

A SHORT-TERM OUTCOME EVALUATION OF THE "I'M SPECIAL" DRUG ABUSE PREVENTION PROGRAM: A REVISIT USING SCAT INVENTORY*

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ABSTRACT

In the previous evaluation of "I'm Special" (ISP) drug abuse prevention/education program, the long-term impact was reported. The current study examines the short-term outcome of the ISP to establish a conceptual link between what has been observed longitudinally to the short-term outcome. The evaluation instrument used is children's Self-Concept Attitudinal (SCAT) Inventory. Subjects are the third grade students in the Charlotte-Mecklenburg public schools located in Charlotte, North Carolina. The evaluation design employed is before and after-measurement without a control group. In the absence of a control group, the treatment effect of the ISP is estimated on the basis of individual growth curve models. Through the study, it has been learned that the ISP was able to generate positive changes along six attitudinal dimensions included in the SCAT Inventory. The six scales have shown close relationships to student performance at school: student-teacher relationship; self-esteem, attitude toward school, basic social values, advanced social values, and the perception of family cohesiveness. Of these, the first four scales have shown statistical significance at the .05 level. It is estimated that the ISP is capable of generating a significant amount of positive attitudinal changes on a short-term basis with a time span of about four months between pre- and posttests. These findings are consistent with the conclusions obtained from the longitudinal study where student alcohol and other drug using behavior and other related student problem behaviors were significantly lower among the ISP recipients than non-recipients of the program.

*The work of this research was supported in part by the State of North Carolina, Department Human Resources, Division of MH/MR/SA in Raleigh, North Carolina.

INTRODUCTION

In recent years, various programs have been developed to enhance student performance at school, prevent alcohol and other drug abuse, prevent student dropout, improve classroom discipline, and curb problematic behavior. Initially, many of these preventive interventions had been directed to senior school students. More recently, however, many programs are designed for students in elementary school, especially for those in the primary grades. The ISP is one of these general risk-reduction and drug abuse prevention/education programs directed to students in grades three and four [1].

In the previous evaluation of the ISP, the long-term impact of the program was examined in detail [2]. The ISP students were compared to students with no exposure to the ISP in grades five through twelve for drug using and other problem behaviors. The study demonstrated at the aggregate level (i.e., all students combined in grades 5 through 12) that the proportion of current (i.e., monthly or more often) alcohol and other drug users and incidence of their related problem behaviors were significantly lower among the ISP graduates than among those not exposed to the program.

In particular, there were consistently lower proportions of current substance users among the ISP than the non-ISP students in the drug categories of alcohol, cigarettes, marijuana, snuff, chewing tobacco, amphetamines, clove cigarettes, stimulants, cocaine, opiates, barbiturates, PCP, use of illegal drugs with a needle, and getting drunk. Similarly, the proportions pertaining to incidence of other problem behavior (e.g., drinking at school, using other drugs at school, absenteeism during the past month, school suspension, and "got arrested") were also significantly smaller among the ISP than the non-ISP recipients. In particular, a significantly smaller proportion of ISP students reported engaging in stealing, school absenteeism, and school suspension than those who have not had the benefit of the program. However, impact of the ISP appears to have diminished significantly in and around the ninth grade [2].

In this study, a short-term outcome of the ISP is examined not only to complement the longitudinal outcome, but also to establish a conceptual link between what has been observed on a long-term basis and the short-term outcome of the program. It is expected that the outcome of the short-term evaluation will generate conclusions that are conceptually consistent with the positive impact observed on a longitudinal basis. An inconsistent observation or a significant departure from the long-term impact observation may be interpreted either as a weakness of the program in terms of its replicability or as a general weakness of the program in terms of its validity in effectiveness.

ISP PROGRAM DESCRIPTION

The ISP is a nine-session, one-session-per-week, program implemented approximately forty-five to fifty minutes per session during a regular school

semester directed at third or fourth graders. In numerous replications of the program in North Carolina, South Carolina, Virginia, and Tennessee, the course was taught by teachers and/or school health personnel who were trained by the program trainers of the DEC. The teacher/program facilitators receive 20 hours of training. The training manual describes the nine program sessions [1].

The conceptual framework behind the development of the ISP has been elaborated in detail elsewhere [2]. It reflects three major theoretical contributions made by personal growth-oriented theories of Maslow, Briggs, Satir, and Kaplan [3–7]; the social control theory developed by Briar and Piliavin, Hirschi, and Kornhouser [8–10]; and the social learning theory contributed by Bandura, and Akers et al. [11–13]. Reflecting upon these theories, the ISP directs its focus to the development not only of the child's sense of uniqueness and self-worth, but to healthy social skills and effective group cooperation skills.

