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ABSTRACT

The third year of the project, funded under Elementary Secondary Education Act Title III, was essentially a replication of Year Two. Second Year results indicated that the success technique had provided inner-city teachers with both an effective classroom management system, and an effective program for the acceleration of academic performance. Therefore, no major changes were made in the technique during Year Three. To ascertain whether the results of Year Three would indeed replicate the results obtained in Year Two, in class observation (ICO) was continued on a limited basis and achievement testing was again conducted in September and April. The design and procedure for achievement testing in Year Three were essentially the same as for Year Two. However, changes were made in the procedures for collection of ICO data in order to evaluate hypotheses different from those posed in Year Two. Additional teachers were trained during the summer of 1972 and their classes were added to the research base for Year Three making a total of 20 classes. To assess the effectiveness of the training and the importance of experience as a success teacher, the in-class behavior of the new teachers and of their students was compared to the behavior of the experienced teachers and their students throughout the school year. (Author/JM)

ATLANTA PUBLIC SCHOOLS
Division of Instructional Services

Project Success Environment: A Positive Contingency Program for Elementary Teacher's Management

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Project Success Environment
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Atlanta, Georgia 30308

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APS-PSE-8

A C K N O W L E D G M E N T S

During its three-year developmental period--July 1, 1970-June 30, 1973--Project Success Environment has operated an innovative program within Area V of the Atlanta School System. The Project has helped both teachers and students develop significantly more effective means of functioning in the classroom. The results of our effort have been satisfying and the recognition received has been highly gratifying. But without the cooperation and support of a great many people, neither could have been possible. For this reason, it is appropriate to extend both recognition and appreciation to the following.

THE PROJECT STAFF

Mrs. Jean Bowen
Exportation Coordinator

Mrs. Sylvia Jones
Dissemination Coordinator

Dr. Scott Persons
Exportation and Evaluation Coordinator

Mrs. Frances Ruth
Exportation Specialist

Ms. Anne Sapp
Technical Writer

THE PROJECT TEACHERS

Wesley Elementary

Mrs. Frances Arnold -- Fourth Grade
Mrs. Florence Rose -- Fourth Grade
Mrs. Lucy Smith -- Fifth Grade
Mrs. Eddie Storey -- Fifth Grade

Whitefoord Elementary

Mrs. Patrician Brittain	--	Fourth Grade
Mrs. Betty Copeland	--	Second Grade
Mrs. Bertha Green	--	First Grade
Miss Patricia McCleese	--	Third Grade
Miss Sandra Meyer	--	Fourth Grade
Mrs. Joycelyn Wilson	--	First Grade

Coan Middle School

Mrs. Gwendolyn Ashmore	--	Sixth Grade
Miss Marshall Ann Barrett	--	Sixth Grade
Miss Elizabeth Brown	--	Sixth Grade
Mrs. Shelia Cross	--	Sixth Grade
Mrs. Patricia Godbey	--	Sixth Grade
Mr. Richard Goerss	--	Sixth Grade
Mrs. Jesse Jackson	--	Sixth Grade
Mr. James Lamar	--	Sixth Grade
Miss Barbara Westlake	--	Sixth Grade

THE PROJECT PRINCIPALS

Mr. Gene Chandler, Whitefoord Elementary
Mr. Wilbur Leaphart, Coan Middle
Mr. Robert Warren, Wesley Elementary

In addition, appreciation is expressed to Mrs. Mary Greene, principal of Toomer Elementary School and her faculty and staff, who introduced the Project Success Environment program into Toomer on a school-wide basis in February of 1972. This represented the first planned effort to export the major project-developed concepts. Further thanks are extended to each teacher and principal who cooperated with the data used as part of the research design.

In September of 1972 Grant Park became affiliate school. A special expression of thanks is due the faculty and staff there

for the genuine cooperation that has been experienced. (Present plans call for Grant Park becoming the administrative training center during 1973-74.)

Many, many persons have helped make Project Success successful. There are the professionals. There are the non-professionals. All of these did a great job! However, lest we forget, one important group deserves special recognition as we move on to the exportation phase of the project. The children.

Six very special persons deserve special tribute--Mrs. Frances Arnold, Mrs. Gwen Ashmore, Miss Marshall Barrett, Mrs. Bertha Green, Mrs. Florence Rose and Mrs. Joycelyn Wilson were among the eight original project teachers. All have made significant positive contributions to the comprehensive success effort.

Any exemplary program requires unusual support from top level administrators if any sort of success is to be experienced. This support must be consistent and steadfast. Throughout the "life" of the project this kind of support has been received from several administrative areas, including the purchasing department. This is intended to recognize and express appreciation for the support and cooperation given by the Assistant Superintendent for Instruction and the Area V Superintendent.

In addition to the Atlanta school personnel, the project has benefitted enormously from outstanding consultative advice. Dr. Boyd McCandless of Emory University has consistently provided

advice and support to the project whenever we needed it. Dr. Howard Rollins of Emory University has been particularly valuable in providing continuity to the over-all research design. Moveover, Dr. Rollins has contributed more than the traditional project consultant relationship requires. He has been an active member of the success team. As a member he has participated significantly in the development of the Success Technique from the spring of 1970 to date. The project is further indebted to the previous research assistants who have been invaluable in both designing and executing the research design: Dr. Jim Watson, co-author of the original proposal, Mr. Carl Moore, Dr. William Brassell and Ms. Gail Russell. Sections of this report have been prepared by Ms. Russell.

Finally, perhaps the single most unique feature of the success thrust is the positive blending of resources and expertise of a large school system, a state department of education and a university. The cooperation and support realized during the three year funding period has been short of remarkable. The results realized from this speak for themselves. And I am very proud to have been a part of creating them.

Marion Thompson

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INTRODUCTION

The third year of the project was essentially a replication of Year II. Second year results indicated that the success technique had provided inner-city teachers with both an effective classroom management system and an effective program for the acceleration of academic performance. Therefore, no major changes were made in the technique during year III. To ascertain whether the results of Year III would indeed replicate the results obtained in Year II, in-class observation (ICO) was continued on a limited basis and achievement testing was again conducted in September and April. The design and procedure for achievement testing in Year III were essentially the same as for Year II. However, changes were made in the procedures for collection of ICO data in order to evaluate hypotheses different from those posed in Year II.

Additional teachers were trained during the summer of 1972 and their classes were added to the research base for Year III, making a total of 20 classes. To assess the effectiveness of the training and the importance of experience as a success teacher, the in-class behavior of the new teachers and of their students was compared to the behavior of the experienced teachers and their students throughout the school year.

During the first two years of the project, trained paraprofessional observers collected in-class observational data several times a week in project and control classes. The positive effect of the technique

on the observable classroom behavior of project teachers and students was established in Year I and improved upon in Year II. For Year III, in-class observations were made only twice each month. Any influence on the data of the frequent presence of observers in the classroom would show up by comparing Year II with Year III behavior in project classes.

A great deal of time and effort was spent throughout Year III disseminating information about Project Success Environment and developing means to export the success technique to new schools. However, these activities were tangential to the ongoing development and evaluation of the success technique itself and are not reported here.

METHOD

Subjects and Design

The subject population during the third year of the project consisted of 348 pupils who attended Project Success Environment classrooms and 246 randomly selected pupils who served as controls. All subjects were black and there were a few more females pupils than males (288 versus 230).

All pupils involved in the study attended a middle school and three of its feeder elementary schools located in east Atlanta. The community in which these schools are located is beset by many economic and social problems. Most of the families live in apartments or low-rent housing. A survey conducted by Title I prior to the 72-73

school year indicated that from 35 to 74 per cent of the pupils attending these schools were from families earning less than $3,000 per year. As is typical of many pupils living in low-income communitites, the pupils attending these schools are behind in academic achievement, lack appropriate educational goals or aspirations, and as a consequence frequently become discipline problems in the school setting. Achievement data collected by the Atlanta Public Schools indicates that by the second grade of school these pupils are three months behind grade placement on achievement test scores and by the seventh grade they are two years behind.

Table 1 provides further characteristics of the teachers and pupils who participated in the study. Nineteen of the teachers were project teachers and 14 were control teachers. Ten of the teachers were white and twenty-three were black; all were female except four. As may be noted in Table 1, teachers had been in the project from one to three years. The previous classroom experience of these teachers ranged from one to thirteen years.

The pupils participating in the study attended grades one through six. Project pupils in grades one through five attended two different elementary schools. Control pupils for these grades were selected from a third school located in the same community and which had similar socio-economic characteristics. At the sixth grade level the project and control pupils attended the same middle school. All control pupils were randomly selected just prior to the beginning of Year III.

