Potential and Limitations of Self-Regulated, Computerized, Social-Emotional Training to Improve Outcomes Among Students Behind Grade Level in an Unsafe and Chaotic School

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ABSTRACT

A study of Ripple Effects computerized, social-emotional learning intervention examined whether, under unsafe or chaotic school conditions, adolescents who had previously failed in school would comply with a mandate to use the software, and, if they complied, there would be objective and subjective impacts. One hundred and nine African American and Latino adolescents behind grade level were randomly assigned to treatment and control conditions. The intervention was self-regulated completion of 42 multimedia tutorials. Thirty-seven percent of treatment group students complied. Of those, mean dosage was 190% of required material. Students exposed to the intervention had significantly higher grade point averages (2.4 vs. 1.68, p<.05) and lower absenteeism rates. A 67% lower discipline referral rate was meaningful, but not significant. There was no significant impact on attitudes about marijuana, alcohol, or locus of control. If students used the intervention, they exceeded requirements and had positive outcomes. Absent baseline data, we cannot rule out factors other than the software, such as personal motivation, as being responsible for positive effects.

KEY WORDS: school climate; at-risk youth; alternative school; achievement gap; social-emotional learning; computers

BACKGROUND

A summary of school climate research reports that positive school climate has been linked to effective risk prevention and health promotion efforts as well as teaching and learning (Cohen, McCabe, Michelli, & Pickeral, in press, 2007). The report cites research reviews that correlate effective risk prevention and health promotion efforts with "safe, caring, participatory and responsive school climate." It also cites a series of studies that link school climate to student self-concept, suspension rates, drug use, absenteeism, and academic achievement. A reasonable conclusion is that the inverse is also true: an unsafe, unsupportive, or chaotic school climate would reduce effectiveness of risk prevention and health promotion efforts and would negatively impact student social, academic, and health-related outcomes.

For all these reasons, program developers and practitioners have been reluctant to implement and test social-emotional, preventive interventions in unsafe, unsupportive, or chaotic school environments. Yet these are the places where social-emotional abilities are most likely to make the difference between school success and failure.

Providing access to computer delivered, self-regulated, social-emotional learning (SEL) could not turn an unsafe environment into a safe one, but could separate the SEL training from the dynamics of less-than-ideal teacher-student relationships, and reduce loss of fidelity due to teacher lack of expertise. In the process, the computer-based intervention might reduce anti-social behavior and increase commitment to school. These factors in turn might positively impact school climate. To have any of these effects, students would need to accept the mandate to use the program—a basic requirement that might not be met in a chaotic environment, especially if the student population had individual risk factors that could compound the effects of negative school climate.

Ripple Effects is a student-centered, self-regulated, evidence-based, computerized SEL intervention that addresses a wide range of non-academic factors in school and life success. It can be configured to promote self-efficacy, as well as for other primary, secondary and tertiary interventions. It is used in more than 500 school districts, including 25 of the 50 largest urban districts in the United States. Data from two prior studies indicated that the intervention had promising but not proven positive effects on school outcomes, when used independently by students, without adult mediation of content (Ray, 1999; Stern & Repa, 2000).

This article discusses one of a series of six concurrent National Institute on Drug Abuse-funded studies, begun in 2003, to systematically examine the impacts of Ripple Effects on attitudes, behavior and academic performance among diverse groups of adolescents. This study took place in a school that might more accurately be described as having "real worst" conditions.

Purpose

The purpose of this study was to evaluate both implementation process fidelity and intervention efficacy of Ripple Effects software, in a real world school environment that is chaotic and unsafe, among African American and Latino adolescents behind grade level with multiple risk factors for school failure, poor health outcomes, and involvement in the juvenile justice system.

METHOD

Research Design

This study was a longitudinal, repeated measures, randomized controlled trial (RCT) conducted without any direct involvement of program developers in delivery of the intervention. Individual students were the unit of analysis.

