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**PROGRESS REPORT OF THE RANDOMIZED TRIAL OF
POSITIVE ACTION IN HAWAI'I:
End of Third Year of Intervention (Spring, 2005)**

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Oregon State University**

**Funded by grant #R01-DA13474
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The current *Positive Action* (PA) project, grant number R01-DA13474 was funded in September 2001 (later than expected), with a no-cost extension through June 30 2007. The study was designed as an efficacy trial -- to assess the effects of the PA program on student behavior and academic achievement when implemented fully and with fidelity. However, due to the No Child Left Behind (NCLB) program of the USDOE starting in 2001 and other pressures, it was more difficult than anticipated to recruit schools into the program condition, and implementation to date has been less than ideal, thus making this an effectiveness trial. This is the reverse of historical experience, where it was usually more difficult to recruit or keep schools in the control (C) condition. After spending the first year to recruit staff and schools, data collection started in the spring of 2002 and the PA program started in program schools in the fall of 2002. We have followed 2 cohorts of students – those in grades 1 & 2 in the 2001-02 school year. They were surveyed at baseline and every spring thereafter – up to grades 4 & 5 (May 2005) for this report. The pressure of NCLB led to great variability in levels of implementation, and no school has yet attained full implementation – daily lessons, school-wide activities, parent/family program and community involvement. Despite this, program effects to date have been positive though more modest than we would have expected given prior quasi-experimental results. Also, because of the later than planned start, we deliberately planned to delay most data analyses to the extension year (since the last wave of data collection would not occur until the present time (indeed, it is just being completed as we write this, May/June 2006). We provide more detailed information about implementation and data analyzed to date after a full description of the *Positive Action* program.

The Intervention Tested

We first describe the structure of the program, and then explain its theoretical basis.

1. The *Positive Action* Program Structure

Positive Action (PA) is a comprehensive program that teaches students the positive actions in the physical, intellectual, emotional and social areas for social and character development (SACD), prevention (of substance use, violence, obesity, and other problem and negative health-related behaviors) and the improvement of school performance (attendance, attention and academic achievement). The program has multiple components including: a K-12 classroom curriculum (only using the K-5 portion in this study), grade 5 drug education and conflict resolution supplements, and self-

training kits for school preparation and teacher training, school-wide climate development, counselors, family classes, and community members. All components are based on the same philosophy that is taught through six unit concepts (see below). PA uses research-proven strategies and methods such as active learning, positive classroom management, skills development and role-play, a detailed curriculum with almost daily lessons, school-wide reinforcement of positive behaviors, family and community support and involvement.

PA has an overarching goal to lead individuals, families, schools, and communities to success and happiness, or feeling good about who they are, what they are doing and how they treat others, or being the best they can be by doing positive actions. See **accompanying table** for specific goals for individuals, family, schools and community.

The content of the classroom curriculum and all other components is based on the intuitive philosophy that “You feel good about yourself when you do positive actions and there is a positive way to do everything.” The philosophy is illustrated with a self-reinforcing circle (see **Figure 1**) that shows that thoughts lead to actions, actions lead to feelings about you, and feelings about you lead to more thoughts.

The circle can be positive or negative. The circles become cycles or habits, habits become character and character becomes a lifestyle. The aim of PA is get everyone into the positive circle by making positive choices consciously. The program teaches the positive actions for the whole self: the physical, intellectual, social and emotional areas.

The content is taught through the six units listed below:

- Unit 1. Self-Concept: What It Is, How It’s Formed, and Why It’s Important or, the PA Philosophy and Circle.
- Unit 2. Positive Actions for Body and Mind. E.g., nutrition, exercise,

GOALS of the *Positive Action Program*

Individual goals:

- 1) To give everyone the opportunity to learn and practice physical, intellectual, social and emotional positive actions for a safe, healthy and drug-free life.
- 2) To learn that positive actions are critical skills for achievement.
- 3) To learn that positive actions are also good or right actions, and by doing positive actions, they are also developing good character and values (honesty, respect, tolerance, etc.).

Family goals:

- 4) To create a positive home environment that develops positive relationships and communication.
- 5) To contribute to parenting and life skills in adult family members.
- 6) To prepare children to be effective learners.

School goals:

- 7) To bring about comprehensive positive school change.
- 8) To enhance teachers’ effectiveness to motivate students and develop skills for achievement and prevent barriers such as substance use, violence and disruptive behavior.
- 9) To create a positive environment conducive to teaching and learning.
- 10) To create a safe, drug-free school environment.
- 11) To promote the personal and professional development of quality teachers, staff, and administrators.
- 12) To unite the efforts of the school, home, and community in promoting the social, academic, and emotional growth of children.
- 13) To teach the leadership skills that will promote high achievement and expert performance in students to compete in the global marketplace.

Community goals:

- 14) To teach children, adults, schools, and community groups and agencies to contribute to a community environment that is drug-free and that protects health, safety, and civil rights.
- 15) To increase community involvement in schools and schools into the community.
- 16) To unite community members and groups in doing positive action events community wide.

Figure 1: The Thoughts-Actions-Feelings about Self (TAF) Circle



sleep, hygiene, importance of learning, thinking skills, problem solving, decision-making, creativity, curiosity, and study skills.

- Unit 3. Social/Emotional Positive Actions for Managing Yourself Responsibly. E.g., managing personal resources like time, talent, energy, thoughts, actions, feelings, money and possessions.
- Unit 4. Social/Emotional Positive Actions for Getting Along with Others by Treating Them the Way you like to be treated. E.g., respect, empathy, kindness, fairness, cooperation.
- Unit 5. Social/Emotional Positive Actions for Being Honest with Yourself and Others. E.g., telling self and others the truth, admitting mistakes, not blaming others or rationalizing, doing what you say you will do and knowing your strengths and weaknesses.
- Unit 6. Social/Emotional Positive Actions for Improving Yourself Continually. E.g., setting and achieving goals by believing in your potential, having the courage to try, turning problems into opportunities, persisting and broadening your horizons.

The classroom curriculum for the K-5 portion of PA is scoped and sequenced, consisting of over 140 15-minute, age-appropriate lessons per grade level that are taught 4 days a week. There is one teacher's kit for each grade level, with a manual and all the needed materials for the teacher and 30 students. Scripted lessons are completely prepared, colorful, interesting and teacher-friendly, employing a variety of methodologies and addressing different learning styles. Activities include stories, role-playing, plays, games, music, questions/answers, activity booklets and sheets, posters, and manipulatives. Teachers learn the PA method of instruction and implement the PA curriculum and school-climate activities. Teaching methods include actively role-modeling the use of positive behaviors, activities, reinforcements, and use of the suggested strategies. Students and teachers both set goals and follow through. Classroom management is enhanced by a focus on positive activities and reinforcement of positive behavior. The "Thoughts-Actions-Feelings about Self" circle poster--a large one for teachers and minis for students--is the tool used to help students see how their thoughts lead to their actions, those actions lead to feelings about themselves and then more thoughts follow, and how they can consciously use this process and change negative to positive and build on positive. As students learn to use positive thoughts and positive actions to feel good about themselves, they become more healthy physically and intellectually, manage themselves better, are more able to treat others the way they like to be treated, are more honest with themselves and others, more often set goals and achieve for themselves, disciplinary referrals and other problem behaviors like SU and violence decrease and academics improve.

In recognition of the accountability schools now have with NCLB Act to teach academic standards aligned to curricula and achievement tests, PA is aligning its curricula with learning standards in language arts, social studies, math, and science through a SBIR grant from NIDA.

The regular PA classroom curriculum has drug education integrated into it, like the positive behavior of refusing to use harmful substances. Classroom teachers present engaging interactive lessons that

persuade students, with a clear no-use message, that substance use is a negative action that will leave them feeling bad about themselves in the end. In grade 5 there is a drug education supplement program (with 21 15-minute lessons that are taught 3 at time at the end of each unit of the regular PA curriculum) (Allred, 1990) that provides additional learning about drugs' effects on physical, intellectual, social and emotional well being, refusal and other skills, and connects drug-free living to success and happiness. The drug supplement lessons build on the foundation of the regular PA curriculum. A parallel Conflict Resolution Kit offers knowledge, motivation and skills-training in a similar fashion.

A school-wide climate development program consists of materials to encourage, reinforce and unite the entire school population to use positive actions throughout the day, coordinating the entire school to improve behavior and academic performance. The program comes in a kit that includes manuals for the principal or PA Coordinator, support staff and parents. The complete PA program is administered by the school principal, or designee, who, using the Climate Development Kit (Allred, 1987) is directed as to how to initiate the adoption process, appoint a PA Coordinator and a PA Committee (representatives from administration, teachers from each grade level, support staff, parents and students, and coordinate training, professional development workshops and resources. Quality training and professional development opportunities for school personnel, parents, and community member's are created with PA self-training kits or trainings conducted by PA trainers. Either option prepares school personnel and others to implement PA with the highest level of fidelity while tailoring the training to the needs of the school, families and communities.