RESEARCH DESIGN

Data Reduction Strategy

The evaluation design employed is a before and after-measurement without a control group. In the absence of a control group, the treatment effect (v_i) of the program has been estimated on the basis of individual growth curve models where the observed difference between the posttest (Y_{i2}) and pretest (Y_{i1}) (i.e., $Y_{i2} - Y_{i1}$) is adjusted by a natural maturation score (n_i) predicted from the individual growth curve models based on ordinary least squares of Y_{i1} on age (m_i) [14]. The natural maturation score is a product of time duration (d_i) measured in number of months between the pretest (y_{i1}) and posttest (y_{i2}) on the one hand (i.e., mean of 4.046 months), and a natural maturation slope (i.e., regression beta weight, b) of the criterion measurement (y_{i1}) on age (m_i) computed from the pre (y_{i1}) test only. In this way, the treatment effect (v_i) is estimated on the basis of observed difference between the posttest and pretest scores minus a natural maturation score predicted in the absence of treatment as if the treatment group has been subjected to a control status [15]:

$$v_i = Y_{i2} - Y_{i1} - b(d_i),$$

where b represents the slope computed from the ordinary least squares regression of Y_{i1} on m_i at the time of the pretest.

Study Subjects

All subjects included in the evaluation are third grade students enrolled in Charlotte-Mecklenburg public school system. For the purpose of the outcome evaluation, ten third-grade classes were randomly selected from all the third-grade classes available in the system with a total $n = 270$. An attempt was made to secure

layout, the instrument was modified to improve the overall ease in taking the inventory, especially for the lower grade students. For example, some third graders had difficulty in understanding words such as “dumb,” “praise,” “honest,” or “listener.” Questions with negatives (e.g., “My family doesn’t care about me”) or double negatives (e.g., “I don’t care if teachers don’t like me”) often resulted in invalid responses. Therefore, these items were deleted at the outset.

The number of items was reduced to the final forty-two items after two item analyses [22]. In addition to scale items, respondents were asked to provide the following information: today’s date; name of the school; ISP instructor’s name; and a six-digit number corresponding to their birthday, birth month, and birth year. In this way, students were matched between the tests using birth information. In cases where there are birthday overlaps, their gender and race information is used to make exact matches. If ambiguity still existed due to demographic overlaps, penmanship was examined to match the same individual between the tests. In this way, a near-perfect success rate was achieved with a classroom of twenty-five to thirty students over an interval of approximately five months between tests.

SCAT provides many advantages when compared to other evaluation instruments based on binomial or a five-point Likert-type scale. When responding to a Likert-type scale, young children have shown difficulty in discriminating between scale points of “strongly agree” and “agree”; between “not sure” and “disagree”; and between “disagree” and “strongly disagree.” Frequently, the Likert scale has been reduced to the status of a binomial scale, thereby lowering the scale sensitivity along the entire continuum from the “strongly agree” to the “strongly disagree.” Furthermore, the field is devoid of self-administered pencil-and-paper evaluation instruments for third-grade students which are not only economical to use but, at the same time, sensitive enough to capture small design effects frequently observed in the replications of drug abuse prevention/education programs.

SCAT has several properties that are essential to a practical and economical measurement device:

1. SCAT can be used by students in grades three to six;
2. SCAT is based on a graphic rating scale to increase the scale sensitivity;
3. SCAT is an anonymous instrument which allows for the matching of students between pretest and posttest. Accordingly, the instrument provides greater sensitivity in detecting student attitudinal changes between the tests than an instrument design which does not permit such a matching mechanism;
4. SCAT has several attitudinal syndromes that are closely related to student performance and student drug using behavior;
5. SCAT can be easily understood by students with poor reading skills. However, about 0.5–1.0 percent of third-grade students may not be able to read the SCAT;

6. SCAT is short and may be completed within fifteen minutes by the third-grade students. With third-grade students, test-taking fatigue usually sets in after fifteen minutes;
7. SCAT is field-tested extensively both in terms of its reliability and validity; and
8. SCAT can be scored easily by a layperson.

Scale Definitions

Listed below are conceptual definitions pertaining to the scales included in the SCAT Inventory. Table 1 contains a list of the specific items associated with each scale, including Alpha coefficients of reliability pertaining to these attitudinal scales.

Family Cohesiveness (FCO) — measures the respondents' perception of the degree to which their parents, or family members, are amiable, show understanding, and take personal interest with most of the conventional ingredients of a loving parent or parents.

Student-Teacher Relationship (STR) — measures the children's perception of the extent to which their teachers in the school are friendly, show understanding, and take personal interest in the students and their problems.

Attitude Toward School (SCH) — measures the extent to which a child has an affect toward one's school along the continuum of liking or disliking school.

Self-Esteem (EST) — following Maslow, is defined as the feeling of self-confidence, worth, strength, capability, and adequacy, and of being useful and necessary in the world [23].

Basic Social Values (BAS) — measures the degree to which the values held by students are similar to the dominant and fundamental values held by society. Accordingly, it may be conceived as the measurement of basic social values held through the initial indoctrination processes acquired in order to avoid external punishment or to obtain rewards [24].

Advanced Social Values (ADV) — measures the extent to which the values held by students reflect the values held through mutual interpersonal relationships and respect based on reciprocity (i.e., "do unto others as you would have them do unto you") or the Golden Rule.