We tested these hypotheses: (1) Under real world school conditions, if given the opportunity and access to technology: a) students would comply with group level requirements for use of the software; b) with no more than three hours of training on the intervention, staff would monitor and ensure that use; and, c) students would accept an invitation to explore additional tutorials of personal interest. (2) If treatment students had three or more hours of exposure to the computerized SEL intervention, their: a) school outcomes would improve; b) perceptions of harm and norms against use of alcohol and marijuana would increase; c) internal locus of control scores would increase, all when compared with control group students. Figure 1 provides a flowchart of the research design.
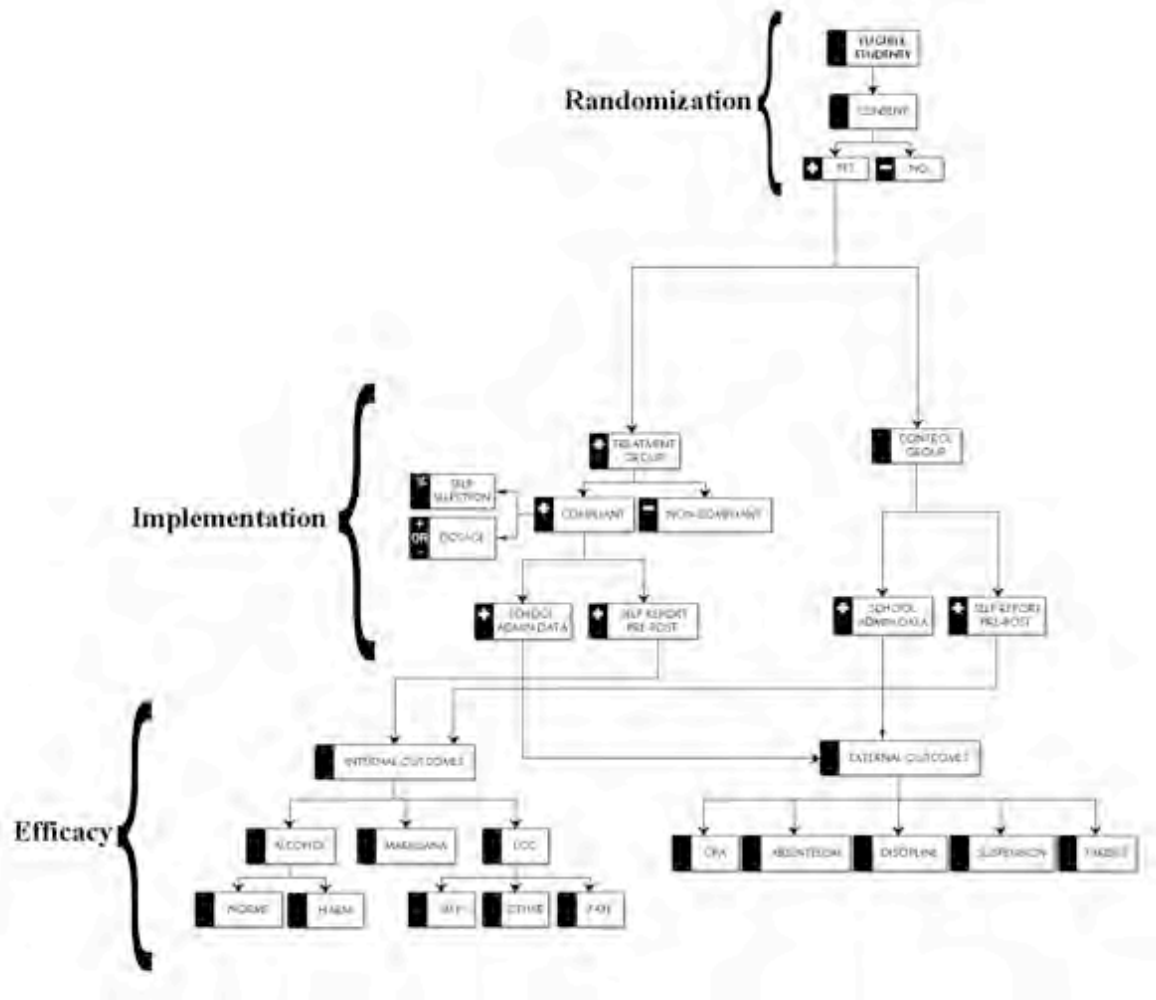
Figure 1: Flowchart of the Research Design

Assignment to Condition

Assignment to condition was through the school's SASI computer program. It first stratified students into high, medium and low ability groups (roughly corresponding to sixth, seventh, and eighth grade levels, regardless of age), and then randomly assigned students in the "eighth grade" equivalent group to one of four "houses." Two houses became the treatment group (N = 61), and two became the control group (N = 56).

