition; Post PD = post professional development; BRI = Behavior Regulation Index; CRI = Cognition Regulation Index; ERI = Emotion Regulation Index; K = Kindergarten; SELF = intervention group.

Table 2

Summary of Inferential Tests by Subscale and Variable: BRIEF2

Subscale	SV	Variable	Estimate	Standard Error	<i>z</i>	<i>p</i>	ES
BRI	Treatment	Post PD	0.349	0.760	0.459	0.647	0.041
		Post	-2.298	0.823	-2.793	0.005	-0.273
	Grade	Post PD	1.102	0.678	1.626	0.104	0.129
		Post	0.691	0.659	1.048	0.295	0.082
	TxG	Post PD	-0.442	1.370	-0.323	0.747	-0.052
		Post	-1.221	1.312	-0.930	0.352	-0.145
CRI	Treatment	Post PD	-0.018	1.543	-0.012	0.991	-0.001
		Post	-6.667	1.789	-3.726	0.000	-0.380
	Grade	Post PD	3.525	1.835	1.921	0.055	0.200
		Post	2.157	1.691	1.275	0.202	0.123
	TxG	Post PD	-3.013	3.937	-0.765	0.444	-0.171
		Post	-3.625	3.553	-1.020	0.308	-0.207
ERI	Treatment	Post PD	0.629	0.787	0.800	0.424	0.071
		Post	-2.288	0.743	-3.079	0.002	-0.266
	Grade	Post PD	1.432	0.749	1.911	0.056	0.163
		Post	1.080	0.722	1.497	0.134	0.126
	TxG	Post PD	-0.633	1.483	-0.426	0.670	-0.072
		Post	-0.404	1.459	-0.277	0.782	-0.047

Notes. BRIEF2 = Behavior Rating Inventory of Executive Function, Second Edition; Post PD = post professional development; BRI = Behavior Regulation Index; CRI = Cognition Regulation Index; ERI = Emotion Regulation Index.

Table 3

Descriptive Statistics for CAB Subscales by Grade and Treatment Group

Subscale	Grade	Group	Post PD			Post		
			N	Mean	SD	N	Mean	SD
COM	K	Control	247	54.065	15.466	221	57.443	16.392
	K	SELF	231	53.144	15.167	207	62.010	14.955
	First	Control	188	50.750	15.046	160	54.306	14.700
	First	SELF	182	50.593	15.309	163	61.124	15.834
EXT	K	Control	247	63.300	19.973	221	66.077	19.408
	K	SELF	231	63.468	20.764	207	70.048	18.264
	First	Control	188	61.021	19.497	160	62.363	18.598
	First	SELF	182	60.110	18.640	163	67.271	18.508
INT	K	Control	247	54.753	11.925	221	57.163	11.625
	K	SELF	231	54.147	11.442	207	61.305	10.756
	First	Control	188	51.213	12.304	160	53.800	12.037
	First	SELF	182	50.352	11.011	163	58.564	11.538
SOC	K	Control	247	57.283	15.064	221	60.647	15.008
	K	SELF	231	56.111	14.843	207	64.671	14.523
	First	Control	188	55.618	14.098	160	57.338	14.083
	First	SELF	182	53.835	13.726	163	62.600	14.935

Notes. CAB = Clinical Assessment of Behavior; Post PD = post professional development; COM = competence; EXT = externalizing behavior; INT = internalizing behavior; SOC = social skills; K = Kindergarten; SELF = intervention group.