The PA Coordinator's (Principal's) manual directs the use of materials like the posters, music (27 songs with CDs, lyrics, and music books), stickers, tokens, words of the week cards, certificates, balloons, and ICU Doing Something Positive Boxes. It also includes information on planning and conducting assemblies, mid and end of year celebrations, creating a PA newsletter, establishing a committee and scheduling the calendar so that each grade level is on the same lesson at the same time. When each grade level teaches the same concept at the same time, there is a common language and shared vision throughout the whole school. The curriculum and school-climate activities include everyone and serve the needs of all students including Special Education students and those learning English as second language. The program is appropriate for any SES level, ethnic group or culture, and residents of rural, suburban and urban areas. School leaders are encouraged to consider all curricula (reading, math, PE, health, etc.) and activities as promoting doing positive actions, incorporate them into the PA philosophy and six unit framework, and brand them as positive actions.

A Counselor's program is integral to the climate development of the school because it specializes in developing positive actions with individuals, small groups, classrooms, families, community and the school as a whole. The Counselor's Kit (Allred, 1997) contains 42 lessons, 6 for each of the 6 units and 6 review lessons, and accompanying materials. The kit can also be used for mentoring, peer tutoring and with support groups. The Counselor's Kit's primary focus is educational but can be used therapeutically if needed. It is useful for students who may need more intense help than they are getting in the classroom.

(Allred, 1998)

The Family program has a curriculum for parents to use at home that is parallel to the one used by schools. There are also family classes to train parents in how to use the family curriculum. The Positive Action Family Kit (Allred, 1995) contains 42 lessons with 6 in each unit or 36 lessons to correspond to the number of weeks in a school year, plus 6 review lessons. The materials include posters and other visual aids, music, a game, activity sheets, conflict resolution plans, a problem solving/decision making checklists, words of the week cards, an ICU Doing Something Positive Box and a Certificate of Completion. The Family Classes Instruction Kit teaches families, in seven sessions, how to use the Family Kit at home. It has classes with corresponding curriculum for children, teens, parents and the family together. It is designed so that home and school can be on the same unit at the same time to reinforce each other. The family classes are taught at the beginning of each unit. Parent(s) also are invited to participate on the PA Committee, in school PA activities such as assemblies, by reading the PA Newsletter, being involved in homework, and acting as mentors, volunteers, cheerleaders, and chaperones for school activities.

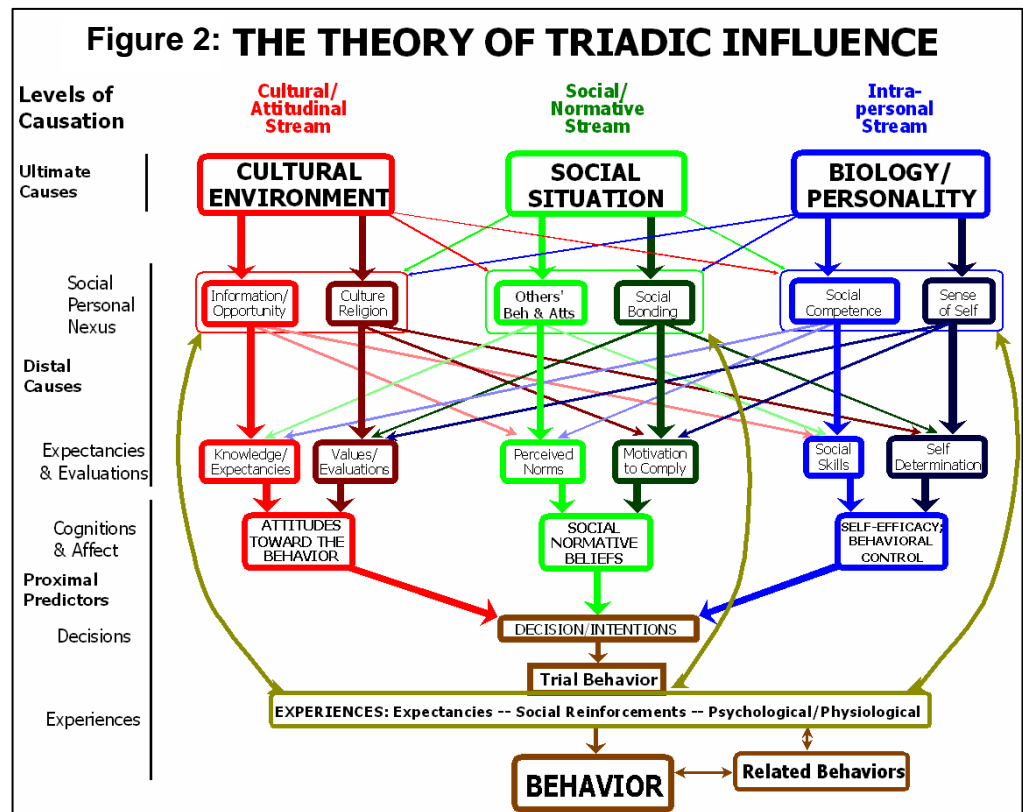
A Community program is for communities and coalitions to use to organize the community to do community-wide PA events, engage the different groups of the community in PA projects, and link to schools and to families. The Community/Coalition Kit (Allred, 2004) contains a manual that guides a committee on how to plan and conduct community wide events and how the other groups of the community such as health, welfare, media, business, government, schools, families, faith-based organizations and others can do PA projects to create a healthy, prospering, community that is safe, drug-free and respects civil rights. It encourages community service and volunteerism. It assumes that everyone can and should contribute something to their community. The kit also contains a Family Kit, a Counselor's Kit and a Media Kit.

2. Theoretical basis

The PA program, first developed in 1977 by Carol Gerber Allred, and revised since then as a result of process and monitoring evaluations, is grounded in a broad theory of self-concept (Combs, 1962; Purkey, 1970; Purkey & Novak, 1984). This theory posits that people determine their self-concepts by what they do; that actions, more than thoughts or feelings, determine self-concept; and that making positive and healthy behavioral choices results in feelings of self-worth. Thoughts, actions and feelings are consistent with each of Attitudes, Social Normative Beliefs, and Self-efficacy, each of which has affective (evaluations, motivation to comply, self-determination) and cognitive (expectancies, normative beliefs, social skills) components. "Positive Psychology" (Seligman, 1998), particularly results and theoretical developments reported by Barbara Fredrickson (2000), fully support this notion. Fredrickson (2000) reports that when people feel positive, they subsequently have more positive thoughts and engage in more positive behavior. PA is also consistent with educational theories of brain development (Caine and Caine, 1997), higher-level thinking skills (Bloom, 1981), and multiple intelligences (Goleman,

1995; Gardener, 1991). By explicitly linking thoughts, actions and feelings, the program is also believed to enhance the development and integration of affective and cognitive brain functions (Damasio, 1994). The program also trains teachers and parents to identify and reinforce positive thoughts, actions and feelings by students, leading to continual reinforcement of positive actions and enhanced student bonding with parents and school, consistent with multiple social learning theories (Akers, 1977, 1998; Bandura, 1977a, 1977b, 1986) and other current approaches to social development, health promotion, and prevention of unhealthy behaviors (Hawkins and Weis 1985; Peters and McMahon, 1996; Petraitis, Flay and Miller, 1995). Many of these theories are integrated into Flay's Theory of Triadic Influence (Flay and Petraitis, 1994; Petraitis, Flay and Miller, 1995) (see **Figure 2**).

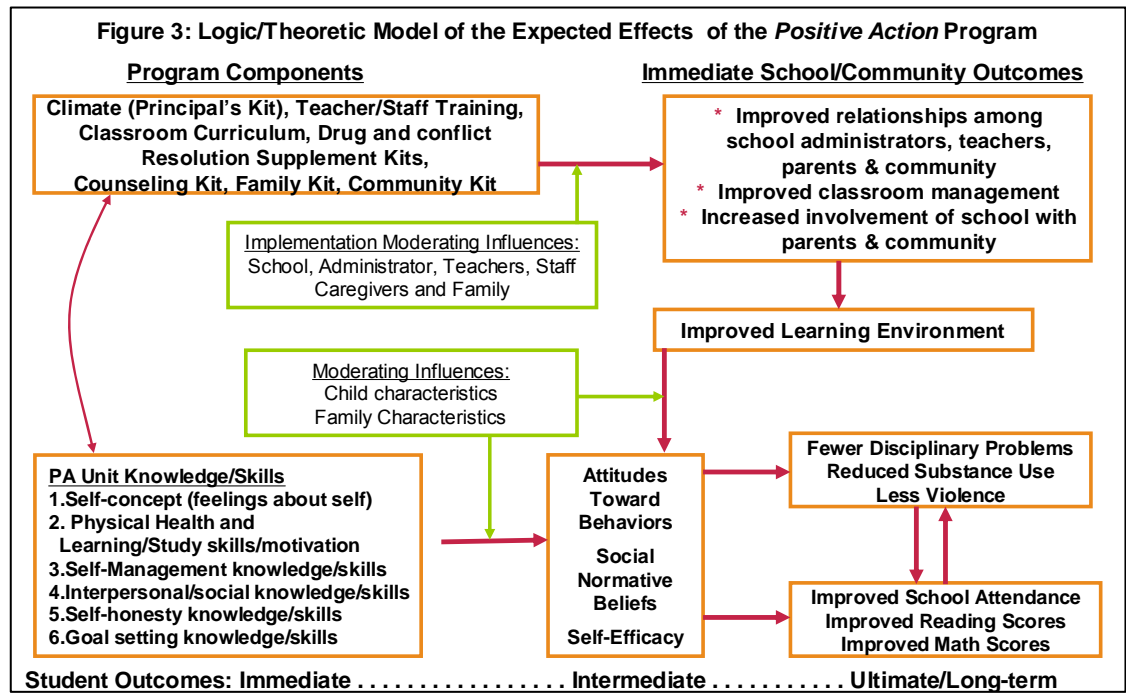
Broad and long term effectiveness in reducing problem behaviors and increasing school performance will require addressing more distal influences in a more comprehensive way. The PA program attempts this with a holistic approach to school reorganization, teacher-student relations, parent involvement, instructional practices, and development of the