TABLE 1

EXPERIMENTAL DESIGN - YEAR III

		Experimental Classes					Control Classes	
		Teacher			Per Cent of	Per Cent of	Teachers	
Grade	Class	Sex	Race	Year of Entry	Two Year Pupils	Three Year Pupils	Sex	Race
1	A	F	B	3	0	0	F	B
	B	F	B	3	0	0	F	W
2	A	F	B	1	77	0	F	B
3	A	F	W	2	0	67	F	B
4	A	F	W	1	0	0	F	B
	B	F	W	1	0	44	F	B
	C	F	B	3	59	0		
	D	F	B	3	0	0		
5	A	F	B	2	0	54	F	B
	B	F	B	1	0	35	F	B
6	A	F	W	2	0	0	F	B
	B	F	B	2	0	0	F	B
	C	F	W	1	0	0	F	B
	D	M	W	1	0	0	F	B
	E	F	W	1	0	0	M	W
	F	F	B	3	0	0	M	B
	G	F	W	1	0	0		
	H	M	B	2	0	0		
	I	F	B	3	0	0		

Classrooms averaged from 25 to 30 pupils. In four of the project classes from 35 to 67 per cent of the pupils had been in the project for three consecutive years. In two other classes, 77 and 59 per cent respectively, had been in the project for two consecutive years. For all other pupils this was the first year in the Project Success classroom.

Project Staff

Management of Project Success Environment during its third year of operation was accomplished through the services of the projects' Director, two Coordinators, two Lead Teachers, an Evaluator, a Research Assistant, a Behavior Management Technician, and a Technical Writer.

The project Director oversaw and facilitated the ongoing work of the project in conjunction with the Superintendent, the Assistant Superintendent for Instruction, the Area V Superintendent, and project consultants from Emory University. The two Coordinators worked directly with the elementary and middle school principals in the ongoing supervision of project teachers and in obtaining necessary equipment, supplies, and instructional materials for project classrooms. The two Lead Teachers and the Behavior Management Technician worked directly with each of the project teachers to improve their use of the success technique. The project Evaluator and the Research Assistant, in conjunction with the project consultants, were responsible for the experimental design and evaluation of the program, including the monitoring of in-class observational data collection. The Technical

Writer was added to the staff at mid-year in order to create printed materials of high quality to aid the project in disseminating its concepts and past successes to the public and to interested school personnel.

All members of the project staff participated in the summer training both of new project teachers and of teachers in schools more loosely associated with the project. In addition, the entire staff devoted considerable effort during the latter part of the third year to developing means for exporting the success technique to other schools in Atlanta and throughout the state.

Treatment

During the first two years of operation, three principal components of the success technique evolved: a positive reinforcement system, a classroom arrangement, and a curriculum. The technique, as it had evolved during Year I and Year II, was continued during Year III. Because these three interacting components were applied concurrently so that no individual appraisal is feasible, they were evaluated as a single entity. The three principal components, as implemented during Year III, are described below.

Curriculum

The standard curriculum employed in the Atlanta Public Schools was modified slightly for use with the success technique. First, within each class the students were grouped according to reading ability, and curriculum materials were selected at levels appropriate to the three groups. Second, an attempt was made to subdivide the curriculum in each content area to create modules that could be

completed, evaluated, and reinforced daily. For example, children were given skill sheets providing daily practice in each subject area that permitted immediate evaluation, feedback, and reinforcement. In addition to the modified standard curriculum, the Sullivan Reading program was added at every grade level. This program also provided materials at several levels and opportunities for frequent evaluation and feedback.

The children in project classes often started the school day with a short task requiring only that they follow directions. Commercially available perceptual-motor sheets were used along with simple tracing, design copying, and visual discrimination tasks. These order tasks were designed to get the students involved early in the day with a simple task almost certain to be completed successfully.

Two types of diagnostic reading tests were used in project classes. In grades one, two, and three the Comprehensive Instructional Program (CIP) reading test was administered every six weeks. The CIP tests gave the teacher periodic informal evaluation of pupil strengths and weaknesses on twenty-four basic reading skills. The results of the tests were placed on a class reading sheet. This enabled the teacher to pinpoint the weaknesses of each pupil and to gear her instruction toward filling the gaps of specific pupils.

In grades four, five, and six the Stanford Diagnostic Reading Tests were administered twice a year. The results of these tests were placed on class record sheets which covered seven basic reading skills.

The coordinators and lead teachers assisted the project teachers by preparing prescription sheets which diagnosed the results of the tests and gave suggestions for procedures and materials to be used. They helped the teachers become more aware of what skills to strengthened and which pupils to help with specific skills.

Classroom Arrangement

A classroom arrangement, consisting of a mastery center for instruction and five academically oriented interest stations, served to structure the instructional program and concomitantly to free the teachers for more interaction with individual pupils and small groups. Within the mastery center the pupils were divided into three ability groups in which they received instruction and completed academic assignments. While one group received instruction and the second completed assigned tasks, the third group visited the various interest stations which were assigned to foster individual and small group exploratory behavior without direct teacher intervention. The five stations included a library station with books, magazines, and newspapers; an art station with a variety of paints, crayons, and other art materials; a communications station with a Language Master, phonograph, and tape recorder; an exploratory station with an assortment of science materials keyed to the instructional program; and a games and puzzles station equipped primarily with academically related materials. The materials at the stations were changed or rotated among the classrooms at least weekly by the paraprofessional aides.

Reinforcement System

Since the beginning of the project, the success teachers have used positive reinforcement to improve student conduct and accelerate academic achievement. In addition to praise and other forms of social reinforcement, the teachers rely heavily upon a token system in which either checkmarks on Success Record Cards or tickets are dispensed in the elementary and middle-school classes respectively. The students can exchange their tokens for rewards. The elementary classes are self-contained and the elementary pupils are exposed to positive contingency management throughout each school day. The middle school classes, however, are taught by teams (three teachers per team) so that the pupils are exposed to the contingencies for approximately four hours daily during the mornings while they attend the basic classes taught by the project teachers -- reading, mathematics, social studies, and science. During the afternoons, the middle school pupils attend non-project exploratory classes, such as music, art, and home economics.

Throughout the first day of school (and for several days thereafter in some of the lower primary classes) immediate primary reinforcement (M & M's and hard candy) is paired with praise and token reinforcement contingent upon approximations of desired social conduct, including such behaviors as simply coming to school and sitting at a desk. Enough tokens are distributed within the first two days for every pupil to exchange them for a variety of back-up reinforcers, including

both inexpensive "fun" items and school supplies. During the initial two weeks of school, reinforcement is dispensed on a generally continuous and predictable basis, but, as the desired behaviors are gradually shaped, the tokens are dispensed on more intermittent, less predictable schedules.

In the project's third year, development and refinement of the several aspects of the reinforcement system were completed and implemented. Detailed descriptions of these "finished products" follow:

1. Classroom Rules

Before the inaugural day of the success technique, the success teacher determines several rules of student behavior that are appropriate to her classroom. Every success teacher establishes her own rules with three restrictions: They must be between three and five in number; They must be brief; They must be worded positively -- "Stay on Task" is worded positively, while "Do Not Bother Your Neighborhood" is worded negatively.

A classroom rule clearly states a behavior that the teacher desires in her class and will frequently and consistently reinforce. Here are a few examples of classroom rules that success teachers have used: Pay Attention; Work Hard, Stay on Task; Stay in Your Seat; Stay in Your Area; Raise Your Hand to Speak; Have the Necessary Tools for Work;

Follow Directions; Be on Time. The rules are prominently displayed in the classroom, and, initially, the teacher goes over them with her class every morning. As the students learn to follow the rules, the teacher repeats them less frequently but continues to praise and to reinforce students for following them.

The Project Success teacher uses her classroom rules as a guideline. If she concentrates on consistently and frequently reinforcing her students for following the rules, the teacher can generally ignore the other behaviors and create a reasonably happy and well-ordered class.

Initially, the teacher does not recognize any exceptions to her rules. This keeps the signals clear and unambiguous. Once the students begin to follow the rules regularly, the teacher may then introduce exceptions if she wishes. Thus, a rule such as "Stay in Your Seat" does not have to remain as rigid as it sounds. Exceptions to a rule are possible if the teacher clearly explains the exceptions to her students. For example, she might explain that they may now get up to sharpen their pencils, or to go to the bathroom, or to get a reference book at any time without her permission, if they will return quickly to their seats.

