Abstract Title Page
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Title:
Results of a Randomized Controlled Trial of Student Success Skills

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Abstract Body

Problem / Background / Context:
Description of the problem addressed, prior research, and its intellectual context.
Numerous authors have reviewed research to determine which skills are considered fundamental to successful academic and social outcomes for students (Hattie, Briggs, & Purdie, 1996; Masten & Coatworth, 1998; Wang, Haertel, & Walberg, 1994; Zins, Weissberg, Wang, & Walberg, 2004). These skills include: 1) cognitive and meta-cognitive skills such as goal setting, progress monitoring, organization and memory skills, 2) social skills such as interpersonal, social problem-solving, listening, and team-work skills; and 3) self-management skills such as managing attention, motivation, and anger. If students are taught these fundamental cognitive, social, and self-management skills in a caring, supportive, and encouraging environment where they feel safe to take risks as they try new strategies, their confidence in their abilities increases, as does their effort in the classroom, eventually leading to improved academic outcomes. This combination of learning, social, and self-management skills, as they relate to improved academic outcomes, continues to be supported by a growing body of literature (Arbona, 2000; Daly, Duhon, & Witt, 2002; Elias et al., 2003; Marzano, Pickering, & Pollack, 2001; Zins, Bloodworth, Weissberg, & Walberg, 2007; Zins et al., 2004). More recently, Payton et al. (2008) conducted a meta-analytic review of 180 school-based studies, most of which involved specific classroom-based interventions designed to teach skills such as problem solving, goal setting, conflict resolution, and interpersonal skills. Upon completion of the review, researchers concluded that "SEL (Social, Emotional, Learning) programs implemented by school staff members (e.g., teachers, student support personnel) improved children's behavior, attitudes toward school, and academic achievement" (p.6) and recommended that well-designed programs that simultaneously foster students' social, emotional, and academic growth be widely implemented in schools. The Student Success Skills (SSS) classroom-based intervention was developed to systematically teach students fundamental social, emotional, and learning skills.

Purpose / Objective / Research Question / Focus of Research:
Description of the focus of the research.
The purpose of the proposed project is to allow for rigorous research to evaluate both the proximal and distal outcomes resulting from classroom level student participation in SSS when facilitated by school counselors and reinforced by classroom teachers. In addition, the project would allow for examination of the persistence of beneficial effects of SSS participation through a one-year follow-up involving the collection of standardized test scores, grades, and attendance data through district databases. SSS is a fully developed structured program in widespread use. SSS program developers have to date trained over 10,000 school counselors and teachers in fifteen states on SSS program implementation. Trainings have included the use of a structured manual (Brigman & Webb, 2004, 2007, 2010) to increase fidelity of implementation in the field.

Improvement Initiative / Intervention / Program / Practice:
Description of the improvement initiative or related intervention, program, or practice.
For the project, school counselors and teachers were trained to implement SSS. School counselors introduced key skills and strategies to all 5th grade students in treatment classrooms through five 45-minute classroom lessons in the fall followed by two 45-minute booster lessons in the spring. After delivery of the classroom lessons, teachers were instructed to encourage their students to use SSS skills and strategies as they mastered regular curriculum throughout the year. SSS skills and strategies, through which it is theorized student outcomes improve, fall into five areas: 1) goal setting, progress monitoring, success sharing, and noticing small improvements;

2) creating a caring, supportive, and encouraging classroom by teaching attending, listening, and empathy skills, and the use of encouragement; 3) cognitive and memory skills such as strategies for picking out the most important ideas, using graphic organizers, chunking, location memory, and story structure; 4) performing under pressure and managing anxiety by using imagery, controlled breathing, positive self-talk, music, test taking strategies, and the power of mental practice; and 5) building healthy optimism by learning the language of optimism, setting goals, looking for small improvements, sharing successes, and positive student story telling.

Setting:
Description of the research location.
The research took place in 5th grade classrooms in two large and diverse Florida school districts.

Population / Participants / Subjects:
Description of the participants in the research: who, how many, key features, or characteristics.
Participants were 4,321 fifth grade students in 235 classrooms in 60 schools across two school districts (15 treatment and 15 control in each district). The demographics of participants in each district were representative of the respective districts.