Validity

In order to determine the validity of the scales employed in the SCAT Inventory, a known-group method was used by comparing six scale scores pertaining to two groups of students with a known degree of high (upper one-third of students)

Table 1. Scale Properties of the SCAT Inventory

<i>Scale Name</i>	<i>Mean</i>	<i>SD</i>	<i>Item-Total Correlation</i>
FCO: Perception of Family Cohesiveness (6 items; Alpha = .872)			
02. I care about my family.	69.43 ^a	9.21	.652
04. I love my family.	69.20	10.56	.776
10. My family likes me.	68.72	11.04	.747
22. My family loves me.	68.45	11.75	.655
33. I listen to my family.	64.90	15.11	.605
41. I like to talk to my family.	64.48	15.22	.558
STR: Student-Teacher Affinity (8 items; Alpha = .782)			
01. I listen to my teachers.	62.58	17.77	.490
05. Teachers think I am stupid.	60.89	21.18	.526
06. Teachers pick on me.	62.01	18.61	.370
12. My teacher likes me.	60.98	18.00	.563
14. My teachers care about me.	62.88	17.45	.531
15. My teacher is nice.	59.39	21.47	.512
18. I hate my teacher.	62.48	17.97	.456
21. I disobey teachers.	62.43	19.26	.430
SCH: Attitude Toward School (3 items; Alpha = .848)			
03. I hate school.	43.78	27.64	.534
28. School is a happy place.	50.96	25.66	.659
37. I like school.	50.54	25.80	.758
EST: Self-Esteem (11-items; Alpha = .760)			
07. I get in trouble a lot.	53.89	23.26	.415
08. I am a failure.	63.07	20.98	.412
09. I wish I were someone else.	55.72	25.43	.455
11. People make fun of me.	52.27	25.16	.292
13. I can be trusted.	62.25	18.60	.289
23. I can keep a promise.	64.59	15.60	.281
25. I am glad to be me.	63.80	18.11	.541
29. I feel mixed up.	45.35	27.06	.382
31. I like the way I am.	63.54	18.71	.581
35. I am fun to be with.	60.89	17.74	.390
42. I am proud of myself.	64.25	16.29	.402
BAS: Basic Social Values (6 items; Alpha = .758)			
16. I steal things from school.	70.80	9.92	.517
17. I take things without paying for it.	70.36	11.14	.404
32. It is OK to lie.	68.40	14.14	.508
34. It is OK to break the law.	70.99	8.95	.456
38. It is OK to steal.	68.18	10.91	.503
40. It is OK to break rules.	69.43	12.15	.607

Table 1. (Cont'd)

<i>Scale Name</i>	<i>Mean</i>	<i>SD</i>	<i>Item-Total Correlation</i>
ADV: Advanced Social Values (8 Items; Alpha = .743)			
19. I like to help others.	63.51	17.37	.458
20. I play fair.	62.51	15.66	.464
24. I care about the feelings of other people.	63.20	17.79	.391
26. It is OK to make fun of others.	68.16	13.72	.495
27. I have good manners.	59.87	18.57	.451
30. I laugh when kids make mistakes.	60.97	21.12	.388
36. It is good to follow rules.	66.70	13.52	.468
39. I pick on other kids.	63.30	16.59	.356

Note: Mean = larger values indicate socially desirable attitudinal score.

^a Each scale item has a range of zero to seventy-seven where the scale scores are measured in millimeters.

and low (lower one-third of the students) performance at school as measured by math, spelling, and a self-report of school performance. Following these operational definitions, the hypothesis tested is that six SCAT scale scores pertaining to the "high-performance" group will be significantly higher than those who belong to the "low-performance" group.

As can be seen in Table 2, the difference in the scale scores found for the two subsamples are in the predicted direction. This in conjunction with the *t* test attests to the fact that the SCAT in its present form has a relatively high discriminatory power. As such, the SCAT can be a useful tool in evaluating the outcome of various drug education/prevention programs, or programs which deal with student problem behaviors and those programs geared toward improvement of student performance at school. This is so because these six attitudinal scales together explain 42.7 percent ($R = .653$) of the total variation in student performance at school.

RESULTS OF SHORT-TERM OUTCOME EVALUATION

Determining the Natural Maturation Slope

Previously, it has been noted that the treatment effect (v_i) of the ISP is estimated on the basis of individual growth curve models where the observed difference between the posttest, (Y_{i2}) and pretest (Y_{i1}) (i.e., $Y_{i2} - Y_{i1}$) is adjusted by a natural maturation score (n_i) predicted from the individual growth curve models. These models are based on ordinary least squares of Y_{i1} on age (m_i). Table 3 depicts the natural maturation slopes (i.e., regression beta weights, b) of the dependent measurements (y_{i1}) on age (m_i) computed from the pretest (Y_{i1}) only.

Table 2. Summary Statistics Comparing the Low and High Performance Students Along Six Subscales of SCAT Inventory

Scales	Low Performance Group			High Performance Group			t
	Mean	Standard Error	n	Mean	Standard Error	n	
FCO	62.58	1.48	83	70.65	0.60	82	5.10**
STR	56.35	1.65	76	64.03	1.22	83	3.79**
SCH	41.86	2.47	84	49.84	2.56	86	2.24*
EST	52.99	1.69	67	62.51	0.98	75	5.00**
BAS	66.99	1.15	78	70.15	1.05	82	2.03*
ADV	58.11	1.59	72	66.36	0.78	82	4.84**

* $p < .05$

** $p < .0001$

Table 3. Natural Maturation Slope of the Dependent Variables on Age at the Time of the Pretest

Scales	Regression Equation
EST: Self-Esteem	$Y_p = 97.058 - .361m_i$
FCO: Perception of Family Cohesiveness	$Y_p = 60.494 + .062m_i$
STR: Student-Teacher Relationship	$Y_p = 88.633 - .270m_i$
SCH: Attitude Toward School	$Y_p = 80.698 - .328m_i$
BAS: Basic Social Values	$Y_p = 102.298 - .313m_i$
ADV: Advanced Social Values	$Y_p = 66.296 - .027m_i$

As observed from Table 3, it is quite obvious that all scale scores either remain nearly the same level along a time span of 2.5 years or deteriorate (i.e., lower mean scale scores) as one moves from lower to higher age with the possible exception of the scale on the perception of family cohesiveness. These observations are quite consistent with those made on student attitudes along the similar variables depicted in the Student Attitudinal Inventory [23, 25].