Condition of Use

Treatment condition. Teachers took students in the treatment group to a computer lab to use Ripple Effects during their 45-minute advisory period, four times per week over eight weeks. Teachers assigned self-regulated completion of the interactive parts of 41 required tutorials from a prefigured scope and sequence. In a typical class, students could complete two tutorials in 30 to 40 minutes, depending on individual pacing. They were free to use any remaining time to explore additional tutorials of their choice.

Control condition. Control condition was "business as usual" for advisory period in the other two eighth grade houses. Business as usual consisted of some combination of homework and/or instruction or discussion related to non-academic issues.

Setting

The setting was an alternative school serving 230 students in a west coast city that has one of the highest homicide rates in the country. Teachers described the school as the "dumping ground" for kids who had failed everywhere else in the district. Instead of being grouped by grade, students were grouped into "houses." Most students were at the equivalent of 7th or 8th grade. Administrators reported a very high absenteeism rate (30% +) and severe behavior problems. They noted that the year when the study was conducted (2003-2004), there were more students with severe behavior problems than in previous years. Black on brown and brown on black violence was part of the neighborhood and community culture. All of these factors contributed to a chaotic, unsafe, unmotivating school climate, where police presence was common and student failure was the norm.

Study Sample

The sample was a group of all 117 students from the four eighth grade-equivalent houses. All were under the supervision of four certified teachers. The students' shared commonality was previous school failure of some kind. Seventy-three percent of these students were male. Sixty-seven percent were African American, 29% Latino, and the remaining 4% Asian and Caucasian. Eighty percent qualified for free or reduced lunch, a marker for low socio-economic status (SES), and 65% were at least one year older than their grade-level peers in other schools. The gender imbalance at this school reflected the growing national academic achievement gap between African American males and females.

Intervention

The intervention was a subset of tutorials from Ripple Effects SEL software. At the time of this study. Ripple Effects teen version of computerized SEL training included 178 interactive multimedia tutorials (390 as of 2008). The software is designed to build protective factors, reduce risk factors, and solve problems in non-academic areas correlated with school success. The tutorials are reading-independent training modules, which take about 15 minutes each, on average, to complete. They are made up of photos, illustrations, videos, audio, peer-narrated text, and interactive exercises, with a hip hop look and feel.

The specific configuration of the intervention examined here was designed to promote "self-efficacy." Self-efficacy is the context-specific belief in one's capacity to master what is needed to succeed (Bandura, 1997). Success in this case was defined by schools as academic achievement and reduction in behavioral problems, and by researchers as positive changes in attitudes toward alcohol, marijuana and locus of control. A scope and sequence was designed to promote cognitive, social and emotional capacity-building toward those intended ends.

Twenty-one of the tutorials addressed "core components" of self-efficacy. Twenty-one additional tutorials were collaboratively chosen by staff during a three-hour, pre-intervention training session, to address their students' needs. All 136 remaining tutorials were available for students to privately address individual interests or risks.

Learning process. Independent of specific content, the *Whole Spectrum Self-Regulated Learning System* that underpins Ripple Effects SEL software contains elements that have been linked to successful development of self-efficacy: guided mastery, self-regulated learning, observational learning, systematic self-reflection, transfer training, and skill rehearsal (Bandura, 1997; Pajares & Urdan, 2006). All of these modes of learning are introduced with a case study scenario (context-specific application). Additional elements of the system include continuous assessment of content mastery through interactive games; reading independence through peer

narration and illustrations; narrative/story as teaching tool, including first person video true stories; and positive reinforcement for completion of the learning process.

Implementer training. In the fall of 2003, a Ripple Effects trainer provided two teachers and the Principal with a single three-hour training session to orient them to the software, create a site-specific scope and sequence for the "implementer's choice" tutorials, and prepare them to introduce it to students, assign the tutorials, and use the built-in data management system to monitor compliance. They were not trained in, did not deliver, and did not facilitate discussion of any of the assigned content.