Research Design:
Description of the research design.
The study employed a hierarchical design, often referred to as a cluster-randomized design, where schools (i.e., clusters) were randomly assigned to either treatment or control conditions. Therefore, the unit of randomization was the school. Data from the student level dependent measures was collected at three points: at baseline, at six weeks, and again at 30 weeks. Data from the classroom level dependent measure was collected at the same intervals. Standardized test scores, grades, and attendance were collected before treatment and at the end of the school year. A one-year follow-up collection of test scores, grades, and attendance is pending.

Data Collection and Analysis:
Description of the methods for collecting and analyzing data or use of existing databases.
The school counselor self-report following each SSS lesson and the school district coordinator site visitation log were used to collect information related to SSS implementation fidelity. Each counselor was assigned a fidelity rating of one, two, or three. Rubric criteria included completion of SSS lessons, length of time to facilitate SSS lessons, counselor self-rating of adherence to the SSS lesson plans in the SSS manual, and school district coordinator's site visit rating of evidence of intervention implementation. No schools were dropped from the analysis due to low implementation fidelity.

Project-based Excel templates were created for the District Coordinators to populate with student-level demographic and academic data. The UMass research team and the District Coordinators standardized data classifications and definitions of indigenous markers for academic and demographic indicators between the two districts to ensure consistency in data across participating schools.

Data collectors in each partnering school district were hired and trained to administer student outcome measures and provided a *Survey Data Collection Manual*. Survey data was then collected for all 5th grade students in the treatment and control classrooms at three data collection points. All data collection materials were picked up and returned to the district project coordinator daily in each school district. Materials were packed and sealed by the district project coordinators. District coordinators completed packing slips as well as data collection protocol certifications before shipping to UMass using a UPS iShip account.

Survey Data Entry Process

To facilitate efficient and accurate manual entry of over 40,000 hard copy surveys across the three test administrations, the UMass research team secured additional dedicated workspace and equipment needed for storing, entering and managing the project data set including: 14 static addressed laptops set up as workstations (with wireless LAN disabled) for data entry; a computer server to house Access database (locked in server cabinet); a secure (dual-lock) laptop power center within which all laptops were stored when not in use to enable overnight battery charging; and an external hard disc drive for daily backup of entered survey data (locked in server cabinet).

A team of 15 UMass undergraduates was hired and trained to manually enter student level survey data. Electronic data entry forms were constructed to facilitate efficient and accurate manual entry of survey data. The forms' graphical user interface attempted to parallel as closely as possible the paper versions of each survey. Each column on the electronic form corresponded to a page of a specific survey, allowing data entry personnel to easily tab through the stacked fields in a column. Computer coding was written to highlight the input field currently tabbed to provide an additional visual aid for the entry process.

Validation rules were applied to the electronic data entry forms to reduce the possibility of data entry errors. Validation rules were also written to require entry of the unique ID number associated with each survey as well as entry of the employee identification number assigned to all data entry personnel. Visual Basic Application (VBA) coding was written in order to date- and time-stamp the moment of upload of each survey's data to the database tables. These recordkeeping mechanisms enabled any errors in data entry to be traced back to an individual staff person and also allowed the database administrator to determine the amount of time it took to enter a single survey, classroom set or entire district.

Findings / Outcomes:
Description of the main findings or outcomes, with specific details.

The initial Hierarchical Liner Modeling (HLM) analyses of the student level rating scales have been completed. Scores on these scales reflect: Metacognitive Activity, Self-Efficacy, Test Anxiety, Self-Management of Learning, Support of Classmates' Learning, Self-Regulation of Arousal, Self-Efficacy for Self Regulated Learning, Engagement, Inattention, Disruption, Self-Control, Assertion, and Cooperation. HLM was used to examine whether change over time on each student outcome differed for treatment schools versus control schools, on average. Intervention hypotheses suggest that students in intervention schools would improve more than control schools (i.e., faster rates of change). Three time points were used to assess change over time: outcome scores measured at baseline, at 6 weeks, and at 30 weeks. Analysis of the classroom level scale and student level standardized test scores, grades, and attendance will be complete by June 2014.