All the teachers who teach the same group of students must agree upon the same classroom rules. Consistency is a crucial aspect of a success environment.

When the success teacher reinforces a student for following a rule, she relates the student's performance to the rule. She is specific about behaviors that students show which constitutes paying attention or working hard. For example: "You watched the board all the time I was presenting the example. That's paying attention." This is called descriptive praise and is essential. Statements like -- "You're a good boy" or "You're so smart" are judgmental rather than descriptive and are undesirable. The teacher is telling the student that she approves of him, but the student may wonder why he's receiving such extravagant compliments. With descriptive praise he knows exactly what he's done that merits praise.

2. Ignore and praise

The single most important operating procedure of the technique is "ignore and praise." If a student is not working or is disrupting the class, the teacher focuses her attention on nearby students who are working well. She descriptively praises each of them for following a class rule such as "Stay on Task," and possibly presents a token also. The teacher might say: "John, I see you've gotten six problems done already. That's good. That's staying on task. You've earned a token." In this way, she not only reinforces John for working, but she also prompts the correct behavior by the student who is not working and/or being disruptive.

The teacher then continues to watch the difficult student; she catches him following the rule and reinforces this behavior, which is incompatible with this disruption or inattention.

The teacher's descriptive praise of students who are following her class rules is always warm and genuine. However, she doesn't praise every student who is attentive every time she praises one of them. Rather the teacher administers praise unpreditably to a few students at a time who are following her classroom rules. She does this often, even if no one is off-task or disruptive. After giving an initial, brief explanation that reinforcement for following the rules will be unpredictable, the teacher generally ignores complaints from students who feel they've been overlooked. She doesn't want to reinforce complaining by giving attention to it. If the teacher reinforces with sufficient frequency, the students soon learn that following the rules will pay off. Initially, the teacher administers tokens and/or praises about once every minute, with one, two, or three students receiving reinforcement. After the students develop habits of following the rules, the frequency of reinforcement can be cut in half.

In a success classroom, criticism and particularly sarcasm are avoided; but, if the teacher consistently maintains a positive classroom atmosphere with frequent praise, then she may on occasion calmly and firmly remind a student

that he is not following a class rule. When a student is violently, dangerously disruptive or when a student continuously misbehaves so that he does not display any desired behavior that could be reinforced, then some form of punishment is appropriate. Punishment is discussed in detail below, but no form of punishment is likely to be effective for long if the classroom is not a positive environment where following the rules pays off.

3. Activity room

After the first few weeks of the school year, the use of tangible rewards (candy, toys, etc.) is phased out and the students trade their earned tokens for non-tangible reinforcers such as free time at an interest station, special privileges or duties in the classroom or throughout the school, and the opportunity to spend 20 to 30 minutes in an activity room.

There are activity rooms, supervised by project assistants and parents, available for all PSE students. With a large variety of activities available in the room -- e.g. pool table, make-up corner, hot wheels, doll house, record player, etc. -- there is usually something that every student will like. To insure that the rooms continue to be reinforcing, the available activities are periodically changed and occasional surprises are set up in the room.

The students feel that the activity room is their place. Particularly in the upper grades, the students are asked what they want in the room, what they will work for, and the project's staff tries to provide it. At the beginning of the year, when tangible rewards are being phased out, one of the first non-tangible rewards that a student can earn is the opportunity to help decorate the activity room. Every student takes some part in the preparation, and every student gets one free chance to go to the room briefly with his class on the day before the room is first opened as a reward for earned tokens.

4. Academic reinforcement

Conduct behavior that is appropriate in a class at the beginning of the school year remains appropriate throughout the year. Once an initial set of classroom rules of behavior is determined, the teacher can reinforce students for following the rules until they become strongly established as habits. On the other hand, appropriate academic behavior is always changing. It changes with the subject area and with the curriculum materials used; but, most importantly, it constantly changes as each student learns. Thus, the teacher cannot specify one set of appropriate academic behaviors to reinforce throughout the year. Every day, every period, every student needs to be reinforced for different behaviors. It is no simple

matter to develop and implement a reinforcement system that will dramatically improve academic performance. Nevertheless, there are basic procedures outlined below that any teacher can use to systematically reinforce academic performance, regardless of the subject area, the grade level, or the curriculum (if adaptions are made).

The teacher must do three things if she wishes to influence academic behavior:

1. Make sure the student tastes success
2. Always assign doable tasks
3. Evaluate and reinforce frequently and immediately

The first step is getting the student to taste reinforcement and success as a direct result of his own academic behavior. For students with academic histories of D's and F's, this is a critical step. To get a weak or difficult student to taste success, it is often useful initially to give extremely easy, short, academic exercises to complete.

The second step is to consistently provide each student with doable tasks -- work on his level that he can do after a little instruction from the teacher. Academic behavior must occur before the teacher can reinforce it, and, of course, it cannot occur if the student doesn't know how to do the task he is assigned.

As a third and last step, the teacher evaluates and reinforces correct academic behavior frequently and immediately

whenever possible. Evaluating performance immediately, before handing out reinforcement, is essential. The teacher does this in several ways: S/he goes to a student at work and quickly spot-checks a few items at random. If the items are right, reinforcement is given; if too many are wrong, feedback, encouragement, and a promise to return are offered. X'ing mistakes is an outlawed procedure. Alternatively, the teacher selects the first student finished to be a mini-teacher. The mini-teacher uses his own paper, which the teacher has first inspected, to correct the work of the other students. Free, after marking only one paper, the teacher comes by later, quickly glances at the checked papers, and administers appropriate reinforcement; or the mini-teacher himself can immediately reward good work.

5. Inhibition

The ignore and praise procedure, based upon clearly defined classroom rules of conduct with praise supplemented by a token reinforcement system is, in most cases, an effective modifier of conduct behavior in the classroom. However, when undesired behavior is either so intense that students or property are in physical danger or so frequent that there is no incompatible desired behavior to reinforce, then action more immediate and direct than "ignore and praise" is taken to change the behavior.

The kind of action that is approriate is usually called punishment. Within Project Success Environment we are a little hesitant to use the word, "punishment," because it has connotations of retribution and revenge. When we use inhibition (punishment) procedures, the purpose is to inhibit or reduce an undesired behavior. Righteous indignation and anger are not appropriate. In order for inhibition to be effective, it is imperative that the teacher carry out established procedures in a calm, impersonal, matter-of-fact manner. Not only is an angry teacher a model for aggression, but she is also likely to be a reinforcer for undesired behavior if her students enjoy eliciting and viewing her wrath. And, of course, anger indicates lack of command in the classroom.

In many schools, children who are sent from their rooms for disciplinary reasons often end up waiting in the office and many times are used as messengers by the secretary or principal. Teachers, also, often rid themselves of a disruptive student by having him stand in the hall or sending him out of the room on errands. These practices should be discouraged forcefully. A child's "ticket" to special priviledge must <u>not</u> be misbehavior in class.

Misbehavior is either ignored or inhibited from occuring in the future by unpleasant consequences. Insuring that

one of these two actions is consistently taken when unwanted behavior occurs requires two things: (1) cooperation among teachers and cooperation with teachers by other members of the school staff; and (2) a clearly established set of inhibition procedures beginning with ignore and praise in the classroom and including the procedures discussed below:

When unwanted behavior is very frequent or very intense, the teacher's first option is to give the child one warning signal and then put him in time out if the behavior persists. The warning signal always preceeds time out so that it can be used most of the time without the need for time out. When time out is ineffective and the unwanted behavior continues, then the next option is to use a severe token fine. The use of both these procedures is always accompanied by the use of reinforcement of behaviors incompatible with the unwanted behavior.

The following are examples of two different time-out procedures that are used in several Project Success Environment classes:

Time Out Procedure I. As the teacher walks around the room giving praise and checkmarks to those children who are following the class rules, she stops at the desk of a child, who is constantly breaking a rule by

staying out of his seat, and casually picks up his Success Record Card. She keeps the card long enough for the child to miss out on a few checkmarks and only returns it when he is in his seat. Removing the card, or taking away any item that the student has to have in order to receive token reinforcement, is particularly appropriate and effective when the offense is out-of-seat behavior. The time-out from possible reinforcement is a direct consequence in that if the child is out of his seat, any number of things can happen to his possessions. In this situation, the teacher may want to issue a warning signal to the whole class, saying: "If you remain out of your seat (without my permission) you will lose your card and will have to earn it back with good behavior."