Based on a time span of approximately four months between pre- and post-measurements (i.e., 4.046 months to be exact), Column 5 of Table 4 presents the estimated natural maturation scores. Column 6 depicts the estimated treatment effect based on the difference in observed pre- and posttest scores minus the natural maturation score. As can be seen from column 6, the ISP was able to generate positive changes along all six attitudinal dimensions included in SCAT Inventory: student-teacher relationship; self-esteem, attitude toward school, basic social values, advanced social values, and perception of family cohesiveness. Of these, the first four scales have shown statistical significance at the .025 level or above. Based on these evidences, it is estimated that the ISP is capable of generating a significant amount of positive attitudinal change on a short-term basis with a time span of four months between pre- and posttests. These

Table 4. Test of Statistical Significance for the Estimated Treatment Effects

<i>Scales</i>	<i>Mean Posttest Y₂</i>	<i>Mean Pretest Y₁</i>	<i>Difference between Posttest and Pretest D=Y₂-Y₁</i>	<i>Natural Maturation Rate n</i>	<i>Estimated Treatment Effect v (S.E.)</i>	<i>t-test</i>
EST	62.53	60.30	+2.233	- 1.461	+3.694 (1.063)	3.475***
STR	63.42	61.73	+1.691	- 1.092	+2.783 (1.064)	2.616***
SCH	52.51	48.98	+3.526	- 1.325	+4.851 (1.934)	2.508**
BAS	70.25	69.87	+0.033	- 1.267	+1.300 (0.642)	2.025*
ADV	65.96	64.86	+1.103	- 0.110	+1.213 (0.834)	1.454
FCO	70.01	69.76	+0.314	+0.252	+0.062 (0.556)	0.112

Note: Due to the SPSS pairwise deletion procedures in the computation of various summary statistics, the mean difference scores reported in column 4 do not always equal exactly to post minus pre scores. The differences are negligible, however.

S.E. = Standard error pertaining to v .

* $p < .025$

** $p < .01$

*** $p < .001$

observations are consistent with conclusions obtained from the longitudinal study [2]. The latter demonstrated significantly lower alcohol and other drug using behavior and other related student problem behaviors among the ISP recipients than the non-recipients of the program with an effective time span of about four years following the completion of the ISP.

Limitations of the Study

It must be noted that the study was based on a quasi-experimental design without the benefit of a control group. As such, it certainly has a limited generalizability concerning its treatment effect. In order to compensate for the design weakness, treatment effects are estimated on the basis of individual growth curve models. This is a growing field of inquiry where the mathematical models suffer from many assumptions such as the adequacy of the linear growth and problems with extrapolation. Furthermore, the estimation procedure for the determination of natural maturation rate could have been improved by incorporating

other background, environmental, or constitutional factors in determining the individual's growth rate.

Despite these weaknesses, this is one of the first studies outside of cigarette smoking prevention programs [26] which has shown not only positive attitudinal (i.e., short-term outcome) but behavioral (i.e., long-term impact) results [2]. The outcome observed is suggestive rather than solid due to design weakness and model assumptions. Nevertheless, it directs our attention to the validity of prevention programs based on the theoretical paradigms of personal growth, social learning, and social development perspective directed especially to students at their earlier grade levels.

The short-term outcome reported here needs to be understood in the context of the previous study on the long-term behavioral impact of the ISP [2]. It is hoped that the research design employed here encourages others to undertake similar evaluative research, especially with regard to research designs which do not render an easy access to the control group.

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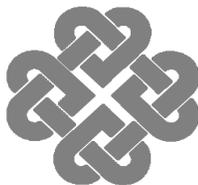
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**Results of a Randomized Controlled Trial of the *I'm Special*
Curriculum in Three North Carolina School Districts**

October 8, 2007

Compiled by

Pacific Institute
for Research and Evaluation
Chapel Hill Center



This report was prepared through a contract with Substance Abuse Prevention Services of the Carolinas (SAPS), which was supported by a National Service-to-Science grant from the Substance Abuse and Mental Health Services Administration (SAMHSA) of the U.S. Department of Health and Human Services.

Introduction

Substance Abuse Prevention Services of the Carolinas (SAPS) received a National Service-to-Science research grant to support an effectiveness study of the *I'm Special* curriculum in three school districts in North Carolina during the time period January 1, 2006-December 31, 2006. The study was conducted with the cooperation of the Charlotte-Mecklenburg, Brunswick County, and Pender County school systems. SAPS was responsible for delivery of the *I'm Special* program in Charlotte-Mecklenburg, and Coastal Horizons Center, Inc. oversaw delivery of the curriculum in Brunswick and Pender Counties. This report summarizes the findings of the intervention and was prepared through a contract with the Pacific Institute for Research and Evaluation (PIRE).