Model Fitting Procedure

For each outcome (both student self-rating and teacher rating), a nested model fitting procedure was conducted to find the model that best fits the data. To begin, an unconditional model was fit to the data with the only predictor of student scores being time. This tells us if student scores within a school change over time, on average, and if student slopes vary around the average slope for their school. From this, a Deviance statistic was obtained, which is a measure of overall model fit. Next a full controls model was fit, adding in gender, SES, and three dummy coded ethnicity variables to both the intercept and slope at level-2. A Deviance statistic was also obtained for the full controls model. Using a Chi-Square difference test, the unconditional and full controls models were compared to see whether the full controls model was a better fit to the data by reducing the model's Chi-Square. This was true for every outcome; therefore, a full controls model was consistently a better fit than an unconditional model predicting change over

time. Next, the output for the full controls model was examined to see if non-significant level-2 coefficients existed. Model trimming was then conducted to pare away non-significant effects of gender and SES. However, individual ethnicity codes (dummy coded for Black, Hispanic, and Other race) were never trimmed to avoid model misspecification. Once a reduced controls model was fit, a new model comparison test was conducted to test for improvement in fit. Variance components for significant individual effects were tested for improvements in model fit compared to the reduced controls model. When a variance component yielded a significant improvement in fit, it was retained for the reduced controls model. These level-3 variance components would allow for an examination as to whether gender, ethnicity, or SES "gaps" were different for treatment and control schools. These would be considered cross-level interactions. Finally, a treatment model was fit to the data, adding treatment onto each level-3 effect. The treatment model was then compared to the reduced controls models through a model comparison test. If the treatment model yielded a significant reduction in the Chi-Square statistic, it was considered the best fitting model to the data. If not, the reduced controls model was retained.

Insert Tables 1.1 to 2.12 Here *(results of significant and non-significant HLM analyses)*

Conclusions:

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

Summary of Control-Treatment Differences of Student-Level Measures

The significant HLM analyses related to Control-Treatment group differences in changes in students as measured by the Student Self-Rating and Teacher-rating scales suggest that Student Success Skills (SSS) has a beneficial effect on student academic-related behavior. Specifically, these results suggest that participation in the SSS program resulted in lower levels of test anxiety, higher levels of engagement in classroom work, higher levels of appropriate assertion in classroom interactions, and higher levels of cooperation. In addition, participation in Student Success Skills prevented a rise in disruptive behavior over the school year that was observed in Control students. These results indicate that SSS enhanced students' ability to perform under pressure, increased students' motivated engagement in school-work, enhanced classroom social skills, and decreased students' disruptive behavior. Subsequent meditational analyses of the effects of SSS on academic achievement (FCAT score and grades) and attendance will focus on these variables. However, these HLM analyses failed to find evidence that SSS influenced students' Metacognitive Activity, Self-Efficacy, Self-Management of Learning, Support of Classmates' Learning, Self-Regulation of Arousal, or Self-Efficacy for Self Regulated Learning, Inattention or Self-Control. Subsequent analyses and follow-up studies will explore whether potential instrumentation issues with the *Student Engagement in School Success Skills* survey were responsible to failure to find differences in Self-Management of Learning, Support of Classmates' Learning, Self-Regulation of Arousal.

Insert Table 3.1. Here (*Summary of Significant HLM Control-Treatment Differences for Student-Level Measures - Group's Slope differences over time*)

Additional analyses will be completed prior to the SREE conference in the fall: 1) HLM analyses will be conducted to determine if there are Control-Treatment group differences on academic achievement (FCAT and grades) and attendance; 2) mediation effects will be tested where the mediator is at level-1 but the effect (i.e., treatment) is at level-2; 3) treatment school data will be examined to determine the relationship between the levels of *teacher coaching and cueing* that occurred post treatment, and the outcomes; and 4) additional analyses to help us understand how different subgroups of students (low SES; low achievement; special needs) responded to the SSS intervention.

Appendices
Not included in page count.

Appendix A. References
References are to be in APA version 6 format.

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Appendix B. Data Analysis Tables
Not included in page count.

Table 1.1. *Model Comparison Test: Test Anxiety*

Model	Deviance	Parameters	χ^2	*df*	*p* value
Baseline Model	29681.13	9			
Level-2 Controls Model	29464.72	19	216.412	10	<.001
Level-2 Reduced Controls Model	29467.55	15	213.58	6	<.001
Treatment Model	**29451.89**	**23**	**15.66**	**8**	**.047**

Notes. χ^2 = Chi square; *df* = degrees of freedom; *p* = probability.