Time Out Procedure II. After a child has been warned once and still persists in his misbehavior, he is placed in a time-out "room." (Ideally this is a small room adjoining the classroom that contains only a light and a chair. But usually it is an empty corner of the classroom in which the student is isolated by means of high partitions.) The child is required to sit in the "room" until he is quiet for a predetermined number of minutes (up to 15 minutes depending on grade level), and then he is allowed to return to the class.

No time-out procedure will be effective unless a basically reinforcing environment exists in the classroom.

When time out does not work, and there are inevitably a few hard core cases, a severe fine is the next inhibition procedure. Project Success Environment teachers are understandably reluctant to take tokens away from students once they have earned them. In fact, the only systematic use of fines that has been done has been done by a principal working with students referred to him when time out was ineffective. This principal reports success in reducing the number of referrals.

Summer Training

The training of new teachers for Year III was accomplished in a summer workshop much the same as for Year II (as described in the End-of-Budget Period Report FY 1972). Briefly, training consisted of three weeks (half day sessions) devoted to: (a) the theory behind positive contingency management; (b) practicum applications of the theory; and (c) guidance with curriculum. Two innovations were incorporated into the summer training for Year III. First, teachers were placed on a criterion referenced contract to read theory related materials. Teachers received extra pay (2 hours/day) if they read assigned units in Becker, Engelman, and Thomas 's Teaching A Course in Applied Psychology and passed (with 100 per cent accuracy) a test based upon these materials. Teachers failing to meet criterion could retake the test later in the

workshop and if successful earn the extra pay. All teachers passed all tests before the end of the workshop and most were prepared and passed the tests on the first attempt. The second innovation involved some use of modeling and role playing. Project staff and experienced project teachers would demonstrate in a role playing situation a particular concept. Teacher trainees were then asked to analyze and discuss the demonstration. As for Year II, experienced teachers participated in the training of new teachers. The experienced teachers helped present theory, led small discussion groups on practical applications, and served as demonstrators of the technique in live classrooms. All new teachers also practiced the technique in live classrooms under the supervison of project staff and experienced teachers.

Measures of Pupil Variables

The effects of the success technique on the project pupils were measured in two general areas: classroom behavior and academic achievement.

Classroom Behavior

Pupil behavior in the classroom, or conduct, was assessed by means of systematic observations conducted in select experimental (project) and control classes. Observations were made in each class once every two weeks between September and April, except during holiday periods. Trained paraprofessional observers collected data for attention behavior (i.e. per cent of students attending to assigned academic tasks) and disruptive behavior.

Disruption. During 15 minutes, the data-gatherer continuously scanned the entire class for instances of disruptive pupil behavior. In general, disruption encompassed any unsolicited pupil behavior serving to distract other pupils from academic tasks: talking or being out of seat without permission; generating loud noises; and disturbing other pupils either verbally, or by means of physical contact, or by handling another pupil's possessions. A single pupil could not be observed for disruption more often than once every ten seconds. The criterion measure was the average number of disruptions per pupil per 15 minutes, obtained by dividing the total number of disruptions recorded by the number of pupils present during the observation session.

Attention. The attentive behavior of the pupils in a class was observed while they were assigned academic tasks. Each pupil was observed separately one time only for 20 seconds. The data-gatherer recorded the number of seconds during when the pupil was off-task; i.e., during each 20-second interval the behavior of one pupil was observed and the amount of time apparently devoted to other than academic tasks was recorded. Each pupil observed was classified as INVOLVED (0-5 seconds off task), MEDIUM INVOLVED (6-15 seconds off-task), or UNINVOLVED (16-20 seconds off-task). The criterion measure was the percentage of time on-task for the entire class, calculated by adding the number of pupils classified as INVOLVED to one-half of the number classified as MEDIUM INVOLVED,

then dividing the sum by the total number of pupils observed, and multiplying the quotient by 100.

The measures of disruptive and attentive behavior used in Year III contained a few refinements but were essentially equivalent to those utilized during Year II of the project.

Academic Achievement

The California Achievement Tests (CAT) in reading and arithmetic were given at all grade levels to measure academic achievement. In addition, the Comprehensive Instructional Program Diagnostic Test (CIP) were given to grades one, two, and three. The CIP tests were developed locally by the Atlanta Public School System to assess students' acquisition of specific reading skills. In addition to its use as a diagnostic instrument (see Curriculum, page 44 of this report), the CIP was administered to all project and control students in the first three grades to determine gains made in reading skills.

Measures of Teacher Behavior

During the period from September, 1972, through April, 1973, teacher behavior was monitored in the classroom to determine the extent to which the success technique was being applied. The frequency of teacher reinforcement and punishment was observed and recorded by trained paraprofessionals in select experimental and control classes once every two weeks, except during holidays.

The average number of positive reinforcements administered per student in a 15-minute period constituted a criterion measure, which was obtained by dividing the total number of reinforcements

administered by the number of pupils present during the observation session. A second criterion measure consisted of the total number of instances of punishment.

Teacher behavior which was recorded as positive reinforcement included verbal praise, positive physical contact, granting of privileges, and administration of tangible rewards such as candy or tokens (which were administered only in the experimental classes). Punishment included criticism stated explicity or implicity through threats of consequences, voice tone, or facial expression, aversive physical contact with pupils, withdrawal of pupil privileges, and isolation of pupils.

The measures of reinforcement and punishment in Year III contained a few refinements but were essentially equivalent to those utilized during Year II of the project.

Other Measures

Four locally developed questionnaires were administered as a less formal means of evaluation. The parents of project pupils, the principals of project schools, the project teachers, and the project pupils, themselves, were requested to respond to anonymous questionnaires concerning their reactions to the project.

Testing Procedures

In-Class Observations

Five black, female, paraprofessional data-gatherers, trained by the project evaluator, systematically observed teacher and pupil behavior. Four of these five observers had collected similar data

during Year II of the project. Throughout the school year, in-class observational data were collected unpredictably once every two weeks.

Observation procedures were refined during Year III so that the observation period lasted only 30 minutes, instead of the 45 minutes required using the Year II procedure. This reduction in time was accomplished by observing and recording the frequency of student disruption and the frequency of teacher reinforcement and punishment all at the same time. The observer began recording reinforcement, punishment, and disruption for seven and one-half minutes, switched to attention for approximately 15 minutes, and then completed the observation of reinforcement, punishment and disruption for another seven and one-half minutes. The observation was split in order to obtain a more typical sample of behavior. There was no reduction in reliability as a result of these procedural refinements.

Observation periods were varied from morning to afternoon. Class time not devoted to academic activity was not appropriate for observation. Further, if for some reason -- such as a principal's voice over the intercom or the arrival of visitors into the classroom -- academic activity was interrupted, the observation stopped until academic behavior was again the appropriate behavior for the class.

While in the class for the purpose of obtaining data, observers were not to interact with the class or the teacher any more than

was absolutely necessary. It was desirable that the class come to ignore the observer and take her presence for granted.

Inter-rater Reliability. Reliability coefficients were obtained for the five data-gatherers by comparing the observations of each data-gatherer with the observations made by each of the other data-gatherers' and with the observations made by the Project Evaluator. The coefficients, based on 10 to 14 common observations, are presented below in Table 2. The majority of the coefficients are above .80. The median r's for reinforcement, punishment, disruption, and attention respectively are .97, .65, .96, .82. Agreement concerning punishment was low because there was little punishment to observe.

Achievement Testing

California Achievement Tests (CAT). All project pupils in grades 2-5 were given the California Achievement Tests (CAT) in Reading and Arithmetic as a pretest in September and as a posttest in April. In addition, pupils were randomly selected from each grade level (2-5) at the control school and were also given the CAT as a pre- and posttest. The random sample of control pupils was approximately two-thirds as large as the number of project pupils tested. One or two of the control teachers were chosen at each grade level to administer the tests.

At the middle school (sixth grade) a random sample of both project and control pupils was selected and given the CAT as a pre- and posttest in September and April respectively.

TABLE 2

IN-CLASS OBSERVATIONS INTER-RATER RELIABILITY 1972-73
r's based on 10-14 common observations

A

TEACHER REINFORCEMENT

Observer		A	B	C	D	E	F
(Persons)	A*	1	.97	.97	.97	.96	.96
(Ware)	B		1	.96	.96	.94	.96
(Thomas)	C			1	.97	.99	.99
(Chaney)	D				1	.96	.98
(Williams)	E					1	.99
(Ramsey)	F						1

B

TEACHER PUNISHMENT

Observer		A	B	C	D	E	F
	A*	1	.30	.71	.62	.71	.70
	B		1	.65	.82	.65	.53
	C			11.00		.65	.54
	D				1	.56	.41
	E					1	.54
	F						1

C

STUDENT DISRUPTION

Observer		A	B	C	D	E	F
	A*	1	.96	.98	.97	.94	.95
	B		1	.97	.99	.93	.88
	C			1	.97	.98	.94
	D				1	.91	.92
	E					1	.91
	F						1

D

STUDENT ATTENTION

Observer		A	B	C	D	E	F
	A*	1	.78	.74	.78	.87	.82
	B		1	.79	.90	.92	.82
	C			1	.82	.84	.70
	D				1	.80	.72
	E					1	.88
	F						1

* Observer A was the project Evaluator.