Outcome Measures

The analysis included multiple, quantitative and qualitative, process and outcome measures.

Quantitative process measures. Quantitative process measures included enrollment attrition, study attrition, intervention attrition, dosage, and self-selection of optional tutorials.

We classified as "enrollment attrition" the percentage of students for whom there was no pre- or post-intervention administrative data, because their family had moved or they had been removed from school. We classified as "study attrition" the percentage of students who were physically enrolled in school, but dropped out of the study, either because they withdrew consent, or because they could not gain access to the technology.

We classified as "intervention attrition" the percentage of students who had consented to the study, and had access to the technology, but, for whatever reason, were non-compliant. That is, they did not have minimal exposure, defined as completion of interactive exercises from at least 12 tutorials (equivalent to three contact hours, or 30% of the total assigned content). For all compliant students, "dosage" measured the level of exposure to the required tutorials. We included in efficacy and dosage analysis all students who had at least three hours of exposure to the software program. Exposure to additional student self-selected content was a yes/no event; we did not analyze that dosage.

Quantitative outcome measures. Quantitative outcome measures included no fewer than 12 measures of concept mastery, six objective school achievement measures, and two self-report measures.

Each tutorial included at least one measure of concept mastery: a set of six multiple-choice questions, disguised as an interactive game. The tests are structured such that students cannot complete the game and earn points until every answer is correct.

The school achievement measures included grade point average (GPA), days absent, tardies, suspensions, discipline referrals, and one-year follow-up enrollment data.

The self-report measures were two computer-based, pre- and post-surveys on attitudes toward alcohol and marijuana, and perceived locus of control. Both self-report surveys were adaptations of previously validated instruments. The Monitoring the Future (MTF) survey measures norms and perceptions of harm about alcohol, marijuana and other drugs. The Multi-dimensional Health Locus of Control scales (MHLC) measure attribution of life events to internal (Self) or external (Fate/Other) factors. For both scales, Ripple Effects adapted the format to peer-narrated, computerized delivery, with a hip hop look and feel, a game-like structure of reinforcement for any answer, and automated data collection. For the locus of control scales, Ripple Effects adapted the "Other" subscale to include other social forces, such as racism, as well as other powerful people.

The reliability coefficient for the REMTF scale on norms and perceptions about alcohol was 0.74, while the coefficients for marijuana norms (0.88) and risks (0.85) were sufficiently high to enable them to be analyzed separately. The RELC scales for Self and Fate both had pre- and posttest alpha values of 0.70. The alpha values for the Other scale, which included the substantive content adaptations, were 0.59 for the pretest and 0.71 for the posttest . Since the pretest did not meet the 0.70 criterion, we analyzed that posttest data alone with independent-samples t-tests.

Qualitative measures. Qualitative process and outcome measures included direct observation and interview data on perception of program usage, barriers to use, and perceived value from implementer perspectives.

Data Collection

Compliance, dosage and concept mastery. Ripple Effects software automatically collected data on compliance and dosage rates. Dosage was directly tied to completion of the interactive games that measured concept mastery. If students were awarded points for a tutorial, it signified they had successfully provided all the correct answers to the quiz.

School data. School administrators provided pre-intervention demographic data, including SES, limited English proficiency (LEP), gender and ethnicity. They also provided enrollment attrition data, and data on GPA, absenteeism, tardies, suspensions, and discipline referrals for the first semester of the year of the study. The school district provided prior year and follow-up year school outcome data.

Self-report data. During the Fall of 2003, as part of their regular school activities, school staff had students complete the two computer-based surveys described above, before and within two weeks after the eight-week intervention. At least 12 weeks elapsed from teacher training to final survey.

Qualitative data. At several points along the way, the study coordinator conducted and documented phone and in-person interviews with the school administrator and the teacher facilitators. Site visits by Ripple Effects technology support staff provided observational data on implementation conditions and school climate issues.

Method of Analysis

SPSS was used to run all of the analyses. Several methods of analysis were used, each appropriate to the kind of data being analyzed.

For administrative post-intervention data with normal distribution (GPA, one-year follow-up enrollment data), we ran independent-samples t-tests comparing the means of the treatment and control groups.