Table 1.2. *Best-fitting Model for Test Anxiety: Treatment Model*

EFFECT	Coefficent	*SE*	*t* Ratio (df)	*p* value
FIXED EFFECTS				
Baseline Model				
Intercept, γ_{000}	1.874	.05	36.78 (57)	< .001
Tx Diff @ Baseline, γ_{001}	-.07	.07	-.95 (57)	.35
Gender Gap at Baseline				
Intercept, Gender Gap γ_{010}	.20	.04	4.76 (4064)	< .001
Intercept Gender Gap by Tx, γ_{011}	.08	.06	1.25 (4064)	.21
SES Gap at Baseline				
Intercept, SES Gap, γ_{020}	.19	.04	4.32 (4064)	< .001
Tx Diff @ Baseline, γ_{021}	.10	.06	1.62 (4064)	.11
Black Gap at Baseline				
Intercept, Black Gap, γ_{030}	.22	.05	4.16 (4064)	< .001
Tx Diff @ Baseline, γ_{031}	-.06	.08	-.75 (4064)	.46
Hispanic Gap at Baseline				
Intercept, Hispanic Gap, γ_{040}	.26	.06	4.57 (4064)	< .001
Tx Diff @ Baseline, γ_{041}	-.09	.08	-1.18 (4064)	.24
Other Race Gap at Baseline				
Intercept, Other Race Gap, γ_{050}	-.08	.07	-.99 (4064)	.32
Tx Diff @ Baseline, γ_{051}	-.06	.11	-.53 (4064)	.60
Change/Slope Model				
Intercept, γ_{100}	-.001	.001	-1.65 (57)	.11
Tx Diff for Time, γ_{101}	-.003	.002	-2.024 (57)	.05
Gender Change Gap				
Gender Gap on Change γ_{110}	.002	.002	1.73 (4064)	.08
Gender Change Gap by Tx, γ_{111}	-.001	.002	-.56 (4064)	.58

Table 1.2. *Best-fitting Model for Test Anxiety: Treatment Model Continued*

RANDOM EFFECTS	Variance Component (*SD*)	*df*	χ^2	*p* Value
Sigma-squared (level-1 variance)	.639			
Intercept, r_0	.67 (.82)	3886	13128.32	< .001
Time Slope, r_1	.00017 (.013)	3890	4685.03	< .001
Intercept, u_{00j}	.022 (.15)	57	154.15	< .001
Change Slope, u_{10j}	.00001 (.003)	57	84.76	< .001

Notes. SE = standard error; *t* = t-test value; *df* = degrees of freedom; *p* = probability*; SD* = standard deviation; χ^2 = Chi square.

Table 2.1. *Model Comparison Test: Engagement*

Model	Deviance	Parameters	χ^2	df	p value
Baseline Model	22014.269	9			
Level-2 Controls Model	21526.561	44	487.708	35	<.001
Level-2 Reduced Controls Model	21548.281	35	465.988	26	<.001
Treatment Model (Full)	21532.854	45	15.74	10	.107
Trimmed Treatment Model	**21535.74**	**41**	**12.54**	**6**	**.05**

Notes. χ^2 = Chi square; *df* = degrees of freedom; *p* = probability.

Table 2.2. *Best-fitting Model for Engagement: Trimmed Treatment Model*

EFFECT	Coefficent	*SE*	*t* Ratio (df)	p value
FIXED EFFECTS				
Baseline Model				
Intercept, γ_{000}	3.53	.04	91.53 (57)	< .001
Tx Diff @ Baseline, γ_{001}	-.04	.06	-.81 (57)	.42
Gender Gap at Baseline				
Intercept, Gender Gap γ_{010}	.35	.02	15.31 (3834)	< .001
SES Gap at Baseline				
Intercept, SES Gap, γ_{020}	-.25	.03	-7.33 (58)	< .001
Tx Diff @ Baseline, γ_{021}	.01	.06	.33 (57)	.74
Black Gap at Baseline				
Intercept, Black Gap, γ_{030}	-.12	.03	-3.86 (3834)	< .001
Hispanic Gap at Baseline				
Intercept, Hispanic Gap, γ_{040}	.009	.03	.28 (3834)	.78
Other Race Gap at Baseline				
Intercept, Other Race Gap, γ_{050}	.14	.05	3.05 (3834)	.002
Change/Slope Model				
Intercept, γ_{100}	.0002	.001	.26 (57)	.80
Tx Diff for Time, γ_{101}	.004	.001	2.73 (57)	.008
Gender Change Gap				
Gender Gap on Change γ_{110}	.002	.002	1.73 (4064)	.08
Gender Change Gap by Tx, γ_{111}	-.001	.002	-.56 (4064)	.58
Black Change Gap				
Intercept γ_{110}	-.003	.002	-1.73 (57)	.09
Black Change Gap by Tx, γ_{111}	.0007	.002	.31 (57)	.76