Background

I'm Special is a theory-based alcohol, tobacco and other drug prevention program designed for youth ages 8-11. The primary goal of the program is to develop and nurture the student's sense of uniqueness and self-worth. It also teaches skills for healthy living, steps for decision-making, effective group interaction, and age-appropriate drug information. *I'm Special* was developed by Substance Abuse Prevention Services (SAPS) of the Carolinas (formerly the Drug Education Center) and first published in 1980; since its inception, *I'm Special* trainings have been held in 22 states and the program has been delivered to tens of thousands of elementary school students across the country. The curriculum consists of eight sessions, during which key concepts are taught by trained teachers or facilitators, and students participate in activities. The concepts and activities are described in Table 1 below.

SAPS and PIRE have previously attempted to measure the effectiveness of the *I'm Special* program (2000-2001) by using the SCATI, an instrument that had been developed for use with *I'm Special* but had never been fully tested, followed by another self-developed instrument that ultimately lacked sufficient strength to detect changes between intervention and comparison groups on self-reported student behavior.

During the Fall of 2002, SAPS and PIRE adopted a more exploratory approach to evaluating the program, and they conducted pre- and post-assessments by teachers, and more open-ended post-assessments of the students. Teachers used a four-point Likert scale to rate each student on the six program constructs. PIRE found statistically significant positive changes on three of the constructs—decision-making, communication skills, and expressing feelings. The findings from this efficacy study were considered strong enough to seek support for an effectiveness study of the curriculum, using the *Teacher Report Survey* instrument, through the National Service-to-Science Academy.

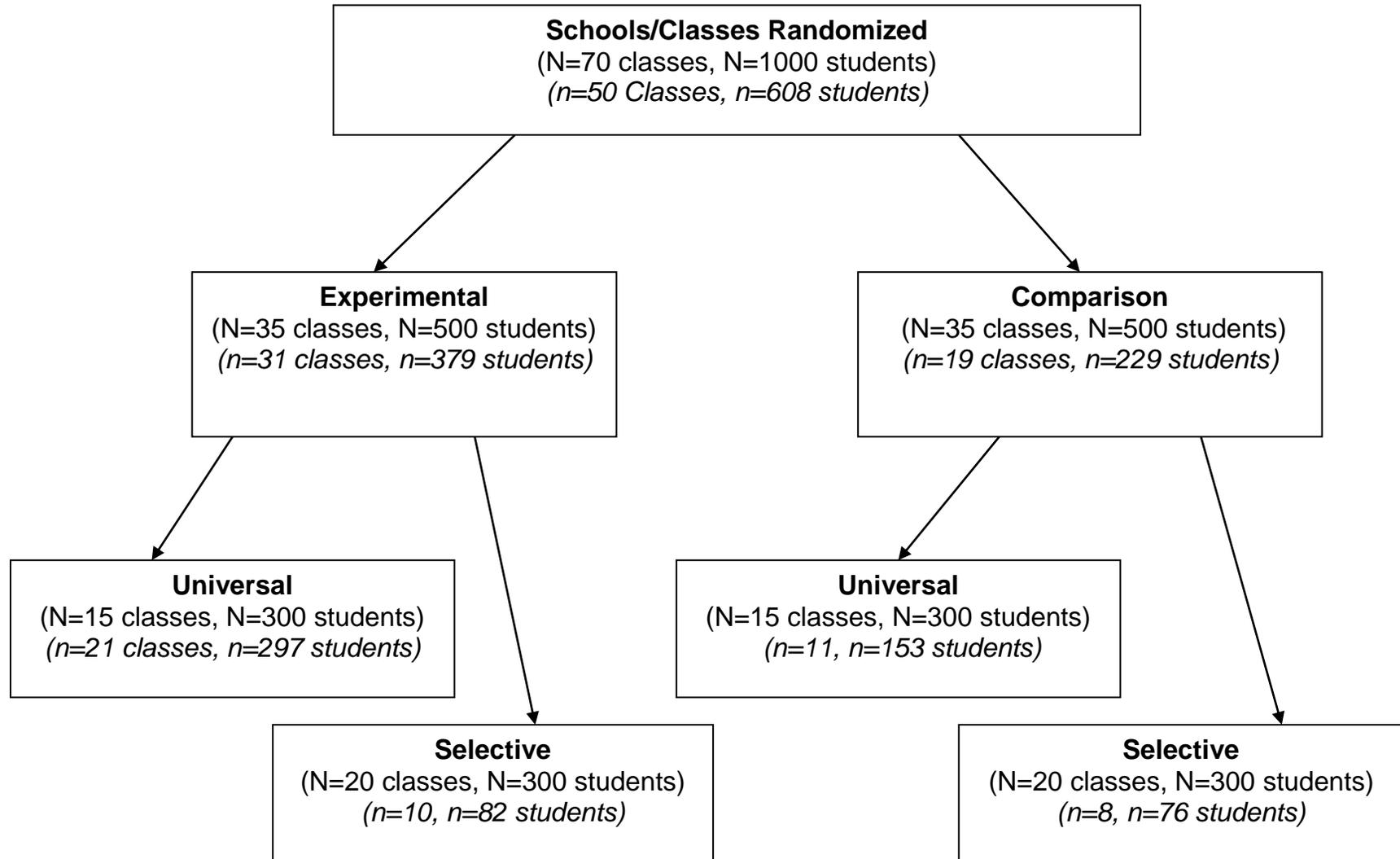
Table 1. Key concepts and activities of the *I'm Special* curriculum