self-concept of all parties (students, teachers, parents, and community members). With the PA model, students and adults are expected to gain not only the knowledge, attitudes, norms and skills that they might gain from other programs, but also improved values, self-concept, family bonding, peer selection and communication, and appreciation of school. That is, PA is designed to affect more distal (and ultimately more important) influences on behavior and performance than most other programs. The expected result is improvement in a broad array of measurable student behaviors in the physical, intellectual, social and emotional arenas (e.g., decreased disciplinary problems, SU, violence and suspensions) and school performance (decreased absenteeism, improved achievement).

The more specific pathways of program effects to be tested in this project are summarized in a Logic/Theoretic Model (**Figure 3**). This model explicitly lays out the moderators, mediators and outcomes to be assessed in this study. Implementation of the program components, as moderated by school/administrator, teacher/staff and family characteristics, are expected to lead to immediate,

measurable changes at the school and family/community levels, such as improved attitudes, enhanced classroom behaviors and environments, and improved school climate and family



environments. The school climate component is expected to lead to measurable changes in the school-wide climate, such as administration-staff relations (including teacher-to-teacher, teacher-to-staff, teacher-to-student), reinforcement of positive behavior, and parent-school relations. The family component is expected to lead to measurable changes in family involvement with the school, as well as positive increases in school-parent relations and parent-child relations. The teacher/staff training is expected to contribute to improved teacher-student relations and lead to changes in classroom management and instructional strategies. The classroom curriculum is expected to contribute to improved teacher-student, student-student, and student-parent relations. Any or all of these immediate school/community outcomes may be moderated by characteristics of the school, its leadership or its teachers and staff. The specific content of the 6 Units of PA are expected to lead to improved knowledge and skills taught in the lessons. All of these expectations should lead to improved attitudes, SNBs and SE of students (immediate student-level outcomes) which, in turn will logically lead to the ultimate or long-term outcomes, including improved school attendance, fewer disciplinary problems, reduced rates of SU and violent behaviors, and improved school performance. These outcomes may be moderated by the uniqueness of each child or their family characteristics.

Design and Sample

This study was a clustered (school-based) randomized trial of the *Positive Action* program. The study was conducted in Hawai'i because it is one large school district that has multiple ethnic groups and that had a high need for improvement. Eligible schools for the study were those elementary schools on Oahu, Maui and Molokai (total N = 151, eligible N = 111) that 1) are K-5 or K-6 community schools (are not academy, charter, special education), 2) had at least 25% of students receiving free or reduced price lunch (because we wanted to target more needy schools), 3) were in the lower 3 quartiles of

standardized test scores (again, because we wanted to target more needy schools), and 4) had annual student mobility stability rates over 80% (that is, mobility less than 20% -- to ensure that at least 50% of a selected cohort was still in the same school by wave 4 and 40% by the end of the study). Using the 2000 School Report Card data, we stratified the eligible schools into strata ranked on a “risk score” comprised from demographic variables of % free/reduced lunch students (the strongest predictor of achievement), school size, % stability, and ethnic distribution (also important school-level predictors of problem behaviors and achievement); other characteristics of the school (student/teacher ratio, expenditures per student); characteristics of student populations (proportions of gifted, special education, and ESL students), and indicators of student behavioral and school performance outcomes (disciplinary referrals, suspension rates, and standardized achievement scores). We used methods that the PI helped develop and has used in other studies over the past 20 years (Dent et al., 1993; Flay, Graumlich, et al., 2004; Graham et al., 1984). We then checked with District staff that the schools within each stratum were comparable “on the ground” (and that recent or expected changes in neighborhood or school structure would not change this) and removed schools from the stratum if necessary. The resulting 19 usable strata (i.e. containing >3 well-matched schools, because we were planning for the proposed continuation study) contained 3 to 6 schools.

Starting with strata entirely on Oahu (hoping to minimize inter-island travel costs), we randomly selected schools from within strata and randomly assigned them to program (P) or C conditions before recruitment. If a selected school did not agree to participate in the condition to which it was pre-assigned, we attempted to replace it with a random pick from the remaining schools in that stratum. In those strata in which a school declined to participate, all other schools approached also declined. NCLB pressures led to more schools assigned to the P than the C condition refusing to participate and having to be replaced with another school from within the same stratum. We abandoned 8 strata (when only 2 schools

Table 1: Characteristics of study schools at baseline

	P Schools		C Schools		HI
	Mean	SD	Mean	SD	
Enrollment	612.9	321.2	491.7	213.5	492
Student/Teacher ratio	8.1	3.5	8.48	2.3	
Ethnic Distribution (%)					
Korean	1.85	3.6	0.93	1.6	1
Black	1.35	2.0	1.56	3.1	2
Chinese	2.00	2.7	1.79	3.0	3
Filipino	15.56	9.1	11.30	14.2	21
Samoa	5.44	10.3	2.86	4.5	4
White	13.40	11.6	17.94	18.2	14
Other	13.61	7.7	14.18	13.5	10
Japanese	6.93	6.6	4.92	4.4	12
Asian	10.78	10.0	7.64	8.2	16
Hawaiian	34.93	25.0	38.00	30.5	27
Hispanic	2.28	2.1	2.50	2.3	2
Portuguese	1.83	1.7	1.51	1.9	2
Indochinese	0.33	0.7	1.92	5.5	1
American-Indian	0.57	0.4	0.59	0.5	1
Stability (%)	88.42	5.5	88.47	8.0	83
Per Capita Income (\$)	14,001	4,490	13,434	4,110	28k
Free/reduced lunch (%)	61.88	22.5	56.44	26.6	41
Special Ed. (%)	11.52	4.0	10.83	6.7	11
English Second Lang. (%)	9.99	10.8	8.36	12.1	7
Achievement - SAT Scores*					
Reading % ≥ Standards	70.30	14.2	69.44	14.7	76
Math % ≥ Standards	75.73	11.6	73.99	14.4	80
Behavior					
Av. daily absent (%)	10.8	2.0	10.52	2.1	9
Discip. referrals (n)	6.9	9.0	7.9	15.9	
Referrals/100 students	1.66	2.5	1.43	2.2	
Expenditures/student by category					
Instruction	3,182	488	3,080	679	
Instr Supp	1,371	717	1,298	468	
Total	7,482	2,078	7,283	1,586	6.6k
Notes					
* SAT scores are for 9 pairs only - one pair being too small for reliable estimates					
No differences between conditions are significant					
60% of schools are Title I, 51% of students are boys					

remained) on Oahu before moving to strata that included Maui and Molokai schools. Recruitment turned out to be much easier on Maui and Molokai, probably because schools on the outlying islands have fewer opportunities and demands placed on them. Whereas recruitment on Oahu required multiple phone calls and 2 or 3 visits to each school, recruitment on Maui required only one or two phone calls and one visit, and recruitment on Molokai required only one or two phone calls. We abandoned only one stratum on Maui. The resulting sample of schools, consisting of 5 pairs on Oahu, 3 pairs involving Maui schools and 2 pairs involving Molokai schools, is remarkably representative of Hawaiian schools (see **Table 1**), though with higher stability (as intended) and at higher risk (also as intended) as indicated by % free/reduced lunch and test scores. Furthermore, comparison of participating schools with declining schools and abandoned strata showed no significant differences. These results demonstrate that our methods of developing strata and random selection and assignment were effective. The final sets of schools represent schools that would be willing to conduct a program like Positive Action – however, as with all other similar studies, results will not be generalizable to schools that would not be willing to conduct such a program.

The study sample consisted of 2 cohorts of students (those in grades 1 and 2 at pretest in the 2000-2001 school year through to grades 5 and 6 by the wave 5 follow-up), their parents, and their teachers each year of the study, all other teachers and staff in project schools. **Table 2** shows the number of students surveyed at each wave of measurement. We did not follow students who left project schools during the study. We added students to the study who entered project schools during the study. Thus, we surveyed approximately 2800 (± 180) students at each wave, with about 726 \pm 50 of them being new to the study for the corresponding school year. The stability was lower than expected between waves 1, 2 and 3 (73%) but higher than predicted for wave 4 (88%), leading to almost 50% of the original students being retained through wave 4 as anticipated. Total N by wave 4 is 5,066.