For administrative data factors with non-parametric distribution, such as absenteeism and discipline, we ran the same tests, but also the Games-Howell *posthoc* test for pair-wise comparisons. Severely unequal variances can lead to increased Type I or Type II error, and, with smaller sample sizes, this effect can be increased. Games-Howell corrections are used when variances and group sizes are unequal.

The set of control variables included ethnicity, gender, LEP, and free or reduced lunch status, as a measure of SES.

For the self-report data with pre and post values (the REMTF norms and risks scales, and the Fate and Self RELC scales), we ran repeated-measures analysis of variance (ANOVAs) with a between-subjects factor (study group) correction. For the "Other" Locus of Control scale, since the pretest did not meet the 0.70 criterion, we analyzed that posttest data alone with independent-samples t-tests.

To establish dosage, Ripple Effects software created a password-protected file for each student and tracked completion of interactive exercises for each tutorial, assigning 100 points per exercise. These data were exported from each computer, with names decoupled from identifying numbers, and then data aggregated in centralized files. Dosage was calculated from the point count of each student's total number of completed interactive exercises, which divided by an average completion rate of four per hour, resulted in per-student hours of exposure.

To see if the number of hours of exposure to Ripple Effects was associated with differences in outcomes, we ran bivariate Pearson product-moment correlations. In cases where there was pretest data, we ran partial correlations on the posttest data that controlled for the effect of the pretest covariate. For each set of correlations, we used the Bonferroni method to minimize the chances of making a Type I error.

Because the intervention attrition rate resulted in unbalanced treatment and control group sizes,

we randomly sub-sampled the control group to match the treatment group size.

All means presented in the text and tables are the raw values unadjusted for the covariates.

RESULTS

Baseline Equivalence

Analysis of pretest surveys indicated no significant baseline differences between treatment and control groups for any self-report variable. Two years after the initial data collection, district administrators provided baseline data on GPA, absenteeism, and suspensions. Due to high mobility and dropout rates, there were only 20 students for whom baseline school outcome data were provided (14 students in the treatment group, and 7 in the control). This was insufficient to allow analysis of variance from pre to post intervention.

Independent-samples t-tests on prior year data revealed no significant differences for any variable; however, the small sample size increased the chances for Type 1 error. We can draw no firm conclusions regarding baseline equivalence on school outcome measures. The equivalence on self-report measures, randomized assignment to condition, and trends on prior year data, all point toward baseline equivalence on school outcomes, but do not demonstrate it.

Process Outcomes

Technology-related issues. Testing and problems with the school computer network caused several delays, so the actual intervention contact time was closer to six weeks. The available time allowed for completion of 41 tutorials (roughly seven tutorials per week for six weeks).

Enrollment attrition. The enrollment attrition rate was 7% for both treatment and control groups. It reflects the number of students who moved or transferred. Some administrative outcome data were missing for 3% of the remaining students. In these cases,

the school did not provide data for all measures, even though the student was enrolled.

Study attrition. Pretest self-report data were missing for 32% of the treatment group and 46% of the control group. At posttest, 44% of the treatment group and 35% of the control group did not provide data. The electronic monitoring of program usage, coupled with reports by facilitators, enabled researchers to determine that one control group student had 30 minutes of contact with the intervention. This student was removed from the analysis.

Intervention attrition. Of the 57 students in the treatment group, 63% did not meet the standard of compliance with the intervention, defined as at least three hours of exposure. Seven percent of these students had less than three hours of exposure to the intervention, while the remaining 56% had none whatsoever.

Dosage. For the 21 students who complied, their average dosage was 68% of the required content, which was roughly 27 tutorials, or seven contact hours.

Participation in self-selection option. One hundred percent of students who minimally complied with program requirements took advantage of the option to explore additional unassigned tutorials related to topics of personal interest to them. These students completed an average of 90% as many self-selected tutorials as assigned ones, with some completing a total of more than 100 of the available tutorials.

Quantitative Outcomes

Concept mastery. Analysis of points awarded for multiple-choice games provided evidence that treatment group students demonstrated at least short term mastery of no fewer than 12 key concepts, and an average of 27.