Table 4

Summary of Inferential Tests by Subscale and Variable: CAB

Subscale	SV	Variable	Estimate	Standard Error	<i>z</i>	<i>p</i>	ES
COM	Treatment	POST PD	-0.366	1.331	-0.275	0.783	-0.024
		POST	6.181	1.658	3.727	0.000	0.400
	Grade	POST PD	-2.949	1.440	-2.049	0.040*	-0.194
		POST	-2.352	1.472	-1.598	0.110	-0.152
	TxG	POST PD	0.967	2.980	0.325	0.746	0.064
		POST	1.797	2.985	0.602	0.547	0.116
EXT	Treatment	POST PD	-0.607	2.028	-0.299	0.765	-0.031
		POST	4.876	2.039	2.391	0.017	0.257
	Grade	POST PD	-2.548	1.594	-1.599	0.110	-0.129
		POST	-2.964	1.494	-1.984	0.047	-0.156
	TxG	POST PD	-1.688	3.161	-0.534	0.593	-0.085
		POST	-0.843	2.991	-0.282	0.778	-0.044
INT	Treatment	POST PD	-0.815	1.072	-0.760	0.447	-0.070
		POST	4.975	1.108	4.492	0.000	0.432
	Grade	POST PD	-3.280	1.061	-3.091	0.002	-0.280
		POST	-2.983	1.159	-2.574	0.010	-0.259
	TxG	POST PD	-0.530	2.087	-0.254	0.800	-0.045
		POST	0.265	2.300	0.115	0.908	0.023
SOC	Treatment	POST PD	-1.439	1.525	-0.943	0.346	-0.099
		POST	5.130	1.656	3.098	0.002	0.350
	Grade	POST PD	-1.839	1.211	-1.519	0.129	-0.127
		POST	-2.605	1.106	-2.355	0.019	-0.178
	TxG	POST PD	-0.744	2.409	-0.309	0.758	-0.051
		POST	-0.064	2.198	-0.029	0.977	-0.004

*Non-significant after correction for multiplicity.

Notes. CAB = Clinical Assessment of Behavior; POST PD = post professional development; COM = competence; EXT = externalizing behavior; INT = internalizing behavior; SOC = social skills.

Table 5

Descriptive Statistics for DESSA Subscales by Grade and Treatment Group

Subscale	Grade	Group	Post PD			Post		
			N	Mean	SD	N	Mean	SD
DM	K	Control	247	16.130	6.816	220	18.086	7.211
	K	SELF	226	15.739	5.725	205	20.834	6.537
	First	Control	188	15.968	5.904	160	17.338	6.411
	First	SELF	181	14.530	5.679	163	19.755	6.989
RS	K	Control	247	20.854	8.298	220	23.636	8.892
	K	SELF	226	19.420	7.206	205	26.820	8.080
	First	Control	188	20.048	7.363	160	21.844	8.234
	First	SELF	181	17.934	7.238	163	24.994	8.892
S-A	K	Control	247	12.304	5.717	220	14.459	6.089
	K	SELF	226	11.088	5.480	204	17.123	5.788
	First	Control	188	12.920	5.277	160	14.306	5.450
	First	SELF	181	10.917	4.915	163	16.822	5.971
S-M	K	Control	247	20.660	8.504	220	24.095	9.414
	K	SELF	226	21.235	7.559	204	27.539	8.870
	First	Control	188	21.191	7.697	160	23.238	8.392
	First	SELF	181	19.011	7.253	163	26.368	9.164
SA	K	Control	247	17.960	6.878	220	20.382	7.601
	K	SELF	226	17.898	5.992	205	23.024	7.067
	First	Control	188	17.548	6.586	160	19.044	7.114
	First	SELF	181	15.878	6.037	163	21.552	7.478

Notes. DESSA = Devereux Student Strengths Assessment; Post PD = post professional development; DM = decision making; RS = relationship skills; S-A = self-awareness; S-M = self-management; SA = social awareness; K = Kindergarten; SELF = intervention group.