Wave	1	2	3	4
Year	2002	2003	2004	2005
Grades:	1 & 2	2 & 3	3 & 4	4 & 5
Available N	2994	3144	3197	3258
1 st /2 nd	2887	2104	1537	1363
New 2 nd /3 rd	--	679	405	329
New 3 rd /4 th	--	--	724	504
New 4 th /5 th	--	--	--	776
New 5 th /6 th	--	--	--	--
Totals	2887	2783	2666	2972
Total N (sum of the bold numbers) =	5066			

Program Implementation

Training

Prior to each school year, the program developer (Dr. Allred) provided teacher/staff training to each school in the program condition. This was 3-4 hours before the first year, and 1-2 hours each of the subsequent years. Dr. Allred also visited each school at least once each year to provide an in-service session (usually 30-50 minutes). In addition, we conducted a mini-conference for program schools in February of each year, where 5-6 representatives from each program school came together to obtain further training on the school-wide components of the program from Dr. Allred and to share experiences. The attendees were then asked to share their new knowledge and experiences with the rest of the staff at their own schools. There was evidence that this occurred when attendees at subsequent conferences

showed how they had used or adapted ideas from other schools for use in their own schools.

Implementation

The pressures of NCLB made it much more difficult to obtain high levels of implementation than we had experienced in prior studies. By the use of extensive reminders and incentives, we were able to obtain implementation reports from an average of 50% of teachers each week and an average of 85% of teachers at the end of each unit – we consider the latter a good response rate, and we believe, on the basis of other data and principal and coordinator reports, that their data are representative of all teachers. When both were completed, we found high agreement between weekly reports and unit reports. Of the reporting teachers, 59% reported teaching the expected 4 or more lessons of PA per week during year 1, and this increased to 71% by year 3, with an additional 22% teaching an average of 3 lessons per week each year. An average of 80% of teachers reported spending 11-20 minutes per lesson every year (the expectation is 15 minutes). Use of PA materials and activities throughout the school day and school-wide increased during the course of the study, from an average of about once per week to 2.5 times per week. On the year-end survey, teachers and staff combined indicated that they use PA materials an average of “sometimes” (= 3 on a scale of 1-5 from never to always) and PA school-wide activities an average of 3.5 on the same scale. Students reported receiving an average of 3-4 lessons per week (in agreement with teachers), experiencing an average of 1.2 uses per week of all classroom and school-wide PA materials/activities and having one family interaction per week around PA content or ideas. They reported liking PA very much (see testimonials in **box**). Teachers reported little effort to involve parents/families or other community members, and only 1 school had conducted family classes by May 2005.

There was wide variability between schools in all of the above implementation indices,

especially in year 1, with improvements over time. By year 3, 2 schools were still implementing at a very low level, 3 at a moderate-to-high level, and 5 at a high level. However, even high-implementation schools were still not implementing at the level the program developer would expect for high-implementation schools. For example, few schools did much with the family- or community-involvement programs. From this study to date (and from the first 2 years of a similar trial in Chicago schools), we have learned that it takes much more support and time for many low-performing schools to fully adopt and implement a comprehensive program than it did previously.

At this time, however, all but 2 of the project schools (and many schools nationwide) have come to realize that an inordinate focus on academics (test scores) comes at the expense of the broad set of skills and motivation students need to achieve beyond test scores – to be good at something, to be prepared for life in today’s world. School leaders are now coming to realize that student character and behavior have to be addressed or else learning will not take place efficiently. They now realize that

“I feel safe that I learn positive actions. I show positive actions everyday and my family notices that too. I feel fantastic about myself.” Hawai’i 4th grader, 2005.

“I would like to thank you for teaching me positive actions. If I never learned, I would break the rules and bully others. I also wouldn’t help others and my family members. Thank you.”
Hawai’i 5th grader, 2005

motivated and well-behaved students mean teachers can spend more time on the task of actually teaching, and that students with broader interests and skills are more motivated to learn. Along with other comprehensive school reform program developers and researchers, we believe that under the conditions of the past 5 years, many schools need 5-8 years to fully adopt and implement a comprehensive program and see substantial benefits from it. We observe, however, that with the realization that student character and behavior are precursors to academic performance, schools are now highly motivated to fully implement a comprehensive character/behavior/prevention education program. Thus, at this date, all but 2 of the current program schools are more motivated than ever to implement the program well.

Table 3: SACD-related activities from School Leader Survey

	P Schools			C Schools		
	M	SD	Range	M	SD	Range
N of SACD Programs	4.2	2.9	1-10	10.2	4.1	8-16
N Minutes/w k	138.3	106.7	13-270	107.6	106.9	13-300
Positive Action	55.1	34.6	18-90			
N Weeks/year	25.7	15.2	1-40	24	16.6	1-40
Positive Action	38	3.1				32-40
Staff Training (% of non-PA SACD activities)	53.30			52.30		
Positive Action	100.00					

Other SACD-related activities

This spring we interviewed school leaders and conducted systematic observation of classrooms and schools to determine the extent of programming and activities related to social and character development (SACD) and prevention. On average, C school leaders reported implementing an average of 10.2 SACD programs in comparison to 4.2, in addition to PA, in the P schools (see **Table 3**). Teachers in C schools spent an average of 108 minutes per week on SACD-related activities. P school teachers spent the expected amount of time on PA (55 min/week), yet overall they still spent only 30 min/week more on SACD-related activities than teachers in C schools. C school respondents reported that teachers were involved in SACD-related activities for an average of 24 weeks per school year. In contrast, teachers in P schools delivered PA almost every week of the school year as well as being involved in other SACD-related activities for 25 weeks/year. Both P and C school teachers received training to implement a SACD-related program, other than PA (100% trained), for approximately half of the programs (52.3% and 53.3%, respectively) that they reported implementing.

From the observation study as well as the survey of school leaders we found two overall categories of SACD-related programs/activities, apart from PA, that were being implemented in both the C and P schools. In the first category, the Hawai'i State Department of Education (HIDOE) mandates General Learner Outcomes (GLO); these cover the following SACD themes (*in italics*): a) *taking responsibility for one's own learning*; b) *involvement in complex thinking and problem solving*; c) *use of a variety of technologies effectively and ethically*; d) *working well with others*; e) *communicating effectively*; and f) *recognition of and producing quality work*. Teachers are required to post, relate learning concepts to, and chart student proficiency towards meeting the GLO standards. The second category covers an extensive range of SACD-related topics and includes comprehensive SACD programs such as Positive Behavioral Support, Lion's Quest, TRIBES, as well as programs focused exclusively on drug (e.g., D.A.R.E., Red Ribbon Week) or violence (e.g., Peace Builders, Peace Week) prevention, physical activity (e.g., Jump

Rope for Heart, SPARK) and nutrition (e.g., Fun 5).

Clearly, mandated and voluntary SACD-related programs include themes and activities that parallel concepts addressed in the PA program. Although the total number of SACD programs/activities is greater within the P schools than the C schools, the quantity of SACD-related programming other than PA is less in P schools than C schools, perhaps indicating that PA replaced some SACD-related activities that might otherwise have occurred. These findings have two important implications. First, the SACD-related programs and activities occurring in C schools raise the level of the C schools to a level of “business as usual” that includes a high level of SACD-related activities. This pattern clearly reduces the possible effect size that can be obtained by the study. Second, the fact that P schools have a reduced amount of SACD-related programming occurring aside from PA suggests that substitution is occurring. That is, schools appear to be substituting PA for other SACD-related activities. This reduces the possible total effect size that can be obtained on the top end. Thus, the possible effect size that could be obtained is likely to be substantially less that could be obtained in a pure efficacy study with a no-treatment control (Cordray, 2006). If we denote pure control as C and full program (without substitution) as P, then the expected ES is $(P-C)/SD$. If we denote business as usual as c and program with substitution as p, then the expected ES is $(p-c)/sd$. Clearly, given that c is $> C$ and p is $< P$, the possible effect size when either or both of c and p obtain could be substantially less than when one or neither of them obtain. Less than optimal implementation reduces the value of p and, therefore, the expected ES, still further. These phenomena are widespread and unavoidable in prevention research today, but they have important implications for study size and statistical power.

Measurement

We conducted data collection during the spring (May/June) of each school year, including the pretest/baseline the year before the intervention commenced in P schools. At each wave, we surveyed the two cohorts of students, asked teachers of cohort students to complete behavior checklists on each student in the cohort, and surveyed all teachers and staff in project schools. At the final wave (just completed in June 2006), we also surveyed parents and school principals (or their designee). We also conducted extensive assessments of program implementation – weekly implementation reports, Unit implementation reports, and questions in the teacher/staff and student surveys.