Again the control sample was approximately two-thirds as large as the project sample.

First grade pupils, both project and control, received only the posttest on the CAT in April. Only the posttest was given since entering first grade pupils do not generally have the skills necessary for minimum performance on an achievement test. The number of first grade pupils tested was approximately the same for both the project and the controls.

The following levels of the CAT were given to each of the above mentioned levels:

Lower primary - First and second grades

Upper primary - Third and fourth grades

Elementary - Fifth and sixth grades

Other Measures. Informal questionnaires were devised to determine the views of teachers, principals, pupils and their parents to Project Success. All questionnaires were administered anonymously. The principals and teachers were given their questionnaires by the Research Assistant and were asked to return them either to the Research Assistant or to one of the project's Coordinators. The pupils were given their questionnaires by the two project Coordinators and the two Lead Teachers. These questionnaires were administered in the classroom setting and the questions were read out loud to facilitate understanding. In addition, each pupil was given a questionnaire to take home to his parents. The pupils were reinforced with candy for returning their parents' questionnaire.

RESULTS AND DISCUSSION

Effect of the Experimental Treatment on the In-Class Behavior of Project Pupils

In Fiscal years I and II, project staff demonstrated in systematic research that the success technique altered the behavior of project pupils in the classroom relative to their own prior behavior (Appendix D, End-of-Budget Period Report, FY 1972) and the behavior of appropriate comparison classes (Appendix A, End-of-Budget Period Reports FY 71 and FY 72). Project pupils were fifty per cent less disruptive than comparison pupils and their percentage of time involved in assigned academic activities reached about 88 per cent relative to 55-65 per cent involvement for controls. These differences were maintained throughout both school years.

Figure 1 presents the in-class observations of project pupils at middle and elementary levels for Year III. Figure 1 also includes data for elementary controls collected in Year II and middle school controls collected in Year III. It is clear from the curves in Figure 1 that project pupils continued to maintain a reduced level of disruption and a high percentage of time on assigned tasks. The data for Year III, then, appear to be entirely consistent with the findings from Years I and II. Since these findings were firmly established in Years I and II, the focus for Year III concerned

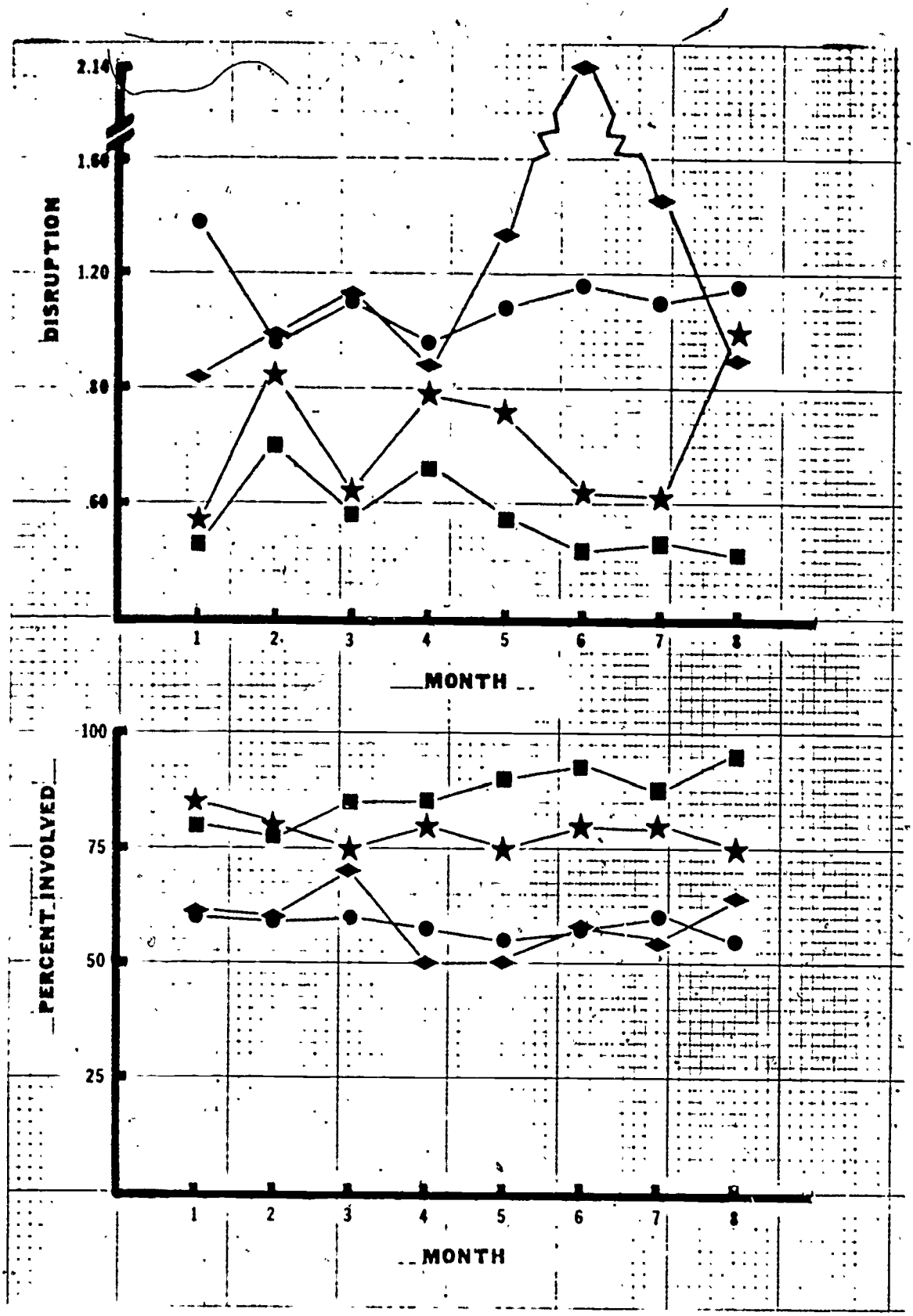

Figure 1. Mean frequency of disruptions and mean per cent involved for Year III middle school project (■) and control (◆) pupils for Year III elementary project pupils (★) and Year II elementary control pupils (●).

other hypotheses that are discussed below. No statistical analyses were run on the data presented in Figure 1.

Project staff attempted in Year III to seek answers to two additional questions concerning in-class behavior. First, it is possible that the results obtained for Years I and II were caused in part by the fact that observations were frequent, occuring two to four times per week in each class. In order to provide a check on this possibility, project teachers were observed less frequently in Year III. Observers collected data on project classes about twice a month in Year III. If less frequent observations have little or no effect, then the in-class behavior of pupils during Year III should be comparable to the behavior of pupils in Year II. The mean number of disruptions per student and mean per cent time on task as a function of Year II versus Year III and middle versus elementary level are presented in Table 3 for eleven teachers participating in the project in the second and third year. Means for elementary and middle school classes are presented separately. The elementary-level data presented in Table 3 represent means for six classes with three blocks of data collected per class; one block in October, one in January, and one in May. Each block is an average for three to four 45 minute observation periods. The middle-level data represent means for five classes with eight blocks of data per class (one block each month of the school year).

TABLE 3

MEAN DISRUPTIONS AND MEAN PER CENT INVOVLED FOR PUPILS IN PROJECT CLASSES IN YEAR II AND YEAR III BY GRADE LEVEL

	Mean Disruptions	Mean Per Cent Involved
Elementary Level		
Year II	.31	.83
Year III	.40	.79
Middle Level		
Year II	.29	.90
Year III	.35	.87

The elementary and middle level data were analyzed separately by analysis of variance with year and blocks as independent variables. At the elementary level, Year II disruptions were slightly lower than for Year III but this difference was not significant $F\ (1,5) = 2.64$, ns. Year II pupils were also slightly more involved in assigned tasks. However, this difference also failed to reach significance, $F\ (1,5) = 1.45$, ns. Per cent involved was low at the beginning of Year II (79 per cent) and increased throughout the year (82 per cent). However, for Year III, per cent involved was high at the beginning of the year (85 per cent) and dropped off slightly across the year (79 per cent), $F\ (2,10) = 9.47$, $p < .01$.