Table 2.2. *Best-fitting Model for Engagement: Trimmed Treatment Model Continued*

Hispanic Change Gap

Intercept γ_{120}	-.002	.001	-1.62 (57)	.11
Hispanic Change Gap by Tx, γ_{121}	.001	.002	.70 (57)	.49

Other Race Change Gap

Intercept γ_{130}	.002	.002	.94 (57)	.35
Other Race Change Gap by Tx, γ_{131}	-.002	.002	-.89 (57)	.38

RANDOM EFFECTS	**Variance Component (*SD*)**	***df***	χ^2	***p* Value**
Sigma-squared (level-1 variance)	.147 (.38)			
Intercept, r_0	.44 (.66)	3658	20397.78	< .001
Time Slope, r_1	.00007 (.008)	3558	4401.72	<.001
Intercept, u_{00j}	.029 (.17)	50	156.82	< .001
Intercept LOSES, u_{02j}	.013 (.12)	50	84.21	.002
Change Slope, u_{10j}	.00001 (.004)	50	99.69	< .001
Black Change Gap Slope, u_{11j}	.00003 (.005)	50	95.72	< .001
Hispanic Change Gap Slope, u_{12j}	.00001 (.003)	50	53.85	.33
Other Race Change Gap Slope, u_{13j}	.00000 (.002)	50	34.94	>.500

Notes. SE = standard error; *t* = t-test value; *df* = degrees of freedom; *p* = probability*; SD* = standard deviation; χ^2 = Chi square.

Table 2.3. *Model Comparison Test: Inattention*

Model	Deviance	Parameters	χ^2	*df*	*p* value
Baseline Model	23957.81	9			
Level-2 Controls Model	27971.55	19	518.38	10	<.001
Level-2 Reduced Controls Model	23606.38	17	351.43	8	<.001
Treatment Model (Full)	**23590.14**	**24**	**16.24**	**7**	**.02**

Notes. χ^2 = Chi square; *df* = degrees of freedom; *p* = probability.

Table 2.4. *Best-fitting Model for Inattention: Treatment Model*

EFFECT	Coefficent	*SE*	*t* Ratio (*df*)	*p* value
FIXED EFFECTS				
Baseline Model				
Intercept, γ_{000}	1.81	.04	45.87 (57)	< .001
Tx Diff @ Baseline, γ_{001}	.13	.06	2.37 (57)	.02
Gender Gap at Baseline				
Intercept, Gender Gap γ_{010}	-.28	.03	- 9.45(4007)	< .001
Tx Diff @ Baseline, γ_{011}	-.05	.04	-1.28 (4007)	.20
SES Gap at Baseline				
Intercept, SES Gap, γ_{020}	.19	.04	5.20 (57)	< .001
Tx Diff @ Baseline, γ_{021}	.03	.05	-2.89 (57)	.64
Black Gap at Baseline				
Intercept, Black Gap, γ_{030}	.20	.04	2.11 (4007)	< .001
Tx Diff @ Baseline, γ_{031}	-.17	.06	-3.07 (4007)	.004
Hispanic Gap at Baseline				
Intercept, Hispanic Gap, γ_{040}	-.09	.04	-2.99 (4007)	.035
Tx Diff @ Baseline, γ_{041}	-.19	.06	-3.07 (4007)	.002
Other Race Gap at Baseline				
Intercept, Other Race Gap, γ_{050}	-.18	.06	-2.99 (4007)	.003
Tx Diff @ Baseline, γ_{051}	.01	.09	.14 (4007)	.89
Change/Slope Model				
Intercept, γ_{100}	-.002	.0009	-1.68 (57)	.16
Tx Diff for Baseline, γ_{101}	-.002	.001	-1.42 (57)	.16

Table 2.4. *Best-fitting Model for Inattention: Treatment Model Continued*

RANDOM EFFECTS	Variance Component (*SD*)	*df*	χ^2	*p* Value
Sigma-squared (level-1 variance)	.21 (.46)			
Intercept, r_0	.39 (.62)	3977	15291.78	< .001
Time Slope, r_1	.00003 (.005)	4040	4380.76	< .001
Intercept, u_{00j}	.015 (.12)	57	128.93	< .001
Intercept LOSES, u_{02j}	.006 (.08)	57	76.96	.04
Change Slope, u_{10j}	.00002 (.004)	57	227.94	< .001

Notes. SE = standard error; *t* = t-test value; *df* = degrees of freedom; *p* = probability*; SD* = standard deviation; χ^2 = Chi square.