Teacher ratings

Each year, we asked teachers of cohort students to complete

**Table 4: Teacher Student Behavior Checklist
Scale: α Coefficients***

Unit/Label	N of items	Average Alpha
Unit 1 Self-concept pos. (1p)	4	0.76
Unit 1 Self-concept neg. (1n)	4	0.54
Unit 2 Physical Pos. (2pp) [†]	3	0.61
Unit 2 Physical Neg. (2pn)	2	0.80
Unit 2 Intellectual Pos. (2ip)	6	0.89
Unit 2 Intellectual Neg. (2in)	2	0.69
Unit 3 Responsible (3r)	6	0.86
Unit 3 Self Control (3c)	4	0.85
Unit 3 Disruptive (3d)	6	0.82
Unit 4 Considerate (4c)	7	0.83
Unit 4 Respect (4r)	5	0.87
Unit 4 Social (4s)	3	0.70
Unit 5 Honesty Positive (5p)	6	0.87
Unit 5 Honesty Negative (5n)	5	0.78
Unit 6 Self-Improvement (6)	6	0.85
Avoid substance use**	3	0.91
Substance use**	3	0.55

* Average across waves 2-4

[†] An item on physical activity was inadvertently left off at waves 3 & 4 – when it is included, α increases to .7. ** Wave 4 only

behavior checklists for each student in their class that year. These were adapted from Edelbrock and Achenbach (1984) and Hightower et al., (1986). As part of this study we developed measures of behavior that relate directly to the 6 units of PA. **Table 4** shows the 17 resulting scales and their α reliability coefficients. All scales but 3 demonstrate adequate or good reliability (.7-.91). For the SU scale it is probably because SU at this age is so low, and teachers are unlikely to observe it or its consequences. We will improve these 3 scales for future studies by the addition of related items that we have already pilot tested on other elementary school samples.

Student self reports

Student surveys asked students about their involvement in positive and negative behaviors, how they feel about themselves when/if they do each of those behaviors (attitudes towards the behaviors), how much they like others, peers, adults and school (bonding/attachment). We had hoped to create separate scales for behaviors representative of each unit of PA, as we did for the teacher ratings, but younger children do not distinguish between these behaviors like older students or adults do. Therefore, for longitudinal analyses for this report, we combined items to create one score for each of behavior and attitudes. The α coefficients for the attitudes scales were .68, .77, .75, and .78 for waves 1-4, respectively.

Up to grade 3, behavior items used response options of no, sometimes, and yes, coded as 1, 2, and 3. For grade 4 on, response options were none of the time, some of the time, most of the time, and all of the time, coded 1, 2, 3, and 4. The study design anticipated the complexity this introduced and asked randomly selected subsamples items using both the 3-point and the 4-point response options, and we are now developing an Item Response Theory approach to equating these items. For our preliminary analysis, we used a method described by Kolen and Brennan (2004) that is called the Linear Equating method. This approach allows us to rescale items from a 4-point scale to a 3-point scale to have the same mean and standard deviation on the transformed scale as the original 3-point items did. For example, to do a linear conversion of the 4-point scale to the 3-point scale for an item we used the following equation. The Targeted SD_x is the standard deviation of

$$\text{transformed score}(X) = \frac{\text{Targeted SD}_x}{\text{Current SD}_x} X + \left(\text{Targeted M}_x - \frac{\text{Targeted SD}_x}{\text{Current SD}_x} \text{Current M}_x \right)$$

the item on a 3-point scale and the Current SD_x is the standard deviation on a 4-point scale. This ratio provides a slope that allows for differences in variance between the 3-point and 4-point scales. The constant is the Targeted mean on the 3-point scale minus the ratio of the standard deviations times the mean on the 4-point scale. The resulting scale had α coefficients of .81, .76, .80 and .71 for waves 1 through 4, respectively.

For the “like” items, we had 5 items at waves 1 and 2, and 10 items at waves 3 onward. The scale reliabilities increased developmentally and with the increased number of items -- .449, .646, .784 and .847. For some analyses, factor analysis suggests that the larger set of items can be split into 3

components – peers (3 items, $\alpha = .712, .745$ grade 5), adults (4 items, $\alpha = .79$) and school/teachers (2 items, $\alpha = .73$).

At wave 3, we added 5 questions about helping (pro-social) behaviors, for example, “Have you helped someone who was hurt?” They formed a reliable scale ($\alpha = .758, .791$ and $.867$ for grades 3, 4 and 5 respectively). At wave 3, we also added 6 items to assess experiences of harassment at the school, of the form “How often do other kids at this school ...?” such as “tease you?” and “leave you out on purpose?” These items also formed a reliable scale ($\alpha = .817, .845$ and $.87$ for grades 3, 4 and 5, respectively).

Once students reached grade 5, we acquired active parental consent and asked students about substance use and serious violence behaviors. Given that rates of these behaviors were very low, we combine reports of ever (never, once, and more than once) using tobacco, alcohol, marijuana, or having engaged in binge drinking, or been drunk or high) into one measure of ever having engaged in any of these behaviors and if so, how often. Similarly, we combine reports of ever engaging in 5 serious behaviors (carried a knife or razor to use to hurt someone, threatened to cut or stab someone, cut or stabbed someone on purpose to hurt them, carried a gun, shot at someone) into one indicator of serious violence. These are indices, so reliability is moot.

Student reports of exposure to PA

From wave 3 on, students in P schools were also asked about their participation in and attitudes towards the PA program. Four factors were assessed, use of the ICU (I see you doing something good) box, use of school-wide activities, use of positive reinforcement strategies, and family involvement in PA activities. We also asked students about their identification with (attitudes towards) PA and their intentions to use positive actions at

home, during the summer and during the rest of their lives. The reliabilities of these scales were acceptable (**Table 5**) for all but one scale.

We asked teachers and staff about their attitudes toward their schools and school personnel, their students and students’ families. Teachers in P schools were also asked about their: attitudes towards the idea of self-concept; confidence (self-efficacy) to teach positive behaviors generally and to teach specific positive behaviors; attitudes towards parents, students other teachers and administrators in their school; perceptions of neighborhood facilities and sense of community; attitudes towards PA and

Table 5: Factors in the student process survey and their reliabilities

Factor	N items	Alpha
ICU usage	3	0.910
School-wide	4	0.763
Reinforcement	4	0.774
Family	2	0.659
PA Attitudes	6	0.908
PA Intentions	3	0.821

Table 6: Teacher/Staff scales and their reliability

Scale	N items	Alpha
Teaching self-concept	5	0.929
Teacher SE to teach positive behaviors generally	14	0.937
School responsibility to teach SADC	14	0.971
Teacher SE to teach specific positive behaviors	33	0.970
Attitudes toward parents of students in this school	5	0.757
Attitudes toward students in this school	10	0.872
Attitudes toward other teachers in this school	7	0.855
Attitudes toward administrators in this school	7	0.928
Attitudes towards working in this school	8	0.719
Perception of neighborhood facilities	9	0.886
Neighborhood sense of community	6	0.759
Social disorganization of neighborhood	4	0.786
Attitudes towards PA	4	0.929
Level of teaching PA concepts/skills	6	0.966
Level of positive reinforcement of positive behaviors	4	0.912
Use of PA classroom materials	4	0.827
Use of PA school-wide materials	3	0.686
Use of getting parents involved in PA	4	0.766

the level of involvement in teaching the PA curriculum, use of PA materials and reinforcement of positive behaviors by students. **Table 6** shows the reliability coefficients of these scales, all but one of which is good. The one scale with $\alpha < .7$ has only 3 items; we will add items to improve this for future studies. At the end of the study (wave 5, June 2006) we asked principles of both P and C schools about all social and character development (SACD) programs/activities used in their school and conducted observations of SACD artifacts in all cohort classrooms and common areas. At the last wave, we asked parents about their child's behaviors, their own attitudes towards/involvement in their child's school, their parenting styles and, for parents of students in P schools, their level of involvement in and attitudes toward PA.

Results

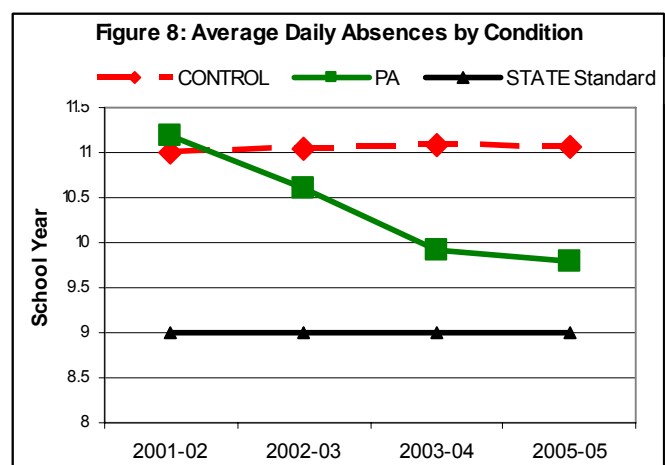
For the remainder of this report, we present preliminary results. We conducted a sample of preliminary analyses specifically for this progress report, since funding has not allowed for much analysis to date (it was planned for after all data collection had been completed). These analyses are based only on the first 4 waves of data (the last wave is only nearing completion at the time of writing). We have not analyzed all scales¹, but the results to date show that significant effects are emerging.

