Social-Emotional and Character Development to Improve Student Behaviour and Academic Achievement: Results From Two School-Based Randomized Trials

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Introduction

Social-Emotional Learning and Character Development (SECD) [1] and related approaches [2] have been proposed to improve both student behavior and academic achievement, and a major meta-analysis suggest their effectiveness in multiple domains of behavior and performance [3]. *Positive Action* is a comprehensive SECD program that involves teacher/staff training, school-wide climate change activities, daily classroom curricula for every grade, and parent involvement [4]. The program's central philosophy is that positive thoughts lead to positive behaviors/actions that, in turn, lead to positive feelings about self, that can then lead to further positive thoughts and behaviors. The teacher/staff training and the first of six units of the curricula teach adults and students how to recognize feelings and thoughts associated with their behaviors, and how to change negative thoughts and cycles of thoughts-actions-feelings into positive thoughts and cycles. The other five units cover physical and intellectual health, self-management (self-regulation, self-control), understanding and getting along with others (prosocial skills), honesty with self and others, and continuous self-improvement (goal-setting, persistence). Results from prior quasi-experimental studies suggested that the program improves behavior and school performance [5, 6].

Method

We present results from two school-based randomized trials in rural/mixed schools in Hawai'i and inner-city schools in Chicago. At each site, higher-risk and lower-performing schools were selected for inclusion in the trial. The Hawai'i trial included 20 schools, 10 treatment and 10 control; the Chicago trial included 14 schools, 7 treatment and 7 control. In each case, schools were randomly assigned to conditions from pairs matched on multiple school-level indicators of student demographics and achievement. At baseline treatment and control schools were comparable on school-level variables used for matching and on student-level variables collected for the trial. Students were followed from grades 1 and 2 through grades 5 and 6 in Hawai'i and from grade 3 through grade 8 in Chicago. Family mobility (and student turnover) were high in both locations, approximately 25% per year in Hawai'i and 30% per year in Chicago. In Hawai'i, about 3000 students participated each year and a total of 5066 students provided data at one or more times during 4 years; in Chicago, an average of 500 students participated each year and a total of 1170 provided data one or more times during 6 years. Students were of mixed ethnicity in both trials (Hawai'i: 26% Hawai'ian or part-Hawai'ian, 5% other Pacific Islander, 5% Japanese, 21% other Asian, 9% white, 23% multiple ethnicities; Chicago: 48% African American, 27% Hispanic, 9% white, 10% other).

Measures consisted of student self-reports and teacher ratings of multiple student behaviors and SECD skills, and school-level data on absenteeism, disciplinary referrals and academic achievement. Student-level measures were found to have good reliability with improvements as students got older [7]. School-level data were collected and provide by the school districts. In Chicago, the Value-Added Illinois State Achievement Test (ISAT) scores were utilized.

Table 1: Summary of Results: Student Reports	
Scales: **Student Reports**	**Effect Size**
Disaffection with Learning Scale (N)	-0.22
Positive School Orientation (N)	0.43
Feelings of Safety at School Scale (N)	-0.14
Inventory of School Climate Scale	0.37
Normative Beliefs About Aggression	-0.19
Children's Empathy Questionnaire	0.29
Altruism Scale	0.22
Aggression Scale (Bullying)	-0.12
Victimization Scale	-0.10
Frequency of Delinquent (Disruptive) Behavior	-0.14
School Attachment Scale	0.83
Teacher Attachment Scale	1.04
Belief in Negative Values	-0.67
Rewards for Prosocial Behavior from Parents	0.90
Rewards for Prosocial Behavior from Teachers	0.89
SECD - Prosocial Interaction	0.56
SECD – Honesty	0.46
SECD – Self-Development	0.43
SECD –Self Control	0.67
SECD – Respect for teacher	0.82
SECD – Respect for parent	0.74
SECD – General Character	0.65
Positive Health Behaviors - Hygiene Scale	0.48
Positive Health Behaviors – Negative Food	-0.19
Positive Health Behaviors – Food and Exercise	0.25
Risky Behavior – Substance Use Index	-0.27
Risky Behavior – Violence index	-0.23
Peer self-esteem	0.38
School self- esteem	0.55
Family self-esteem	0.13
Student Life Satisfaction Scale	0.11
SE Formation and Maintenance - Adaptive	0.39
SE Formation and Maintenance - Maladaptive	0.79
SE Motivation and Control - Motivation Scale	0.46
Positive Action/Positive Feelings Scale	0.41
BASC - Depression Scale	-0.19
BASC - Anxiety Scale	-0.37
Aggressive Problem Solving	-0.12
Competent Social Problem Solving	0.67
Student Perception of Neighborhood Context	0.25
Peer Group Affiliation – Good Friends Scale	0.47
Peer Group Affiliation – Bad Friends Scale	-0.46

Note: Effect Sizes were calculated using predicted

These were designed to reflect the extent to which scores for a group of students improved (or declined) more than would be predicted based on these factors. Data were available for our student cohort transitioning between grades 7 and 8.