Table 2.5. *Model Comparison Test: Disruption*

Model	Deviance	Parameters	χ^2	df	*p* value
Baseline Model	28489.93	9			
Level-2 Controls Model	27957.99	26	531.94	17	<.001
Level-2 Reduced Controls Model	27966.57	20	523.36	11	<.001
Treatment Model	27952.52	30	13.48	10	.20
Reduced Treatment Model	**27960.91**	**23**	**5.09**	**3**	**.16**

Notes. χ^2 = Chi square; *df* = degrees of freedom; *p* = probability.

Table 2.6. *Model for Disruption: Trimmed Treatment Model*

EFFECT	Coefficent	*SE*	*t* Ratio (*df*)	*p* value
FIXED EFFECTS				
Baseline Model				
Intercept, γ_{000}	2.16	.05	41.99 (57)	< .001
Tx Diff @ Baseline, γ_{001}	-.0003	.07	-.005 (57)	.99
Gender Gap at Baseline				
Intercept, Gender Gap γ_{010}	-.58	.04	-13.54 (57)	< .001
Tx Diff @ Baseline, γ_{011}	.07	.06	1.13 (57)	.26
SES Gap at Baseline				
Intercept, SES Gap, γ_{020}	.12	.03	3.80 (4008)	< .001
Black Gap at Baseline				
Intercept, Black Gap, γ_{030}	.25	.04	6.39 (4008)	< .001
Hispanic Gap at Baseline				
Intercept, Hispanic Gap, γ_{040}	-.09	.04	-2.33 (4008)	.02
Other Race Gap at Baseline				
Intercept, Other Race Gap, γ_{050}	-.11	.06	-1.93 (4008)	.053
Change/Slope Model				
Intercept, γ_{100}	.003	.001	2.65 (57)	.01
Tx Diff for Time, γ_{101}	-.004	.002	-2.25 (57)	.028
Black Change Gap				
Intercept γ_{110}	-.003	.001	-3.22 (4008)	.001
Hispanic Change Gap				
Intercept γ_{120}	.003	.001	2.33 (4008)	.02
Other Race Change Gap				
Intercept γ_{130}	-.0004	.002	-.26 (4008)	.79

Table 2.6. *Model for Disruption: Trimmed Treatment Model Continued*

RANDOM EFFECTS	Variance Component (*SD*)	*df*	χ^2	*p* Value
Sigma-squared (level-1 variance)	.27 (.52)			
Intercept, r_0	.65 (.81)	3977	18686.41	< .001
Time Slope, r_1	.0001 (.01)	4037	4779.98	< .001
Intercept, u_{00j}	.041 (.20)	57	169.72	< .001
Intercept Female, u_{01j}	.010 (.10)	57	70.91	.102
Change Slope, u_{10j}	.00003 (.005)	57	226.25	< .001

Notes. SE = standard error; *t* = t-test value; *df* = degrees of freedom; *p* = probability*; SD =* standard deviation; χ^2 = Chi square.

Table 2.7. *Model Comparison Test: Self Control*

Model	Deviance	Parameters	χ^2	df	p value
Baseline Model	25544.55	9			
Level-2 Controls Model	25122.61	26	421.94	17	<.001
Level-2 Reduced Controls Model	25124.33	24	420.23	15	<.001
Treatment Model (Full)	**25114.02**	**34**	**10.31**	**10**	**.41**
Reduced Treatment Model	**25118.09**	**28**	**6.24**	**4**	**.18**

Notes. χ^2 = Chi square; *df* = degrees of freedom; *p* = probability.