School-level data

For school-level data on average daily absences, percent proficient in grade 5 reading and math (on the standardized Hawai'i Content and Performance Standards [HCPS] test), we conducted growth curve analyses using MPlus to examine rates of change across 4 academic years. All analyses included %free/reduced lunch at baseline as a covariate. In all cases, there were no significant differences between P and C conditions in intercept, but significant differences in slope, all indicating better performance (e.g., academic scores) or reduced negative behaviors (e.g., absenteeism) for P schools compared with C schools. Retention in grade and suspension data showed similar results. For retention, P school rates were 1/1000 compared with C schools at 6/1000 in 2005 ($p=.02$, $ES=.63$), compared with 1.4/1000 and 1.5/1000 in 2002. For suspensions, P rates were 1.63/1000 compared with 6.2/1000 for C schools ($p=.03$, $ES=.71$), compared with 1.36/1000 and 1.46/1000 in 2002.

Average daily absences in P schools decreased over 4 years compared to remaining stable in C schools ($\beta = .73$, $t = 3.48$, Effect Size = .55), with 9.8 days absent on average in P schools by 2005 versus 11 for C schools (see **Figure 8**).

Over the 4 academic years P schools experienced greater gains in both math ($\beta = .63$, $t =$

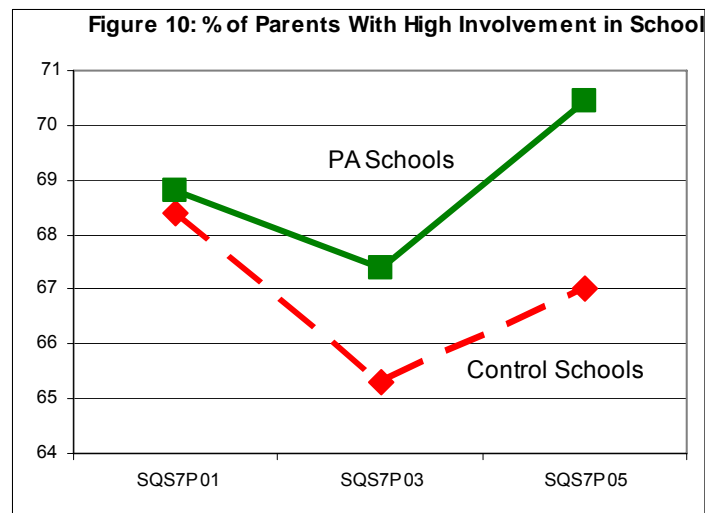
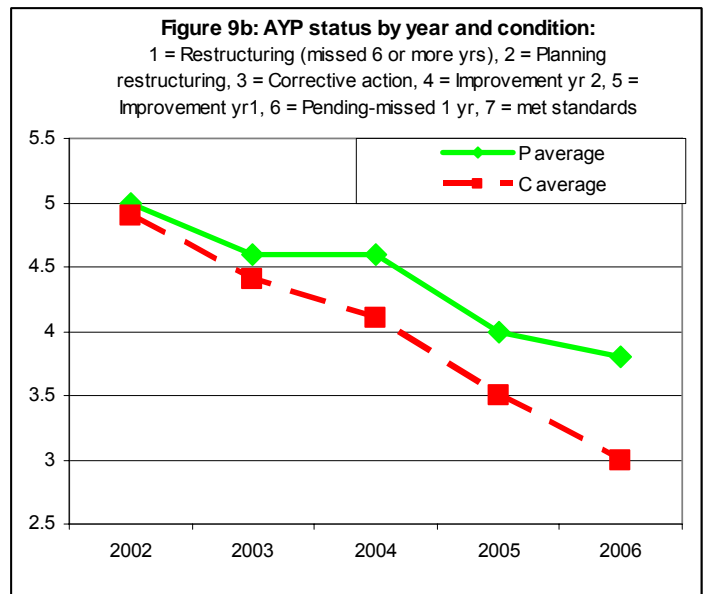
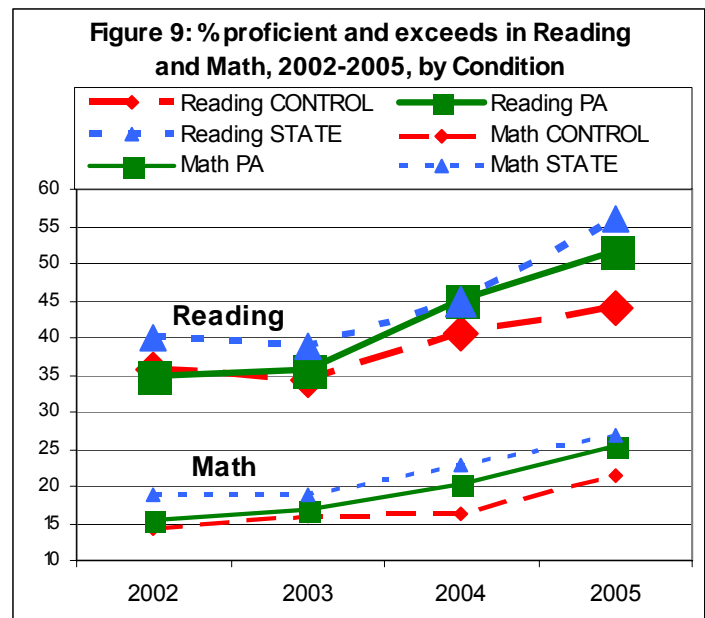


¹ Figures 4-7 are deliberately missing because of unanalyzed teacher ratings data.

1.95, ES=.34) and reading ($\beta = .60$, $t = 3.17$, ES=.73) percent proficiency, in comparison to C schools. These translate into P schools achieving 26% percent proficiency in math compared to 21% in C schools during 2005, up from 15% and 14% in P and C schools, respectively in 2002 and compared with state means of 19% and 27% in 2002 and 2005, respectively. For reading, P schools achieved 52% proficient versus 44% in C schools at the 2004-05 academic year; up from 35% from both sets of schools in 2002 and compared with

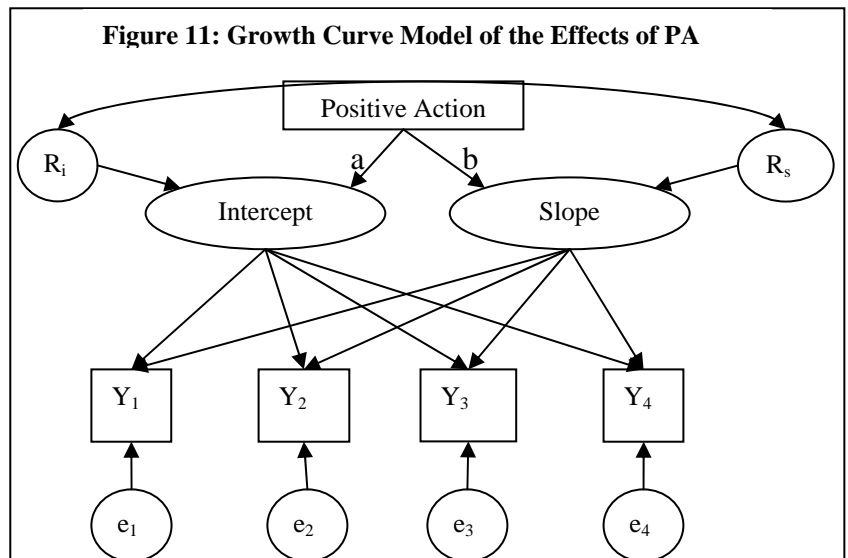
state means of 40% and 56% in 2002 and 2005, respectively. For reading and math, the beta for the covariate intercept was $-.84$ and $-.73$ indicating, as one would expect, that schools with higher percentages of students on free or reduced price lunch had lower proportions of students proficient in reading and math. **Figure 9** shows the pattern of effects for reading and math. State means improved over this period as a result of NCLB and other efforts, and the gap between state means and our C schools increased over time, while the gap for our P schools narrowed slightly. These data demonstrate yet another reason for smaller than expected ESs in current prevention and SACD studies (though these are respectable for school-level data) – we are trying to row faster than the current downstream!

More evidence of the impact of PA on student performance comes from NCLB Adequate Yearly Progress (AYP) scores. Within the state, the expectations are increased each year, and each school is assessed on whether



it meets the new standards in terms of student performance and, if not, for how many years they have not met standards. Schools not meeting standards are then entered into differing levels of school improvement activities, planning for restructuring or actual restructuring. **Figure 9b** shows the average AYP scores by year and condition. Average AYP scores are actually decreasing for both groups as all schools find it harder and harder to meet increasing standards, but it is clear that PA schools are doing better than C schools ($ES = .3$). In 2006, 3 PA schools met all standards and no C school did so.