Table 6

Summary of Inferential Tests by Subscale and Variable: DESSA

Subscale	SV	Variable	Estimate	Standard		z	p	ES
				Error				
DM	Treatment	POST PD	-0.827	0.570		-1.451	0.147	-0.136
	Treatment	POST	2.955	0.790		3.742	0.000	0.431
	Grade	POST PD	-0.665	0.635		-1.046	0.296	-0.109
	Grade	POST	-0.777	0.578		-1.346	0.178	-0.113
	TxG	POST PD	-0.907	1.261		-0.719	0.472	-0.149
	TxG	POST	-0.727	1.129		-0.644	0.520	-0.106
RS	Treatment	POST PD	-1.597	0.740		-2.158	0.031*	-0.211
	Treatment	POST	3.683	0.992		3.714	0.000	0.427
	Grade	POST PD	-1.006	0.835		-1.204	0.228	-0.133
	Grade	POST	-1.650	0.768		-2.150	0.032*	-0.191
	TxG	POST PD	-0.670	1.647		-0.407	0.684	-0.089
	TxG	POST	-0.689	1.497		-0.461	0.645	-0.080
S-A†	Treatment	POST PD	-1.425	0.846		-1.685	0.092	-0.266
	Treatment	POST	2.969	0.898		3.307	0.001	0.506
	Grade	POST PD	0.201	0.669		0.301	0.764	0.038
	Grade	POST	-0.168	0.729		-0.230	0.818	-0.029
	TxG	POST PD	-0.599	1.203		-0.498	0.619	-0.112
	TxG	POST	-0.177	1.462		-0.121	0.904	-0.030
S-M	Treatment	POST PD	-0.742	0.734		-1.011	0.312	-0.095
	Treatment	POST	3.800	0.989		3.843	0.000	0.418
	Grade	POST PD	-0.737	0.762		-0.967	0.334	-0.095
	Grade	POST	-0.897	0.776		-1.156	0.248	-0.099
	TxG	POST PD	-2.612	1.479		-1.766	0.077	-0.335
	TxG	POST	-0.702	1.553		-0.452	0.651	-0.077
SA	Treatment	POST PD	-0.791	0.631		-1.254	0.210	-0.124
	Treatment	POST	3.128	0.831		3.762	0.000	0.422
	Grade	POST PD	-1.159	0.662		-1.751	0.080	-0.181

Subscale SV	Variable	Standard		<i>z</i>	<i>p</i>	ES
		Estimate	Error			
Grade	POST	-1.398	0.606	-2.307	0.021*	-0.189
TxG	POST PD	-1.513	1.311	-1.154	0.248	-0.237
TxG	POST	-0.582	1.181	-0.493	0.622	-0.079

*Non-significant after correction for multiplicity.

†Standard errors calculated using MLF

Notes. DESSA = Devereux Student Strengths Assessment; POST PD = post professional development; DM = decision making; RS = relationship skills; S-A = self-awareness; S-M = self-management; SA = social awareness.

Table 7

Descriptive Statistics for SKQ by Grade and Treatment Group

Grade	Group	Post PD			Post		
		N	Mean	SD	N	Mean	SD
K	Control	247	21.525	5.662	221	23.688	6.337
K	SELF	231	18.339	4.688	207	26.927	5.103
First	Control	188	21.271	5.127	159	22.579	5.616
First	SELF	182	18.615	4.902	163	26.718	5.595

Notes. SKQ = SELF Knowledge Questionnaire; Post PD = post professional development; K = Kindergarten; SELF = intervention group.

Table 8

Summary of Inferential Tests by Variable: SKQ

SV	Variable	Estimate	Standard Error	Z	p	ES
Treatment	POST PD	-2.796	0.482	-5.805	0.000	-0.547
Treatment	POST	3.855	0.727	5.304	0.000	0.681
Grade	POST PD	0.053	0.512	0.104	0.917	0.010
Grade	POST	-0.783	0.500	-1.564	0.118	-0.138
TxG	POST PD	0.698	1.026	0.680	0.497	0.137
TxG	POST	1.190	0.981	1.213	0.225	0.210

Notes. SKQ = SELF Knowledge Questionnaire; POST PD = post professional development.

Table 9

Descriptive Statistics for HTKS by Grade and Treatment Group

Grade	Group	Post PD			Post		
		N	Mean	SD	N	Mean	SD
K	Control	243	36.819	15.153	223	42.372	12.110
	SELF	241	39.801	12.493	205	43.356	10.819
First	Control	187	45.043	8.166	164	46.926	6.451
	SELF	184	46.380	8.512	165	48.200	5.737

Notes. HTKS = Head Toes Knees Shoulders assessment; Post PD = post professional development; K = Kindergarten; SELF = intervention group.