School outcomes. On two of five academic measures, Ripple Effects students had statistically significant positive differences compared to their control group counterparts (Table 1). Students exposed to the Ripple Effects intervention had grades that were approximately 3/4 of a letter grade higher (M= 2.4, SD = 1.03) than the control students (M= 1.68, SD = 0.094), p<.05. Administrative data showed very low absenteeism rates for both groups of students. Students in the

control condition had a higher rate of absenteeism of 0.001 (0.1%) when compared to the Ripple Effects group. This difference, while small, was statistically significant.

Mean tardy rates were lower for treatment than control students, but not statistically significant. Mean suspensions were lower for the treatment than control group students. There were no suspensions in the treatment group and almost one suspension for every two students in the control group. Only a few students accounted for all of the suspensions. Due to the very large variance within the control group, these substantive differences were not statistically significant.

Discipline referrals were low overall. Mean overall discipline rates were less than those reported in the three other studies in

this series, where participants shared the same ethnicity and SES, but did not have a history of behavior problems, and in two of the three studies, in which school climate was much more positive by any other measure (Author names withheld, 2008).

Treatment students generally had meaningfully fewer discipline referrals than control students, but none of these differences were statistically significant (Table 2). Overall standard deviations were one-half to triple the size of the means. It is not surprising that with such a wide range of responses, the differences between the treatment and control means were not statistically significant, even though in several categories, treatment group scores went to zero.

Table 1.
Differences in School Outcomes for Ripple Effects and Control Students

	Treatment (N=21)		Control (N=19)			
Outcome	M	SD	M	SD	Difference	Cohen's *d*
GPA	2.41	1.03	1.68	0.94	0.73*	0.76
Days Absent	0.00	0.00	0.001	0.00	-0.001*	0
Tardies	0.90	1.84	1.95	3.03	-1.05	0.40
Days Suspended	0.00	0.00	0.48	1.37	-0.48	0.50

*$p < .05$

Table 2.
Differences in Mean Discipline Referrals for Ripple Effects and Control Group Students

	Treatment (N=21)		Control (N=20)			
Discipline Referral	M	SD	M	SD	Difference	Cohen's *d*
Assault	0.00	0.00	0.05	0.22	-0.05	0.30
Defiant/disruptive	0.10	0.30	0.10	0.31	0.00	0
Drug use	0.00	0.00	0.05	0.22	-0.05	0.30
Fighting	0.00	0.00	0.05	0.22	-0.05	0.30
Threaten student	0.00	0.00	0.05	0.22	-0.05	0.30
Total referrals	0.10	0.30	0.30	0.57	-0.20	0.50

Subjective Outcomes. There were no statistically significant differences on either self-report measure. Only 14% of the treatment group students had sufficient dosage and completed both the pre and the posttest self-report surveys.

Of those who did, scores on attitudes toward alcohol and marijuana showed the treatment group had a greater gain in perceptions of norms and risks about alcohol than did the control group, but not enough to reach the level of statistical significance. Pre- and posttest norms about marijuana were similar for the treatment and control conditions, with generally minimal difference in score gain. Results are reported in Table 3.

On the locus of control Self scale, the control students had a higher pre-post gain than the treatment students. Because higher scores indicate greater disagreement with a scale, the treatment-control difference means that the treatment students were more likely to attribute outcomes to themselves than were the control students. On the Fate scale, the sample saw a minor gain for the control students, meaning that treatment group was slightly more likely than the control group to agree that their lives were controlled by Fate (see values in Table 4). On the Other scale, the treatment students were more likely than the control students to agree with items attributing consequences to other structures and people (M = 29.54, SD = 9.61 versus M = 36.50, SD = 8.2). None of these trends were significant.

Table 3.

Differences in Changes in Perceptions of Risk and Norms about Alcohol and Marijuana, for Ripple Effects and Control Group Students

REMTF Scale	Pre M (SD)	Post M (SD)	Change	Pre → Post Difference in Changes between Groups
Alcohol Norms and Risk				-0.99
Treatment	15.75 (2.31)	16.06 (2.68)	0.31	
Control	15.30 (3.37	16.60 (3.92)	1.30	
Marijuana Norms				-0.52
Treatment	6.75 (2.82)	7.13 (2.64)	0.38	
Control	7.00 (2.49)	7.90 (2.33)	0.90	
Marijuana Risk				-3.01
Treatment	9.25 (2.49)	8.44 (2.44)	-0.81	
Control	7.90 (3.31)	10.10 (2.85)	2.20	

Note. Sample consists of 8 students in the treatment group and 10 in the control group.