At the middle school level, the overall level of disruptions in Year II was also lower than for Year III $F\ (1,5) = 3.45$, $p < .05$. This difference was primarily a result of differences occuring

early each year. Disruptions in the first few blocks of Year III were reliably higher than for these same blocks in Year II. However, by the fifth block, Year III disruption dropped to the level of Year II and subsequently to an even lower level than for Year II, $F\ (7,28) = 2.88$, $p < .05$.

For per cent on-task at the middle level, there was a reliable difference between Year II and Year III, $F\ (1,4) = 6.40$, $p < .10$. Pupils were, on the average, on task more often in Year II. However, the advantage for Year II occured primarily during the first few months. By the fifth block, per cent on task for Year III was higher than for Year II and remained equal to or higher than for Year II for the remainder of the year, $F\ (7,28) = 2.54$, $p < .05$.

These data, taken as a whole, indicate that pupil behavior during the third year was as good as pupil behavior for Year II, particularly for the latter half of the school year. This suggests that one may substantially reduce the absolute number of in-class observations without adversely affecting the effectiveness of the technique.

A second question addressed in Year III was to determine if inexperienced teachers can operate as effectively as experienced teachers. In order to examine this question, the behavior of pupils in classes with experienced teachers (at least one year

in the project) were compared to pupil behavior in classes with inexperienced teachers. These comparisons are presented in Table 4 for disruption and per cent involved at both middle and elementary levels.

TABLE 4

MEAN DISRUPTIONS AND MEAN PER CENT INVOLVED FOR PUPILS IN PROJECT CLASSES CONDUCTED BY EXPERIENCED AND INEXPERIENCED TEACHERS BY GRADE LEVEL

		Disruptions/ Student	Per Cent Involved
Elementary Level	Experienced	0.71	0.78
	First Year	0.38	0.89
Middle Level	Experienced	0.35	0.89
	First Year	1.44	0.68

The means in Table 4 were analyzed by analysis of variance with Experience (2), Grade Level (2), and Block (8) as factors. A separate analysis was computed on disruption and per cent involved. As is evident in Table 4, pupils in the classes of inexperienced teachers at the elementary level did as well as or better than pupils in experienced teachers' classes on both disruptions and per cent involved. On the other hand, at the middle level, pupils in classes of experienced teachers clearly out performed pupils in the classes of inexperienced teachers.

These two observations are reflected in the interactions of grade and experience for both disruptions, $F\ (1,11) = 42.97$, $p < .01$, and per cent involved, $F\ (1,11) = 15.12$, $p < .05$. This result may be important. Project staff have observed that it is more difficult to implement the success technique with older children. By the time a child reaches sixth grade, he has had extended experience with school. If this experience has been predominantly negative rather than positive, considerable time would be required to overcome these expectations. Furthermore, the teachers of older children may need more time and experience to apply the success technique effectively to children with extended histories of failures.

In-Class Observations -- Teacher Behavior

Figure 2 presents the data on frequency of reinforcement and punishment delivered by project teachers throughout Year III for middle and elementary schools. Figure 2 also graphs these data for elementary controls from Year II and for middle school controls from Year III. It is evident in Figure 2 that project teachers in Year III reinforced with high frequency and punished with low frequency relative to controls. These data are consistent with in-class behavior of project teachers for Years I and II.

Table 5 presents data comparing teacher behavior in Year II to their behavior in Year III. These data were analyzed to

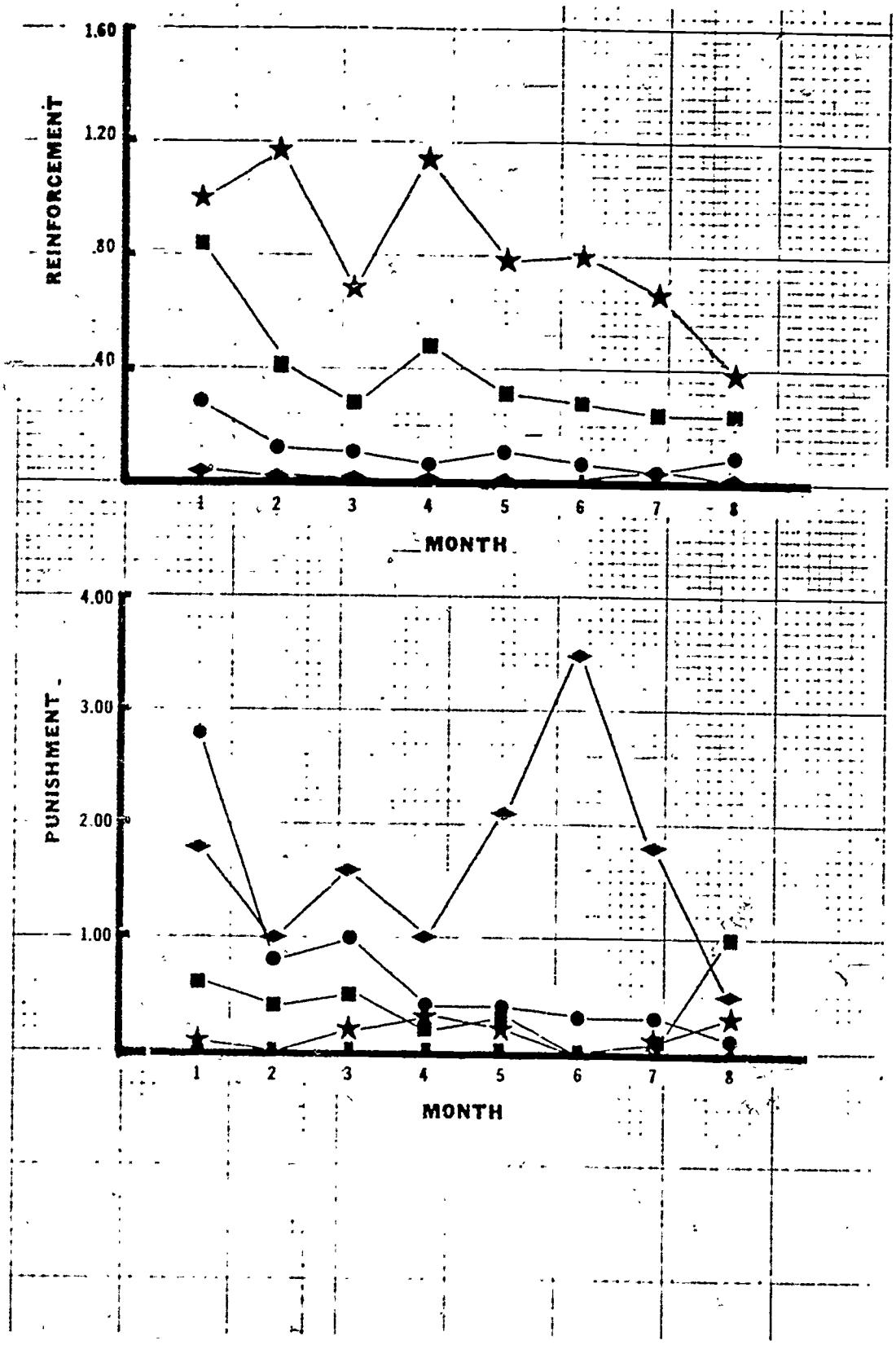

Figure 2. Mean frequency of reinforcements/student and mean frequency of punishment for Year III middle school project (■) and control (◆) teachers and for Year III elementary project teachers (★) and Year II elementary control teacher (●).

determine if a reduction in the number of observations (from twice a week in Year II to twice a month in Year III) affected teacher performance. Separate analyses of variance were run on reinforcement and punishment at the elementary and middle levels.

TABLE 5

MEAN REINFORCEMENTS/STUDENT AND MEAN TOTAL PUNISHMENTS DELIVERED BY PROJECT TEACHERS DURING YEAR II AND YEAR III BY GRADE LEVEL

		Reinforcements/ Student	Total Punishments
Elementary Level	Year II	1.55	0.31
	Year III	0.78	0.11
Middle Level	Year II	0.65	0.42
	Year III	0.39	0.39

At both elementary and middle levels, teachers reinforced more frequently in Year II than Year III, F (1,5) = 9.67, $p < .05$, F (1,4) = 18.08, $p < .10$, respectively. Teachers also punished more frequently in Year II than Year III at both elementary and middle levels but these differences were not reliable, F (1,4) = .49, ns, respectively. These data suggest that teacher behavior was altered somewhat by less frequent observation, in particular, they delivered reinforcement about one-half as

often as with frequent observation. It is important to note, however, that project teachers continued to reinforce at a much higher rate than they punished and that pupil behavior in Year III (see pupil behavior above) did not change from Year II to Year III.