Table 10

Inferential Results for Treatment Effects on HTKS by Grade and Variable

SV	Variable	Standard		Z	p	ES
		Estimate	Error			
Treatment	Post PD	1.930	1.299	1.486	0.137	0.163
	Post	1.233	1.166	1.057	0.290	0.128
Grade	Post PD	6.801	0.896	7.590	0.000	0.576
	Post	4.083	0.794	5.140	0.000	0.425
TxG	Post PD	-0.157	1.812	-0.087	0.931	-0.013
	Post	1.378	1.610	0.856	0.392	0.143

Notes. HTKS = Head Toes Knees Shoulders assessment; Post PD = post professional development.

Table 11

Descriptive Statistics for SELF Vocabulary Subscale and Total Scores by Grade and Treatment Group

Subscale	Grade	Group	Post PD			Post		
			N	Mean	SD	N	Mean	SD
SELF-A	K	Control	242	8.831	5.634	224	10.598	5.878
	K	SELF	243	8.305	5.271	206	12.438	6.438
	First	Control	187	13.963	6.691	164	16.183	6.259
	First	SELF	185	14.865	5.908	164	18.384	6.788
SELF-B	K	Control	242	13.017	7.750	224	15.304	7.614
	K	SELF	243	13.399	7.854	206	18.383	9.029
	First	Control	187	19.642	8.829	164	20.561	8.588
	First	SELF	185	20.173	8.998	164	24.604	8.967
SELF-C	K	Control	242	8.897	3.177	224	10.549	3.834
	K	SELF	243	9.132	3.433	206	11.573	3.623
	First	Control	187	12.549	3.915	164	13.921	3.539
	First	SELF	185	13.205	3.340	164	15.482	3.188
SELF-T	K	Control	242	30.744	15.017	224	36.451	15.570
	K	SELF	243	30.835	14.968	206	42.394	17.264
	First	Control	187	46.154	17.300	164	50.665	16.441
	First	SELF	185	48.243	16.505	164	58.470	17.351

Notes. Post PD = post professional development; SELF-A = definition subscale; SELF-B = student example subscale; SELF-C = application subscale; K = Kindergarten; SELF = intervention group.

Table 12

Summary of Inferential Tests by Subscale and Total Scores: SELF Vocabulary

Subscale	SV	Variable	Estimate	Standard Error	<i>z</i>	<i>p</i>	ES
SELF-A	Treatment	POST PD	0.291	0.633	0.459	0.646	0.050
	Treatment	POST	2.081	0.789	2.637	0.008	0.327
	Grade	POST PD	5.753	0.558	10.319	0.000	0.986
	Grade	POST	5.739	0.474	12.110	0.000	0.903
	TxG	POST PD	1.486	1.127	1.318	0.187	0.255
	TxG	POST	0.045	0.937	0.049	0.961	0.007
SELF-B	Treatment	POST PD	0.487	0.723	0.674	0.500	0.059
	Treatment	POST	3.516	0.943	3.727	0.000	0.414
	Grade	POST PD	6.702	0.680	9.850	0.000	0.809
	Grade	POST	5.836	0.678	8.608	0.000	0.687
	TxG	POST PD	0.204	1.389	0.147	0.883	0.025
	TxG	POST	0.881	1.319	0.668	0.504	0.104
SELF-C	Treatment	POST PD	0.439	0.333	1.321	0.187	0.127
	Treatment	POST	1.144	0.345	3.312	0.001	0.320
	Grade	POST PD	3.832	0.240	15.994	0.000	1.109
	Grade	POST	3.588	0.280	12.807	0.000	1.004
	TxG	POST PD	0.462	0.490	0.943	0.346	0.134
	TxG	POST	0.605	0.566	1.070	0.285	0.169
SELF-T	Treatment	POST PD	1.080	1.465	0.738	0.461	0.068
	Treatment	POST	6.812	1.799	3.786	0.000	0.410
	Grade	POST PD	16.415	1.334	12.302	0.000	1.037
	Grade	POST	15.181	1.264	12.009	0.000	0.913
	TxG	POST PD	2.105	2.688	0.783	0.433	0.133
	TxG	POST	1.479	2.475	0.597	0.550	0.089

Notes. Post PD = post professional development; SELF-A = definition subscale; SELF-B = student example subscale; SELF-C = application subscale.