Table 4.
Differences in Perceptions of Locus of Control by Ripple Effects and Control Group

RELC Scale	Pre M (SD)	Post M (SD)	Change	Pre → Post Difference in Changes between Groups
Self				-1.95
Treatment	26.20 (6.65)	26.25 (11.20)	0.05	
Control	25.70 (7.07)	27.70 (9.56)	2.00	
Fate				0.10
Treatment	34.30 (6.18)	33.50 (11.29)	-0.80	
Control	36.60 (9.42)	37.50 (7.35)	-0.90	

Note. Sample consists of 8 students in the treatment group and 10 in the control group.

Table 5.
Correlations Between Dosage, GPA, Absences, Tardies, and Suspensions

	GPA	Absences	Tardies	Suspensions
RE Group (N=21)	0.26	a	0.27	a

a: Value could not be computed because at least one of the variables is missing or constant.

Dosage Effects

As reported in Table 5, there were no significant correlations between dosage and outcomes at the 0.002 level.

Qualitative Findings

Teacher interviews and direct observation revealed that students assigned to the treatment group who did not participate, either ignored directions or outright refused to follow them, and teachers were either unable or unwilling to ensure compliance. They did not routinely monitor student progress to ensure that students assigned to the intervention group actually received it. Instead of completing the required intervention, students just "hung out" in the computer lab or in the hall, or played on the computer. Despite this, interviews indicated that from the educators' perspective, the effect on school climate of markedly lower discipline referrals and suspensions was pronounced and meaningful.

During four out of five site visits to provide technology support or conduct interviews with staff, police were present due to a disturbance on campus. Teachers seemed unable to control students, and when chaos got out of hand, relied on the police to restore order. These school climate conditions were a major factor in the decision to schedule closure of this school after the 2005-2006 school year.

Follow-up Data

At 12-month follow-up, 62% of treatment group students and 60% of control group students who were enrolled at the point of post-intervention data collection were still enrolled somewhere in the school district, not a significant difference.

DISCUSSION

The finding that students who had any exposure to the program at all had mean completion rates of 190% of the amount assigned is unexpected and cause for hope. When presented with a learning option that was relevant to them and allowed them to learn through whatever method they preferred, about issues of personal concern to them, these students who had previously been labeled as unmotivated and unresponsive were neither. This suggests that if individual students are exposed to the program at all, they are likely to take extensive advantage of the built-in option to privately address personal risk factors, and that choice will have value for them. On the other hand, the finding that two-thirds of the students in the treatment group had no exposure to the intervention at all is somewhat disheartening, even though this compliance rate is not low for students in a chaotic "school of last resort" such as this one. In cases where teachers take no active role in ensuring participation in the intervention, simply making this kind of supportive program available is not enough to ensure that most students will take advantage of it, if they are not personally motivated to do so.

Among those who received the intervention, the differences in grades after only six weeks of exposure to the software were literally the difference between unsatisfactory (1.68) and more than acceptable (2.4) academic performance. This is consistent with findings from the other studies in this series. Although promoted as a social-emotional learning program, the primary documented impact of Ripple Effects is on academic achievement (Author names withheld, 2008). The statistically significant difference in already possibly underreported attendance rates is too small to be meaningful, but may indicate the potential for this intervention to positively impact attendance, which has revenue, as well as school achievement, implications.

The trends toward lower scores on discipline referrals, suspensions and tardies, while not statistically significant, are clinically important in terms of school climate. The difference between zero suspensions and one suspension for every two students is of particular note. School suspensions are highly correlated with future involvement with juvenile justice, dropping out, and substance abuse. The apparent underreporting of negative outcomes may be the school climate equivalent of "broken window" syndrome in high crime neighborhoods. That is, there is a feedback loop in which, when small acts of vandalism (or other anti-social behavior) are accepted and ignored, escalation of crime follows. In turn, the presence of major crime dwarfs the importance of minor infractions, and may lead to a sense of hopelessness about the possibility of making even minor change.