Table 2.8. *Best-fitting Model for Self Control: Trimmed Treatment Model*

EFFECT	Coefficent	SE	t Ratio (df)	p value
FIXED EFFECTS				
Baseline Model				
Intercept, γ_{000}	3.85	.05	75.65 (57)	< .001
Tx Diff @ Baseline, γ_{001}	-.09	.07	-1.34 (57)	.19
Gender Gap at Baseline				
Intercept, Gender Gap γ_{010}	.38	.04	10.00 (57)	< .001
Tx Diff @ Baseline, γ_{011}	-.004	.05	-.07 (57)	.95
SES Gap at Baseline				
Intercept, SES Gap, γ_{020}	-.09	.04	-2.36 (57)	<.02
Tx Diff @ Baseline, γ_{021}	-.05	.06	-.98 (57)	.33
Black Gap at Baseline				
Intercept, Black Gap, γ_{030}	.23	.03	-6.82 (3950)	< .001
Hispanic Gap at Baseline				
Intercept, Hispanic Gap, γ_{040}	.05	.03	1.54 (3950)	.12
Other Race Gap at Baseline				
Intercept, Other Race Gap, γ_{050}	.09	.05	1.89 (3950)	.06
Change/Slope Model				
Intercept, γ_{100}	-.002	.001	-1.38 (57)	.17
Tx Diff for Time, γ_{101}	.004	.002	1.98 (57)	.052
Black Change Gap				
Intercept γ_{110}	-.003	.001	-3.24 (3950)	.001
Hispanic Change Gap				
Intercept γ_{120}	.00008	.001	.08 (3950)	.94

Table 2.8. *Best-fitting Model for Self Control: Trimmed Treatment Model Continued*

Other Race Change Gap

Intercept γ_{130}	.002	.002	1.01 (3950)	.31

RANDOM EFFECTS	**Variance Component (*SD*)**	*df*	χ^2	*p* **Value**
Sigma-squared (level-1 variance)	.22 (.47)			
Intercept, r_0	.45 (.67)	3918	16474.76	< .001
Time Slope, r_1	.00008 (.009)	4036	4810.12	< .001
Intercept, u_{00j}	.04 (.21)	57	164.84	< .001
Intercept Female, u_{01j}	.01 (.10)	57	76.04	.05
Intercept LOSES, u_{02j}	.006 (.08)	57	75.36	.05
Change Slope, u_{10j}	.00005 (.007)	57	396.90	< .001

Notes. SE = standard error; *t* = t-test value; *df* = degrees of freedom; *p* = probability*; SD* = standard deviation; χ^2 = Chi square.

Table 2.9. *Model Comparison Test: Assertion*

Model	Deviance	Parameters	χ^2	df	p value
Baseline Model	26603.18	9			
Level-2 Controls Model	26315	26	287.96	17	<.001
Level-2 Reduced Controls Model	26329.22	17	273.96	8	<.001
Treatment Model (Full)	**26306.82**	**24**	**22.40**	**7**	**.003**

Notes. χ^2 = Chi square; *df* = degrees of freedom; *p* = probability.

Table 2.10. *Best-fitting Model for Assertion: Treatment Model*

EFFECT	Coefficent	SE	t Ratio (df)	p value
FIXED EFFECTS				
Baseline Model				
Intercept, γ_{000}	3.54	.06	59.91 (57)	< .001
Tx Diff @ Baseline, γ_{001}	-.25	.09	-2.94 (57)	.005
Gender Gap at Baseline				
Intercept, Gender Gap γ_{010}	.31	.03	9.40 (4007)	< .001
Tx Diff @ Baseline, γ_{011}	.05	.05	1.15 (4007)	.25
SES Gap at Baseline				
Intercept, SES Gap, γ_{020}	-.12	.04	-3.02 (57)	.004
Tx Diff @ Baseline, γ_{021}	-.11	.06	-1.89 (57)	.06
Black Gap at Baseline				
Intercept, Black Gap, γ_{030}	-.18	.04	-3.78 (4007)	< .001
Tx Diff @ Baseline, γ_{031}	.15	.07	2.32 (4007)	.02
Hispanic Gap at Baseline				
Intercept, Hispanic Gap, γ_{040}	-.07	.05	-1.36 (4007)	.17
Tx Diff @ Baseline, γ_{041}	-.09	.07	1.28 (4007)	.20
Other Race Gap at Baseline				
Intercept, Other Race Gap, γ_{050}	.06	.06	.94 (4007)	.35
Tx Diff @ Baseline, γ_{051}	-.02	.10	-.21 (4007)	.83
Change/Slope Model				
Intercept, γ_{100}	.002	.001	1.46 (57)	.15
Tx Diff for Time, γ_{101}	.007	.002	3.41 (57)	.001

Table 2.10. *Best-fitting Model for Assertion: Treatment Model Continued*

RANDOM EFFECTS	Variance Component (SD)	*df*	χ^2	*p* Value
Sigma-squared (level-1 variance)	.27 (.52)			
Intercept, r_0	.49 (.70)	3974	15211.80	< .001
Time Slope, r_1	.00002 (.004)	4037	4214.86	.03
Intercept, u_{00j}	.07 (.26)	57	272.30	< .001
Intercept LOSES, u_{02j}	.005 (.07)	57	70.74	.10
Change Slope, u_{10j}	.00005 (.007)	57	402.00	< .001

Notes. SE = standard error; *t* = t-test value; *df* = degrees of freedom; *p* = probability*; SD* = standard deviation; χ^2 = Chi square.