The trials were longitudinal at the school level, and no schools were lost during either trial. Given the high student turnover, data were analyzed using a place-focused, intent-to-treat design with a dynamic (changing) cohort [8]. Multi-level growth-curve models were used to account for all observations and to model school differences. These were 3-level, time within students within school, models for student-level measures, and 2-level, time within schools, models for aggregated school-level data. Using Stata, the appropriate model was used depending on the distributional properties of the data: xtmixed for normally distributed variables, xtmepoisson for counts, xtmelogit for binary variables, or xttobit for censored data.

Parental consent was obtained before students, parents, or teachers completed surveys when students were in grade 3, with students joining the study at later waves consented at the time of entry into the study. All students were re-consented for the second phase of funding at wave 6. At baseline, 79% of parents provided consent; consent rates ranged from 65% to 78% for waves 2 through 5, and from 58% to 64% for waves 6 through 8. Percentages of consented students for whom parents completed surveys and teachers completed ratings ranged from 72% to 93%.

Table 2: Summary of Results: Parent and Teacher Reports, and Archival Data	
Measures:	**Effect Size**
Parent Reports	
Student Social Competence	0.14
Student Bullying	-0.13
Student Conduct Problems	-0.19
Teacher Reports	
Student Responsibility	0.25
Student Bullying	-0.23
Student Altruism	0.24
Academic Ability (combo of reading, math, intellectual function, academic performance)	0.16
Student Academic Motivation	0.48
Archival (School-Level) Data	
Absenteeism	-1.03
Disciplinary Referrals	-0.58
Suspensions	-0.27
Reading (ISAT Value Added)	0.85
Note: Effect Sizes were calculated using predicted means from final models.	

The Institutional Review Boards of Oregon State University and the University of Illinois at Chicago approved this research. The Hawai'i study was also approved by the Hawai'i School Board and the Chicago study by the Research Review Board of the Chicago Public Schools and the Public/Private Ventures Institutional Review Board for Mathematica Policy Research (who collected some of the data).

Results

By the end of grade 5 (after 3 or 4 years of the program) and grade 8 (Chicago only) after 6 years of the program, fewer students in treatment schools reported substance use (approximately 30% less for tobacco or alcohol and 50% less for marijuana), violence (40% less), sexual behavior (83% less, Hawai'i only) than students in control schools [9, 10]. Students in treatment schools also reported improvements in SECD-related behaviors/skills (23%) [11, 12], self-esteem (25%) [13] and positive health behaviors (food, exercise and hygiene – 15%). School-level data indicated that students in treatment schools had 43% lower rates of absenteeism, 50% fewer disciplinary referrals and 15% better standardized test scores [14, 15]. Hawai'i schools also collected their own data on school safety and quality – and these improved more in treatment schools than control schools (17%) [16].

The Chicago results are summarized in Tables 1 (for student self-reports) and 2 (for parent- and teacher-reports of student behavior, and for archival -- aggregated school-level -- data). Significant effects were found for 42 of 56 (75%) student measures, 3 of 5 parent- and 5 of 7 teacher-reports of student behavior (67%), and 4 of 5 (80%) archival measures (for totals of 54 significant effects out of 73 measures, or 74%). Most of the effect sizes were in the moderate range (mean=.42, SD=.26), but ranged from small (0.10 and .12 for victimization and bullying, respectively) to large (1.03 for absenteeism and 1.04 for student self-report of teacher attachment). Preliminary mediation analyses suggest that improvements in SECD skills mediated the effects of the program on the initiation of substance use [11].

Discussion

Two cluster-based randomized controlled trials of the *Positive Action* Social-Emotional and Character Development program, on in rural and suburban schools in Hawai'i and one in inner-city schools in Chicago, produced similar results for improvement of positive behavior/character, prevention of negative behaviors substance used and serious violence, and improvements in school attendance and achievement scores. The Chicago trial additionally found effects on a wide range of additional measures of positive behaviors, including multiple measures of violence, delinquency and other disruptive behaviors. Parent- and teacher-reports substantiated some of the findings.

These findings demonstrate that a comprehensive approach to social-emotional and character development – that involves teacher training, curricula for every grade, school-wide climate change activities, parent involvement, and positive reinforcement – can increase positive behaviors, reduce

negative behaviors, and improve school performance (attendance and academic achievement). Improved student behavior and motivation to learn allows teachers more time to focus on teaching and students more time to focus on learning, thus leading to improved school performance despite time being taken away from traditional

instruction. These results suggest that schools, districts and governments should consider policies and funding to support the use of evidence-based social-emotional and character development programs in schools.

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