The software intervention was not intended to be optional. Participation needs to be required and monitored. Students have every right to refuse participation in a research study at any point. If that were the case here, they would have been included in the study attrition figures. However, these students had actively consented and signed the proper forms. They simply failed to fulfill their commitment, and were not effectively directed to do so.

This lack of teacher and administrator follow-through suggests that more intensive administrator and implementer training may be needed and should address behavior management and teacher-student relationships, as well as program implementation issues. Since completion of this research, Ripple Effects has developed a parallel software-based training program for implementers. It addresses personal leadership, school climate and program implementation issues. As with the student program, it can be used by individual teachers, even in a setting where school climate is problematic.

The trends toward higher norms and perception of harm about alcohol by the treatment group are encouraging. A larger replication study could clarify them. We hypothesize that the neutral findings on impact on attitudes toward marijuana, with trends toward *less* perception of harm, may be related to the fact

that medical use of marijuana is legal in this community.

Limitations of Findings

Insufficient baseline data. While prior year data showed no significant differences, the small sample size makes it difficult to draw firm conclusions. It is possible that the differences in outcomes can be attributable to starting differences between students.

Study attrition level. Staff failed to collect self-report survey data from all students, as agreed. This reduced the size of the sample for which there was verifiable pre- and post-intervention data. Some portion of this study attrition is not attributable to student choice.

Attrition bias. Sixty-three percent of treatment group students did not have minimal exposure to the intervention, and so were excluded from analysis of efficacy. It is possible that students who were not exposed were lower performing students overall and thus indirectly boosted the average performance for the remaining treatment group students.

Underreporting of negative outcomes. We have concerns that there may be serious underreporting of negative, non-academic outcomes for students in both treatment and control groups. All of the attendance data is suspect. Reported absenteeism rates are lower than for the higher performing schools in the six concurrent studies, and were far below the 30% rate reported by staff. Since average daily attendance rates are the basis for state funding, it is possible that the economic penalties of reporting high absenteeism would have been too severe for the school to sustain. Discipline-worthy offenses also appear to be grossly underreported. Pre-study interviews with staff suggested that both covert and outright defiance were ongoing behavior problems, and frequent resorting to calling police supported that perception, yet reported referral rates for defiance are very low, much lower than in a concurrent study in this series at a school serving students from the same ethnic group and SES status, but

with positive school climate (Author names withheld, 2008).

Generalizability. This study, undertaken with African American and Latino students who had a history of school failure and behavior problems, is probably most relevant for schools and other youth-serving organizations serving students with multiple risks. It is not possible to generalize from this study to all other groups of students.

CONCLUSIONS

These findings provide evidence that Ripple Effects computer-based SEL intervention offers a way to deliver evidence-based training and services that can increase academic achievement among students who are otherwise failing in school, even in a chaotic and unsafe environment—but only if they use it. Trends suggest it may also affect absenteeism and social behavior, which are widely understood to be measures of school climate. Larger studies would be needed to clarify these findings.

Obviously the intervention cannot—and does not claim to—completely offset the effects of inconsistent policies, high levels of violence, low expectations, lack of physical or emotional security, and teachers' unwillingness or inability to deliver consistent consequences or exercise any control over student behavior. But it appears to partly mitigate the exacerbating effects of negative school climate on multiple risk factors that are already in play with many of these lowest achieving students—again, among those students who actually use it.

The school climate conditions in this study are not uncommon in communities where children carry the burden of multiple risk factors in multiple domains, including poverty and the remnants of a legacy of structural injustice. School closures—as happened at the school examined here—are not a solution to an unsafe or chaotic school climate. Comprehensive, systemic reform is needed, but it can be an excruciatingly slow process. Unfortunately, without effective intervention, these students' slide toward failure moves at a much faster rate than does school-wide institutional reform. To deny an effective individual intervention to students at very high

risk for school failure, until comprehensive prerequisites for positive school climate are in place, speeds that rate of decline, rather than slowing it. A self-regulated, computer-based intervention that is effective, but unlikely to reach more than half the students in a chaotic school environment, is far from the whole solution. It is a practical example of how half a loaf is better than none, and may mean survival for those who are without any other sustenance.

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