Session	Concepts	Activities
1	When we agree on class behavior, we feel safe and create a place for fun and learning. In learning more about self and others, we enhance friendships and begin to build community.	Promises, <i>I'm Special</i> Folder, Simon Wants To Get To Know You Better Identity Game, How Do We Say Hello?
2	The more we discover and acknowledge our strengths and special talents, the more comfortable we become with others.	Are You More Like?, Personal Coat of Arms, Puzzle-Tee and Me, It's Eggstraordinary, Pizza-Me-A
3	Everybody has feelings. Feelings are not good or bad, but comfortable and uncomfortable. We can practice expressing feelings in a positive way.	My Feelings, Talking Without Words, Feeling Pictures, Dealing With Feelings, Feelings Charades, The ABCs of Feelings, What Will I Do?
4	We can communicate with others and ourselves in positive ways. We have the ability to influence ourselves and the world around us.	Warm Fuzzies, What Do People Do?, Remember When, "It's All Right To Cry", Finish the Feelings Phrase, Neggy
5	All decisions offer choices. We can carefully consider what we want to do. There is always more than one way. We can make the best choices for ourselves.	Don't Give Up, Where I Stand, Deciding
6	When we cooperate and work as a team, we feel stronger ourselves and our team is able to accomplish more. We have a personal choice in how we work in a team. Teamwork is part of all aspects of life (i.e. family friendships, neighborhoods, sport teams, etc.)	Linking Together, Tinker Toys, Building Blocks of Teamwork, Cooperation Game
7	Alcohol, tobacco and other drugs are unhealthy, illegal for our age group and affect our lives. We can say "yes" to healthy choices and say "no" to alcohol, tobacco and other drugs.	Healthy Habits, "The Cat Who Drank And Used Too Much"- a video, Staying Healthy, Saying, "No, thank You", "How Do You Tell"- a video
8	We can take with us what we've learned in " <i>I'm Special</i> " to other areas of our lives. We know how to affirm others and ourselves, how to express feelings in a positive way, how to make healthy choices and how to cooperate. We are capable.	On the Air, There's No Group Like Ours, Group Review, Together We Stand

Study Design

PIRE conducted a randomized control trial, with participating classes randomly assigned to the experimental condition or the comparison condition (no prevention programming). Classes assigned to the experimental condition received the 8-session *I'm Special* program, delivered by trained facilitators from SAPS and Coastal Horizons. Classes assigned to the comparison condition received no prevention programming. In each school system, *I'm Special* was delivered in two types of settings. First, it was delivered as a *universal* prevention program in classrooms during the school day. As such, participants were representative of the overall student population regarding sex and race. Second, *I'm Special* was delivered as a *selective* prevention program in either high-risk, after-school settings or alternative schools. Thus, those students were at higher-than-average risk of substance abuse and may not represent the overall demographics of either school system. Figure one captures the study design in terms of planned sample size ("N") and actual sample size ("n").

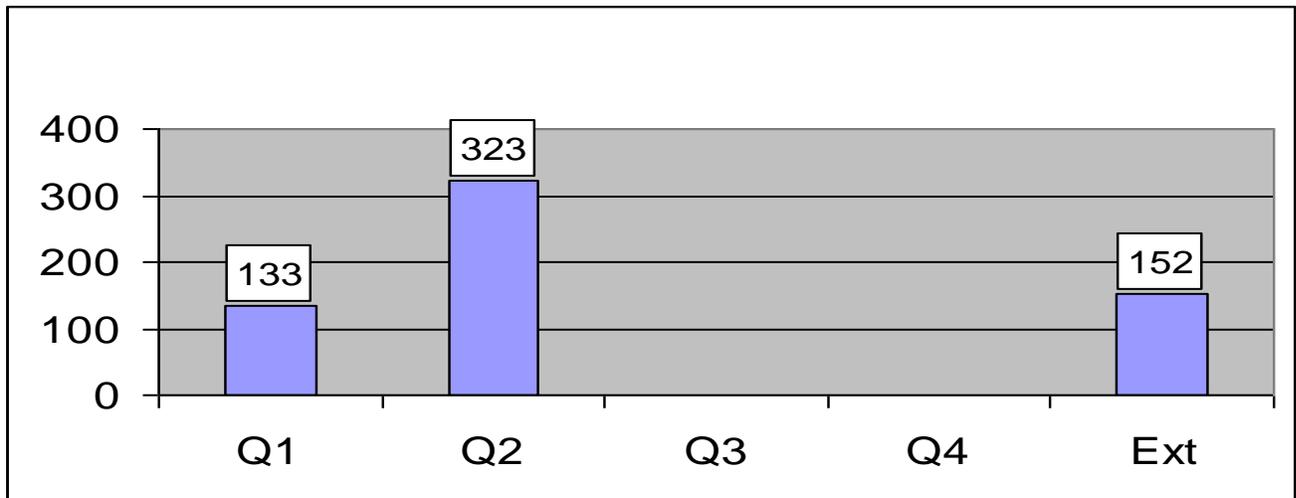
Figure 1. Study design versus actual distribution of students by treatment condition and type of program setting