A comparison of reinforcement and punishment frequency was also made between experienced and inexperienced teachers during Year III. These results are presented in Table 6. Inexperienced teachers at both elementary and middle levels reinforced more frequently than experienced teachers.

TABLE 6

MEAN REINFORCEMENT PER STUDENT AND MEAN TOTAL PUNISHMENTS DELIVERED BY EXPERIENCED AND INEXPERIENCED TEACHERS DURING YEAR III BY GRADE LEVEL

		Reinforcements/ Student		Total Punishments
Elementary Level	Experienced		0.90	0.15
	Inexperienced	1.13	1.13	0.15
Middle Level	Experienced		0.39	0.39
	Inexperienced		0.74	0.61

However, this difference was not statistically reliable, F (1,11) = 2.62, ns. It is also clear in Table 6 that overall, elementary teachers reinforced more frequently than middle school teachers, F (1,11) = 5.14, $p < .05$. Experienced and inexperienced teachers did not differ overall

in the frequency of punishment delivered, F (1,11) = 0.62, ns. However, inexperienced teachers tended to punish more than experienced teachers during the latter part of the year, F (7,77) = 3.01, $p < .05$. Thus experienced and inexperienced teachers differed little in their delivery of reinforcement or punishment.

Academic Achievement

During Year III of Project Success Environment, emphasis continued to be placed on the reinforcement of academic achievement. Since significant academic gains had been obtained during Year II of the project's operation, it was anticipated that the project would again make academic gains. Thus, it was hypothesized that the gains made by project pupils would again exceed the gains made by control pupils over the same period of time. Consequently, gain scores made on the California Achievement Tests (CAT) between September and April were obtained for both project and control pupils. The gain scores in reading and arithmetic made by project and control pupils were compared for statistically significant differences. Performance of project and control pupils in grades one through three on the Comprehensive Instructional Program Diagnostic Tests (CIP) was also compared.

CAT Reading Achievement . The mean pretest (September), posttest (April) and gain (posttest minus pretest) scores for reading are reported in Table 7 for project and control pupils

in grades two through six. The gains made in reading by project pupils exceeded the gains made by control pupils in every grade except the third grade. In all instances (except the third grade) the project pupils gained at least one month for every month in the project.

TABLE 7

TOTAL READING
CALIFORNIA ACHIEVEMENT TESTS

	Project				Control		
Grade	N	Pre	Post	Gain	N	Pre	Post	Gain
First	45	--	1.8	0.8	33	--	1.4	0.4
Second	28	2.0	2.9	0.9	39	1.5	2.1	0.5
Third	22	2.8	3.1	0.3	14	2.5	3.0	0.5
Fourth	95	3.2	3.9	0.7	35	3.4	3.7	0.3
Fifth	40	4.0	4.7	0.7	39	3.7	4.1	0.4
Sixth	76	4.4	5.1	0.7	51	3.7	4.2	0.5
Mean				0.70				0.46

A three-way analysis of variance (Treatment x Grade x Sex) performed on the gain scores indicated that the gains made by the project pupils were highly significant, $F\ (1,419)=10.17$, $p < .01$. In addition, a significant grade and a significant sex effect were also found. This indicates that some grades (for both project and control classes) gained more than other grades and that females (in both project and control classes) gained more than males.

The total reading test scores on which the analysis of variance was performed is composed of two subtests: vocabulary and comprehension. The total reading score is a composite of these two subtest scores. Consequently, the total reading score reflects the pupils composite achievement in both vocabulary and comprehension.

First grade pupils received the CAT reading achievement test in April only. A pretest was not given since entering first grade pupils are generally unable to read. Consequently, a comparison was made between the mean posttest scores made by the project and control pupils.

Table 7 also presents the mean posttest reading scores for first grade project and control pupils. As may be seen, the mean grade equivalent in reading for project pupils was 1.8 as compared to the mean of 1.4 for control pupils. An analysis of variance (Treatment x Sex) indicated that this difference in posttest scores was highly significant $F\ (1,74) = 11.12$, $P < .01$. Thus, after completing the first grade, project pupils were significantly more advanced in reading achievement than a comparable group of control pupils.

CAT Arithmetic Achievement. The mean grade equivalent scores made in arithmetic on the CAT pretest and posttest, as well as the mean gains are presented in Table 8 for grades two

through six. Project pupils gained significantly more in arithmetic than control pupils at all grade levels except the second grade. Again, the project classes gained at least one month for each month in the project with one exception (the second grade).

TABLE 8

TOTAL ARITHMETIC
CALIFORNIA ACHIEVEMENT TESTS

	Project				Control		
Grade	N	Pre	Post	Gain	N	Pre	Post	Gain
First	45	--	1.7	0.7	33	--	1.6	0.6
Second	28	2.0	2.3	0.3	39	1.5	1.9	0.4
Third	22	2.7	3.6	0.9	14	2.5	3.1	0.6
Fourth	95	3.4	4.2	0.8	35	3.3	3.8	0.5
Fifth	40	4.6	5.3	0.7	39	4.3	4.7	0.4
Sixth	76	4.9	5.6	0.7	51	4.7	5.3	0.6
Mean				0.73				0.52

An analysis of variance (Treatment x Grade x Sex) performed on the gain scores indicated that these differences in arithmetic gains were also statistically significant, $F\ (1,419) = 8.71$, $p < .01$. In addition, grade and sex effects were also significant indicating again that some grades gained more than others and females gained more than males.

Since the total arithmetic score is a composite of the arithmetic fundamentals and arithmetic reasoning subtest scores, this score reflects the pupils' composite achievement in both arithmetic fundamentals and reasoning.

As in reading, the first grade pupils received only the arithmetic posttest on the CAT. The mean posttest grade equivalents are also presented in Table 8. As may be seen, project pupils had a mean posttest grade equivalent of 1.7 as compared to the 1.6 made by the controls. A two-way analysis of variance (Treatment x Sex) indicated that this difference was not statistically significant, $F\ (1,74) = 1.05$, ns.

In summary, Project Success Environment was successful in promoting academic achievement in Year III of its operation just as it had been in Year II. Project pupils, in general, gained significantly more in both reading and arithmetic than a comparable group of control pupils gained over the same period of time. In addition, project pupils were also successful in achieving at least one month's gain in both reading and arithmetic for each month that they participated in the project. During Year II of the project's operation project pupils gained an average of 6.9 months on the California Achievement Test (CAT) in reading compared to the 3.4 months gained by controls. During Year II project pupils gained 7.0 months in reading compared to the 4.6 months gained by controls. Arithmetic gains made during Year III also substantiate the findings of Year II. In arithmetic project pupils gained 6.5 months during Year II compared to the 3.9 months gained by controls. During Year III project pupils gained an average of 7.3 months in arithmetic achievement

while the controls gained only 5.3 months. Thus, the findings related to academic achievement in Year III replicated the findings of Year II and further substantiates the hypothesis that Project Success does, in fact, have a beneficial effect on academic achievement for both elementary and middle school pupils.

Comprehensive Instructional Program (CIP) Diagnostic Tests. The CIP diagnostic tests were also used to measure and compare the academic performance of project and control pupils in grades one, two, and three. These tests are administered city-wide to pupils in the first three grades to provide diagnostic information regarding 24 different reading skills. The pretest performance used consisted of the number of tests passed (according to the criterion of ninety per cent correct responses) in October. The posttest performance consisted of the number of tests passed (according to the same criterion) in April. Gain scores were obtained by subtracting the number of tests passed in September from the number passed in April.

Table 9 presents the mean gains in number of diagnostic tests passed by project and control pupils at each of the three grade levels. Although the project pupils passed more tests at the first and second grade levels, the overall gains made by the project pupils were not statistically greater than the gains made by control pupils, $F\ (1,160) = .13$, ns.