The HIDOE conducts School Quality Surveys (SQS) of students, teachers and parents every two years and makes the data available at the school level. Parents ratings of parent involvement were higher in P schools (70.4% positive response) than C schools (67%) in 2005 ($p=.03$ on t-test) compared with 68.8 and 68.4% in 2002 ($ES=.92$) (**Figure 10**). Parents also thought that P schools had improved “sustained and focused action,” “professionalism and system capacity,” “student safety and wellbeing” and “satisfaction” relative to parents of students in C schools (each significant at $p<.05$, $ESs .32$ to $.9$), though these findings should be viewed with caution because only an average of 20% of parents responded. Student and teacher response rates, on the other hand, were much higher (around 90% each year). Student ratings of P schools improved more than student ratings of C schools for “Quality of student support” and “coordinated team work” (all $p's < .05$, $ESs .89$ to 1.08). Teacher ratings of P school improved more than teacher ratings of C schools for “coordinated team work,” responsiveness of the system,” “involvement” and “satisfaction” (all $p's < .05$, $ESs .23$ to $.75$). These, together with the school-level data reported in the previous paragraph, provide independent indicators of the success of PA to date. From an anecdotal point of view, one of the P schools was the most improved in the state in 2006 on SQS data, moving up 141 places in the rankings (from 213th to 72nd). One C school was the least improved.



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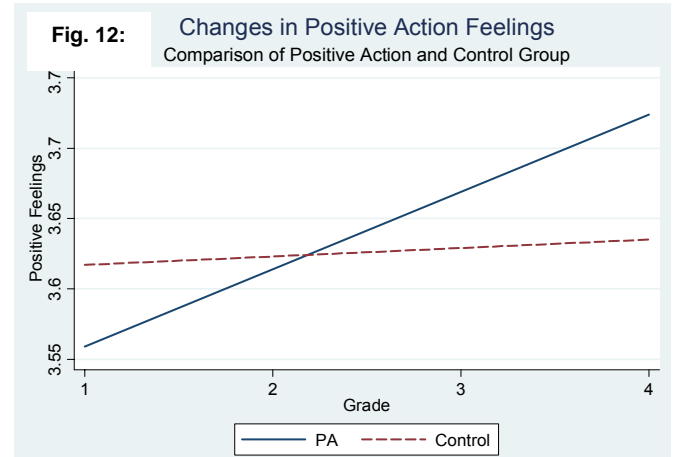
Student self-reports

We present analyses for students who were present at all waves of data collection (N=898) (after establishing that students remaining in the two conditions did not differ at baseline). For publication, we will conduct ITT analyses, using all available data. Using the

Table 7: Growth model estimates for behavior		
Parameter	Estimate	z-test
Intercept	2.638***	104.093
Slope	-.010	-1.070
PA→Intercept	.008	.253
PA→Slope	.004	.381
Slope↔Intercept	-.004	-3.500
Table 8: Growth model estimates for Attitudes		
Parameter	Estimate	z-test
Intercept	3.617***	169.332
Slope	.006ns	.396
PA→Intercept	-.018ns	-.440
PA→Slope	.049	2.667
Slope↔Intercept	-.007	-2.346

transformed data (see above), we conducted growth curve analyses (**Figure 11**). Given a lack of normality (highly skewed), censoring from above, and clustered data we used a robust maximum likelihood estimator with adjustments for missing values, censoring, and clustering (Muthen & Muthen, 2006). MPLus does not provide fit statistics for models with these specification. However, when we ran models without these adjustments, the results were similar and the fit statistics were excellent.

Table 7 summarizes the results. As expected, the effect of PA on the intercept is not significant. However, the effect of PA on the slope is also not significant. For student self-reported attitudes toward positive behaviors (feelings about themselves when engaging in those behaviors), we conducted similar



growth curve analyses. The results are summarized in **Table 8**. PA had no effect on intercept, but did have a significant slope on slope, translating into attitudes towards positive behaviors of P students increasing more that for C students. **Figure 12** shows the effect. Given a SD of .35, the ES is moderate = .42.

At 5th grade, we asked students for whom we obtained active parental consent (76.7%) about **substance use (SU) and violence** using a never, once, more than once scale for each behavior. Levels of these behaviors were very low, so we combined reports of ever having engaged in tobacco, alcohol and other SU or binge drinking or ever having gotten drunk or high create an index of the number of SU behaviors engaged in, and engaging in various forms of violent behavior to form an index of the number of violence behaviors engaged in. Because of the high degree of skewness and the high number of zeroes (for example, only 14% had ever tried any SU behavior and only 11% had engaged in any serious violence), we analyzed each indicator in 2 parts, 1) using logistic regression to compare never and ever engaging in the behavior, and 2) using negative binomial regression for counts because of over dispersion. We included gender and condition by gender (sig. only for violence) effects in the models. All p values are one-tailed because we predicted the direction of the effect.

For SU, the OR from the logistic regression was .627 (p=.011) for condition, indicating that students in the P condition were 37% less likely to engage in SU behaviors, and 1.52 (p=.006) for gender, indicating that boys were 52% more likely to engage in SU behaviors than girls. From the negative binomial regression the beta for condition was -.417 (p=.037, IRR=.659) indicating that students in P schools had their expected number of drug using behaviors reduced by 34.1% more than C students, and the beta for gender was .461 (p=.024, IRR=1.585, indicating that boys had an expected number of SU behaviors 58.5% higher than girls. That is, both girls (.115) and boys (.183) who were in P

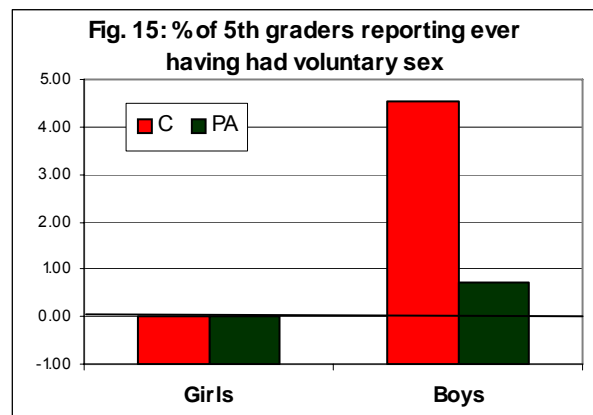
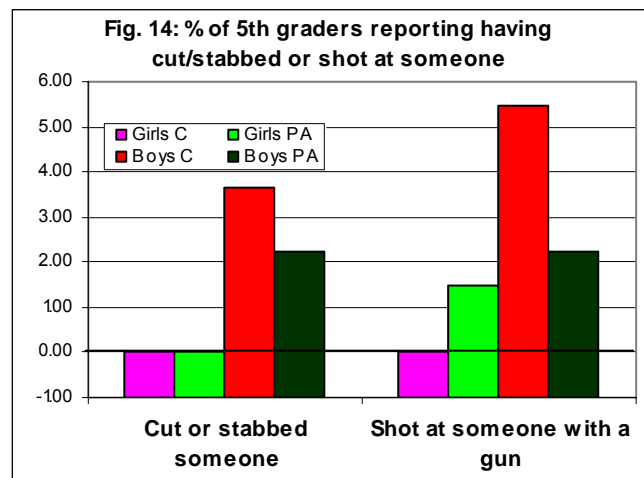
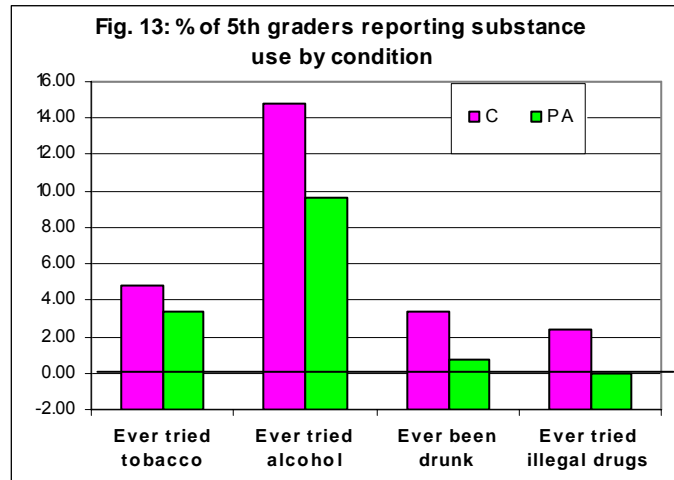
	C	PA
Ever tried tobacco	4.78	3.33
Ever tried alcohol	14.83	9.63
Ever been drunk	3.35	0.74
Ever tried illegal drugs	2.39	0.00

schools had a lower expected value for the number of SU behaviors than students in C schools (.175 and .278, respectively). **Table 9** and **Figure 13** (note the zero line) show the percentage of 5th graders reporting ever having tried tobacco, alcohol, getting drunk and illegal drugs. Students in P schools were 30% less likely to have used tobacco, 35% less likely to have used alcohol, 78% less likely to have been drunk, and 100% less likely to have tried an illegal drug.