Table 2.11. *Model Comparison Test: Cooperation*

Model	Deviance	Parameters	χ^2	*df*	*p* value
Baseline Model	26040.60	9			
Level-2 Controls Model	25483.30	26	557	17	<.001
Level-2 Reduced Controls Model	25500.39	20	540	11	<.001
Treatment Model (Full)	**25483.92**	**30**	**16.47**	**10**	**.09**
Reduced Treatment Model	**25491.31**	**23**	**9.08**	**3**	**.028**

Notes. χ^2 = Chi square; *df* = degrees of freedom; *p* = probability.

Table 2.12. *Best-fitting Model for Cooperation: Trimmed Treatment Model*

EFFECT	Coefficient	*SE*	*t* Ratio (*df*)	*p* value
FIXED EFFECTS				
Baseline Model				
Intercept, γ_{000}	3.84	.05	79.49 (57)	< .001
Tx Diff @ Baseline, γ_{001}	-.09	.06	-1.49 (57)	.15
Gender Gap at Baseline				
Intercept, Gender Gap γ_{010}	.49	.03	19.27 (4008)	< .001
SES Gap at Baseline				
Intercept, SES Gap, γ_{020}	-.21	.05	-4.61 (57)	< .001
Tx Diff @ Baseline, γ_{021}	-.0004	.06	-.007 (57)	.99
Black Gap at Baseline				
Intercept, Black Gap, γ_{030}	-.22	.04	-5.89 (4008)	< .001
Hispanic Gap at Baseline				
Intercept, Hispanic Gap, γ_{040}	.04	.04	1.06 (4008)	.29
Other Race Gap at Baseline				
Intercept, Other Race Gap, γ_{050}	.17	.05	3.07 (4008)	.01
Change/Slope Model				
Intercept, γ_{100}	-.001	.001	-1.07 (57)	.29
Tx Diff for Time, γ_{101}	.004	.002	2.93 (57)	.005
Black Change Gap				
Intercept γ_{110}	-.003	.001	-2.95 (4008)	.003
Hispanic Change Gap				
Intercept γ_{120}	-.0003	.001	-.26 (4008)	.80
Other Race Change Gap				
Intercept γ_{130}	.001	.001	.97 (4008)	.33

Table 2.12. *Best-fitting Model for Cooperation: Trimmed Treatment Model Continued*

<u>RANDOM EFFECTS</u>	<u>Variance Component (*SD*)</u>	<u>*df*</u>	<u>χ^2</u>	<u>*p* Value</u>
Sigma-squared (level-1 variance)	.21 (.46)			
Intercept, r_0	.59 (.77)	3974	21385.12	< .001
Time Slope, r_1	.00009 (.010)	4034	4910.27	< .001
Intercept, u_{00j}	.03 (.19)	57	153.02	< .001
Intercept LOSES, u_{02j}	.01 (.12)	57	79.27	.03
Change Slope, u_{10j}	.00003 (.005)	57	279.24	< .001

Notes. SE = standard error; *t* = t-test value; *df* = degrees of freedom; *p* = probability*; SD* = standard deviation; χ^2 = Chi square.

Table 3.1. *Summary of Significant HLM Control-Treatment Differences for Student-Level Measures (Group's Slope differences over time)*

Subscale	Parent Scale	Difference in Slope	*SE*	*t* (57)	Significance Level
Test Anxiety	*Motivated Strategies for Learning Questionnaire*	-.003	.002	-2.02	<.05
Engagement	*Student Participation Questionnaire*	.004	.001	2.73	<.008
Disruption	*Social Skill Rating System*	-.004	.002	-2.25	<.028
Assertion	*Social Skill Rating System*	.007	.002	3.41	<.001
Cooperation	*Social Skill Rating System*	.004	.002	2.93	<.005

Notes. SE = standard error*; t* = t-test value*; df* = degrees of freedom.