Data Collection

The I'm Special program was implemented in a total of 50 classrooms across the three North Carolina school districts during the period November, 2005 and June, 2007. Although the original Service-to- Science contract period was January 1, 2006-December 2006, SAPS secured two additional extensions to continue data collection for this study. In addition, permission was granted to include data for ongoing *I'm Special* Classes that began slightly before the Service-to- Science contract (November, 2005) because the post-tests for those classes were administered during the Service-to- Science contract period, thus utilizing resources that might have gone to other classes for the study. There were three waves of data collection and they corresponded with the first and second quarters of the contract, followed by a brief hiatus during the fall, and then the extension period which encompasses January through June of 2007 (see Figure 2).

Figure 2. Total number of completed *Teacher Report Surveys* by program quarter or extension time period



SAPS and Coastal Horizons followed active consent procedures for data collection. Parents were provided with information about the study and asked to send back a signed consent form if they wished their child to participate in the data collection element of the program. Next, SAPS and Coastal Horizons then assigned a unique identifier (i.e., a number created specifically for this study that was not a SSN or school ID) to each student and created a master list that linked the student with the identifier. SAPS and Coastal distributed the master lists of students and ID's to each teacher/counselor who was involved in the study, and the master list was used to track the pre and post-test surveys. Teachers/counselors completed the pre-post instruments for students to whom they provided the curriculum. Pre-tests were administered immediately prior to the delivery of *I'm Special* and post-tests were administered within 30 days after the program was complete. SAPS and Coastal Horizons collected the pre- and post-tests from the teachers/counselors shortly after the instruments were administered, and then they entered the data into a secure, web-based data entry system, developed by PIRE.

The pre- and post-test instrument, the *Teacher Report Survey*, included the following types of questions: "Over the last 30 days, how often did the student make healthy choices?"

“Over the last 30 days, how often was the student cooperative with other people?” The response categories were “never,” “some of the time,” “most of the time,” “all of the time,” and “not sure.” Reliability analyses were run on each construct to measure the degree of internal consistency based on the average inter-item correlation between the scale items (see Table 2 below). Missing data were not included in the analysis at the construct level. PIRE determined that a Cronbach’s Alpha of .70 would be the minimum alpha required to meet the criteria for internal consistency based on standard practice in the research literature. Three of the constructs (Communication Skills, Expressing Feelings, and Healthy Choices) did not meet the minimum criteria at pre-test, although all of the constructs did at post-test.

Table 2. Reliability statistics on the six constructs of the *Teacher Report Survey*

Construct	Pre-test Cronbach’s Alpha	Post-test Cronbach’s Alpha
Communication Skills	.629	.821
Decision Making	.806	.885
Expressing Feelings	.570	.856
Healthy Choices	.630	.821
Self-Esteem	.881	.908
Teamwork/Cooperation	.849	.879

Methods

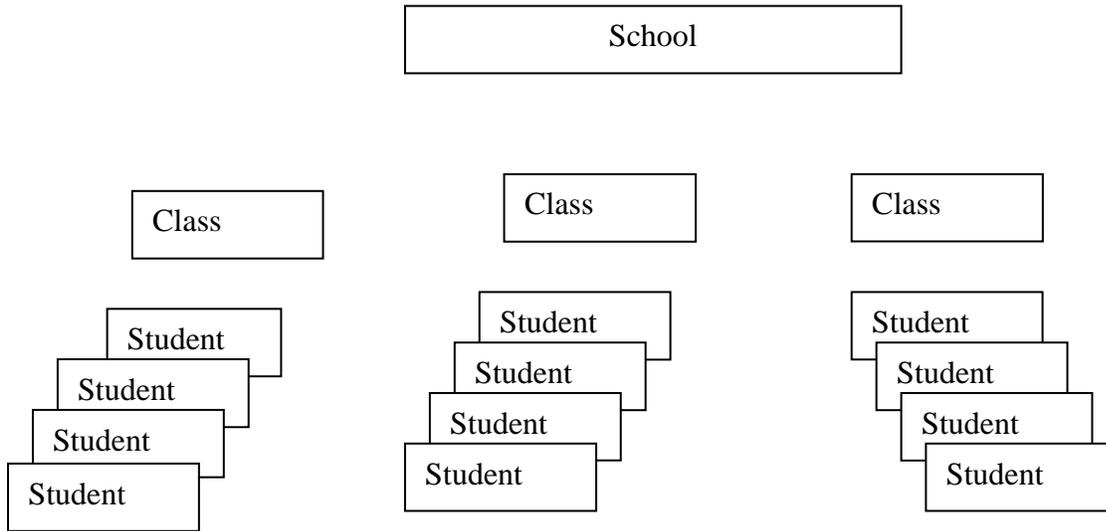
Data for the 608 matched cases were included for the quarter or extension period during which the post-test was conducted. PIRE was responsible for the random assignment of participating classes and schools. Initially, the randomization plan was designed at the classroom level. Over time, this became an impediment to the study because participating schools wanted only one condition (experimental or comparison) operating in their school. In response to less than planned school participation, SAPS agreed to randomize at the school level during the extension period. SAPS would provide PIRE with a list of classes or schools to randomize and then PIRE would run a SAS program that uses a random number generator (the *ranuni* function) to assign schools or classes to one treatment group/condition (experimental or comparison) or another. PIRE did not have any input in assigning study setting (selective vs. universal) which was decided at the school-level.