When estimating the likelihood of children engaging in violent behavior we found a statistically significant interaction between gender and program indicating that the program was more effective at preventing violence for boys than it was for girls (see examples in **Figure 14**). When we estimated the model separately for boys and girls we found a significant effect for boys (OR=.393, z = -.314, p = .001) showing a 61% reduction in the occurrence of any violent behavior in the P group compared to students in the C schools (10.8% vs. 23.5%). For girls the effect was not significant (5.8% vs. 3.6%). From the negative binomial regression, betas for both condition and gender were significant, and the interaction of condition and gender was significant. Boys in P schools had an expected number of items checked (.166) less than half that of boys in the C schools (.357). In contrast, girls in P and C schools had similar, and extremely low, expected numbers of violent items checked (.080 and .036). The low values for girls suggest that expecting to reduce extreme violence among girls this young is unrealistic.

Fifth graders' reports of voluntary sexual intercourse followed a pattern similar to that of severe violence (see **Figure 15**), with no girls reporting having had voluntary sexual intercourse, while 4.55% of C group boys reported experience compared with only 0.74% (84% less) of boys in the P condition.

All reported results on the above 5th grade behaviors are from all responding 5th graders in study



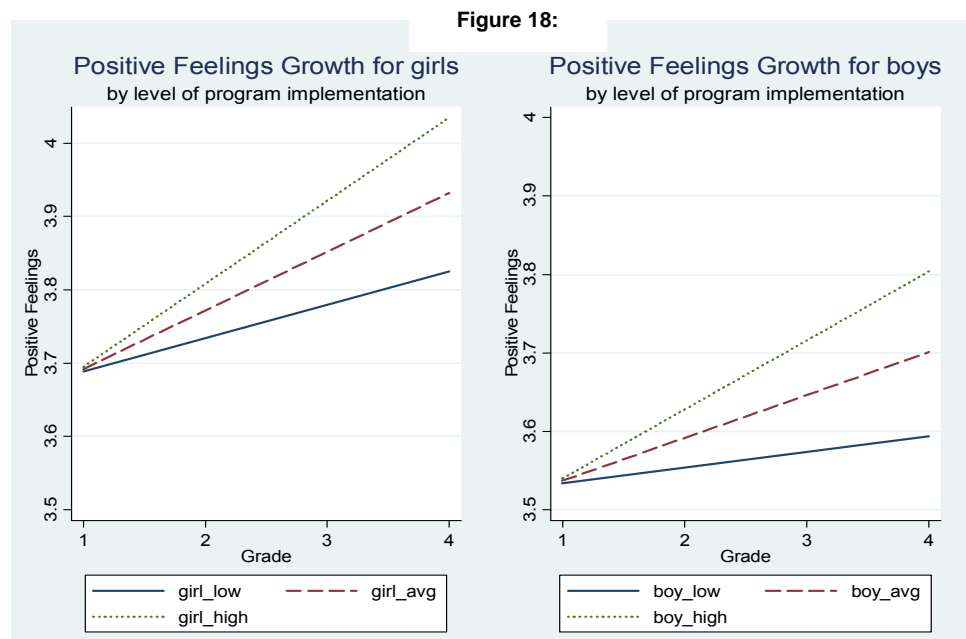
schools in 2004 (N=477). Analyses of only those students who were in study schools in the same condition at baseline (N = 316) produced larger estimates of effect, as one would expect since they have been exposed to 3 years of the program, but the significance levels tended to be lower, though still significant, because of the smaller Ns involved. For example, for SU the logistic regression indicates that P students were 45% less likely than C students to engage in SU behaviors with $p=.035$ (compared with 37% and $p=.011$ for the larger sample). All analyses adjust for clustering of students within schools. More formal HLM analyses will be conducted for publication in a peer-reviewed journal.

Although the results from both analytic models for both SU and violence look similar, their interpretation is quite different. The logistic regression results indicate that PA reduces the onset of SU for both boys and girls and the onset of violence for boys. The binomial regression results indicate that PA reduces the numbers of events among those students who had tried these behaviors. A “hurdle” type analysis that models both onset and counts might be more appropriate for answering both questions at once. We will explore this in future analyses.

Moderator analysis

As an example, we fit a growth curve model for attitudes (feelings) of students in P schools, adding gender and level of exposure as covariates. The model provided an excellent fit to the data, $\text{Chi-square}(4) = 4.283$, $p = .369$, $\text{CFI} = 1.000$, $\text{RMSEA} = .011$. The Intercept is significant ($b = 3.687$, $z = 67.998$, $p < .001$) and the

slope is not significant ($b = .018$, $z = .695$, p ns). There is a significant path from gender to the intercept with males having significantly lower scores on positive attitudes at the start of the program ($b = -.115$, $z = -4.507$, $p < .001$). The influence of gender on the rate of growth is not significant, $b = .004$, $z = .188$, p ns). This means that the gains in positive attitudes are as great for boys as for girls. The path from level of implementation to the Intercept is not significant ($b = .004$, $z = .188$, p ns), as expected. However, the path from the level of implementation to the Slope is highly significant ($b = .034$, $z = 4.871$, $p < .001$). For example, although girls engage in more positive behaviors than boys, program effects were not significantly different for boys and girls. However, for both boys and girls, the program had larger effects for those students who received more of the program. **Figure 18** shows the effects for girls and boys at 3 levels of self-reported exposure to PA.

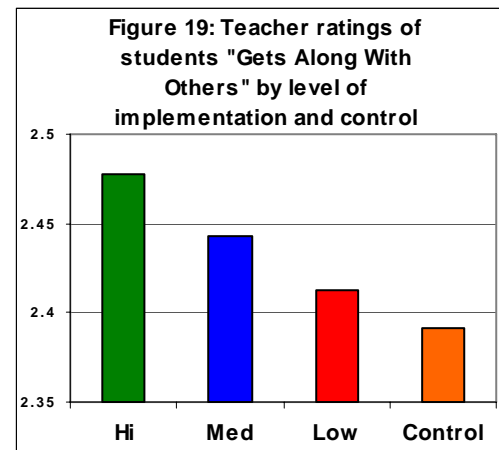


Exposure to treatment

Further analysis of the effects of differential exposure to the treatment is of interest. Such analyses are difficult to interpret because of selection issues; nevertheless, they are informative, albeit with limitations. We will attempt propensity scoring approaches to include C data in future analyses (Foster, 2003; Rosenbaum & Rubin, 1983). As others have reported, schools that implemented PA better produced larger effects when compared with schools that implemented less well. For student self-reports of behavior, we ran a growth curve model that included level of exposure to PA, level of identification with (attitudes toward) PA and gender. Results are summarized in **Table 11**. Gender is significantly related to intercept (boys engage in less positive behaviors) but not to slope. Exposure to PA is not significantly related to intercept but is to slope, indicating that students who received more PA showed improvements in their behavior (recall that the effect of PA on self-reported behavior was not significant when analyzing the whole group). Identification is significantly related to both intercept and slope, indicating that better behaving students related better to PA, but also improved their behavior more with PA. Teacher ratings of student behaviors showed similar effects. For example, teacher ratings of students' ability to get along with others (taught in Unit 4) showed a linear dose-response relationship with a school-level measure of level of implementation (see example in **Figure 19**). Other outcomes showed effects only for the high implementation condition. Similar patterns were also found for other outcomes – for example, the differences in school level measures of average daily absenteeism were only apparent in high implementation schools. These results and those in Table 11 serve to emphasize the importance of complete implementation with integrity.

Table 11: Growth model estimates of behavior with exposure, identification and gender included.

Parameter	Estimate	z-test
Intercept	2.835***	62.810
Slope	.023	1.060
Gender→Intercept	-.088***	-7.094
Gender→Slope	-.005	-.765
Implementation→Intercept	-.012	-1.081
Implementation→Slope	.021***	3.397
Identification→Intercept	.071***	3.557
Identification→Slope	.028***	3.422
Slope↔Intercept	-.003	-3.541



Discussion

Despite a rapid increase in the amount of prevention research conducted during the past 30 years, we still do not have prevention or social and character development (SACD) programs that produce the kind of effects we would like, or that do all that theory suggests is possible. The *Positive Action* program is one that comes close, in our estimation, to incorporating all that current theory and empirical data suggest is needed for improved prevention and SACD. However, despite its positive characteristics and the impressive results reported previously, the current study is the first randomized trial of the *Positive Action* program.

The preliminary results reported here suggest that the *Positive Action* program is producing the effects expected for it given its strong theoretical basis and results from prior evaluative studies (Flay & Allred, 2003; Flay, Allred & Ordway, 2001). We see positive results emerging for all indicators of student behavior and achievement – school-level indicators, student self-reports and teacher ratings. The effects are statistically significant and the effect sizes are meaningful.

These preliminary results also suggest that the level of implementation can still be improved, and suggest that program effects may continue to improve in the PA schools for several more years as the level and integrity of implementation increases. We expect to see larger effects after the 4th year of intervention (May 2006 data).

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