PIRE used a multilevel model to capture the design of this study accurately. Specific consideration was given to the level of dependence inherent in nested designs. In this case, students are clustered in classrooms, and classrooms are clustered in schools. The assumption of independent observations at the student-level is violated because it is expected that the student observations within a classroom are correlated. PIRE hypothesized that students attending the same class might have similar outcomes on post-test scores versus students attending other classes within the same school or other schools in the study sample. If this were true, PIRE would expect that the post-test scores of the students within a class would be correlated.

Similarly, the classroom observations might also be correlated at the school level, introducing another level to the design. Since lower and higher levels exist in the model, PIRE

constructed a three-level model (see Figure 3). The lowest level was the student, the next level was the class (the observations of the students are clustered in the classes), and the third level was the school (the observations of the classes are clustered in the schools).

Figure 3. Study design of the randomized control trial of the *I'm Special* curriculum



Findings

Matching data was available for 608 students attending one of 28 schools located in one of three counties. This sample does not represent all students that received *I'm Special* during the grant period because some students did not complete both the pre-test and post-test and some students were lost to attrition. Students are not evenly divided between the three counties, as schools self-selected to participate after they were approached by SAPS or Costal staff. Overall, the number of male and female participants in the study was approximately equal.

Table 3. Gender distribution of students completing the *I'm Special* program

Count		Gender		Total
		Female	Male	
County	Brunswick County	72	77	149
	Charlotte-Mecklenberg	129	106	235
	Pender County	102	122	224
Total		303	305	608

Originally, SAPS planned to target third and fourth graders for the *I'm Special* program. Ultimately, there was a disproportionate number of third grade participants (70%) and only six 4th grade participants.

Table 4. Grade distribution of students completing the *I'm Special* program

Count		Grade			Total
		2	3	4	
County	Brunswick County	61	88	0	149
	Charlotte-Mecklenberg	115	114	6	235
	Pender County	2	222	0	224
Total		178	424	6	608

As can be seen from Table 5, pre-test scores and post-test scores are nearly identical for both the intervention and comparison groups. Multivariate analyses of variance with repeated measures confirmed that there were no differences between the experimental and comparison groups at pre-test and post-test. PIRE used the SAS PROC MIXED procedure to analyze the hierarchical linear model. The model controlled for treatment condition (experimental versus comparison), type of setting (universal versus selective), gender, grade, and pre-test score. Significant results were found for three of the six constructs targeted by the *I'm Special* curriculum: Communication Skills, Self-Esteem, and Teamwork/Cooperation.

Construct	I'm Special			Comparison		
	Pre-test	Post-test	Adjusted Post-test	Pre-test	Post-test	Adjusted Post-test
Communication Skills	2.92	3.08	3.02*	2.74	2.77	2.82
Decision Making	2.78	2.97	2.90	2.63	2.67	2.73
Expressing Feelings	3.00	2.96	2.85	2.63	2.61	2.65
Healthy Choices	3.41	3.03	2.97	3.05	2.72	2.76
Self-Esteem	2.98	3.18	3.11*	2.85	2.86	2.86
Teamwork/Cooperation	2.99	3.20	3.14*	2.84	2.85	2.92

Limitations

There were several limitations to this study. The most important in terms of study design concerns changing the level of randomization midway through the project. All program staff confront challenges when trying to conduct experiments in real-world settings and, in this case, adjusting the random assignment protocol was the best strategy to maintain an acceptable level of program participation.

Data for this analysis are limited. First, the study lacks data on the students lost to attrition, therefore it could not be determined whether there are important differences between those

completing the program and those lost to attrition. Second, the data analyst had to clean each case by hand as access to the data entry team in the field was not available. This lends itself to bias on the part of the data analyst who is making a best guess in terms of assigning each case to a level (e.g., assigning a student to a class). When the class assignment was not evident based on the codes entered by the program facilitator, the analyst considered the location code, program type code, program condition code, and the date the survey was administered, and then the analyst assigned the class code. Lastly, more than 80 cases were excluded from the analysis because the facilitators were not able to administer the post-tests.

Another consideration not accounted for in the study design is the difference at the school district level between the counties. Charlotte-Mecklenburg is the largest school system in the western region of the State (115,000 students) and Brunswick and Pender Counties, in contrast, are rural school systems in the eastern region of NC, with 11,000 and 7,000 students, respectively. The findings of this study might be strengthened if the analysis included a measurement for rural versus urban setting.

Finally, three of the constructs did not demonstrate internal consistency at pre-test and this might have affected the post-test score. The constructs used on the *Teacher Report Survey* consist of two items and therefore, don't behave as a true scale which has at least three items.