TABLE 9

MEAN GAINS IN COMPREHENSIVE INSTRUCTIONAL PROGRAM'S (CIP) DIAGNOSTIC TESTS PASSED BETWEEN OCTOBER AND APRIL

Grade	N	Project	N	Control
1	44	7.1	28	6.8
2	26	6.8	37	6.6
3	17	4.9	20	5.2

Other Measures

Pupil Questionnaires

Elementary pupils. One-hundred-and-ninety-eight elementary school project pupils completed all or portions of the attached questionnaire (see Table 10). Most of the elementary pupils (91 per cent) indicated that they would like to be in a project class again. Nearly all of the pupils indicated that they liked school and the things associated with school -- reading group (77 per cent), arithmetic (84 per cent), teacher (94 per cent), and classmates (94 per cent) --and that they felt positive towards the project's reinforcement systems -- rewards (94 per cent), checkmarks (93 per cent). However, a large proportion of the elementary school students indicated that they would work as hard if they weren't in a project classroom (88 per cent). While the number of students was small, it is interesting to note that

TABLE 10

PROJECT SUCCESS ENVIRONMENT
EVALUATION BY PROJECT PUPILS
ELEMENTARY SCHOOL

1. What grade are you in?_____

2. Would you like to be in a Project Success class next year? 182 Yes 16 No

3. Would you work as hard if you were not in a Project Success class? 176 Yes 22 No

4. Please check the things you liked about school this year.

Rewards	188
Interest stations	170
Tickets or checkmarks	186
Teacher	187
Classmates	185
Activity room	188
Trips	191
Reading group	154
Getting sent to the principal	22
Giving the teacher a hard time	30
Arithmetic	167

5. Please check the things you did not like about school this year.

Rewards	12
Interest stations	79
Tickets or checkmarks	13
Teacher	21
Classmates	16
Activity room	11
Trips	10
Reading group	30
Getting sent to the principal	103
Giving the teacher a hard time	94
Arithmetic	27

6. Write down three things you did to earn checkmarks.

7. What did your teacher do when someone in the class was bad?

8. What would you like to have changed in school?

some students felt positive about getting sent to the principal (11 per cent) and giving the teacher a hard time (15 per cent).

The responses to item 6 ("Write down three things you did to earn checkmarks") indicate that the children were indeed aware of what the technique asked them to do -- "raise your hand", "do your work", "being quiet", "make a good grade", "going by the rules", "answer questions". The pupils responses to item 7 ("What did your teacher do when someone in the class was bad") were disappointing. It had been expected that the students would respond that the teacher ignored their disruptive behavior. However, the answers were mostly statements like: "she takes up your card," or "she won't let you have P.E." A few statements suggest that occasionally teachers reverted to more traditional methods of inhibiting undesirable behaviors ("hit you", "send to office"). In retrospect, it is not very surprising that the pupils did not report that the teacher ignored inappropriate behavior since to the child this technique may just be too subtle for him to identify. A pot pourri of responses were given to item 9 ("what would you like to have changed in school"). These included" "everythin"; "my desk"; "nothing"; and "the lunch."

Middle School Pupils. In general the responses made by the middle school pupils the questionnaire followed the same patterns as those made by the elementary pupils (see Table 11).

TABLE 11

PROJECT SUCCESS ENVIRONMENT
EVALUATION BY PROJECT PUPILS
MIDDLE SCHOOL

1. What is a Project Success classroom?

2. Did you have fund in school this year? Yes 146 No 47

3. Would you work as hard if you were not in a Project Success class?
Yes 146 No 44

4. Please check the things you liked about school this year?

Rewards	173
Interest stations	130
Tickets or checkmarks	162
Teacher	116
Activity room	172
Classwork	109
Trips	158
Making fun of the teacher	180
Cutting class	2
Shooting rubber bands	3
Other	7

5. Please check the things you did not like about school this year?

Rewards	22
Interest stations	39
Tickets or checkmarks	24
Teacher	71
Activity room	23
Classwork	64
Trips	20
Homework	100
Getting sent to the principal	135
Other	63

6. What would you like to have changed in school?

7. Was your teacher mean or nice to you and your class this year?
Mean 58 Nice 131

8. Did your teacher yell at you this year? No 43 A little 124 A lot 46

9. Write down three things you did to earn checkmarks.

10. What did your teacher do when someone in the class was bad?

Again a majority of the pupils indicated that they enjoyed school in general -- fun in school (75 per cent), teacher (60 per cent), classwork (56 per cent) -- and nearly all indicated that they felt positive towards the project's reward system.

Items 1 and 9 on the questionnaire were inserted to assess whether the students were aware of the differences between their project class and other classes. The responses given by the children indicated varying amounts of awareness but, in general, they indicated a surprisingly high level of awareness of the objectives of the success technique. A number of children focused on the concrete aspect of the reinforcement system, i.e. the tickets, and the activity room. Moreover, many were aware that tickets were earned and that appropriate behaviors earned the tickets. In some sense the students' awareness of the objectives of the reinforcement system can be taken as an indication of that system's success. Items 7 and 8, which direct questions concerning the student's perception of his teacher's behavior, indicated that, on the whole, the students held a positive view towards the project teachers.

Conclusions.

Taking the elementary and middle school pupils together, the responses they made to the questionnaire were both enlightening and encouraging. Both groups indicated that they enjoyed being

part of a success environment and an overwhelming percentage of the students indicated that the rewards offered by the system were effective incentives.

The most intriguing results, however, concerned the students' awareness of the reinforcement contingencies employed by the success technique. A large number of both elementary and middle school pupils revealed that they were aware of the relationship between certain behaviors and the rewards obtainable by performing these behaviors. This awareness indicates that the success teachers clearly presented the contingencies to their students and then reinforced the desired behavior consistently.

It is interesting to speculate on the possibilities for future study of student awareness of contingencies. For example, it may be found that when children can verbalize what they need to do in order to earn reinforcement they may behave more frequently in a manner that leads to their reinforcement. There may, in other words, be a positive correlation between the child's awareness of what the system has asked (and reinforced) of him and how well or how often, he does it.

Teacher Questionnaire

Fourteen of the nineteen project teachers completed all or portions of the attached questionnaire (see Table 12). The following summary statements are based upon the replies of these fourteen respondents.

TABLE 12

PROJECT SUCCESS ENVIRONMENT
Evaluation by Project Teachers

We need your opinions about the impact of the success technique on your pupils, so that we can refine the technique to increase its effectiveness. Please respond to the following questions by checking the answers that seem most appropriate to you. Please do not put your name on this questionnaire.

	Definitely Yes	Generally Yes	Neutral or No Effect	Generally No	Definitely No
1. Do you feel that the program has been detrimental to your students?				4	10
2. Do you think tangible rewards are necessary for program implementation after the first week or so of school?	4	1		7	1
3. Do you feel that the activity room is a valuable component of the program?	4	8	1		1
4. Do your pupils respond to activity reinforcers?	3	9	1		
5. Do you feel that the activity reinforcers should be more academically oriented?	6	3	3	1	
6. Have the interest stations been a valuable component of the program?	5	2	2	5	
7. Do you believe your attempts to reward "good" pupils and ignore misbehaving pupils have been effective in maintaining classroom control?	5	7	2		
8. Do you think punishment is necessary in your classroom?	1	6	2	4	1
9. Do you feel that punishment is more effective than positive reinforcement in promoting classroom discipline?		3	2	5	4
10. Do you feel that punishment is more effective than positive reinforcement in promoting academic achievement?		1	1	5	7
11. Do you object to the presence of the data-gatherers in your classroom?		1	2	3	8
12. Does the presence of the data-gatherers cause you to teach differently?		1	1	4	8
13. Do you continue to use the principles of positive reinforcement when the data-gatherers and others are not present in your classroom?	9	5			

	Definitely Yes	Generally Yes	Neutral or No Effect	Generally No	Definitely No
14. Have the services of the project coordination been of value to you?	6	5	3		
15. Do you feel that the members of the project staff give you enough support?	3	9	1	1	
16. Do you find it difficult to apply the success technique consistently throughout each school day?	1	1	1	6	5
17. Are there particular times of the day or particular days of the week when program implementation is especially difficult. If so, when_____	1		1	12	
18. Is program implementation especially difficult in any particular subject or content area? If so, what _____	1		1	11	1
19. Do you find teaching easier using the success technique?	7	4	2	1	
20. Do you feel that you could apply the success technique without the back-up support of the project staff?	5	7	1	1	
21. Would you volunteer to participate in the project if absolutely no pressure was applied on you to do so?	8	3	3		
22. Would you recommend the success technique to a friend having discipline problems with his or her pupils?	9	3	2		
23. Would you recommend the success technique to a friend who wishes to obtain greater academic gains from his or her pupils?	8	4	2		
24. Would you attempt to continue using elements of the success technique if the project were terminated?	9	5			

Effects on pupils. All of the responding teachers indicated that the program had no detrimental effect on the students. The teachers' responses to items seven and twenty-two indicated that generally the success technique's program of ignore and praise was generally considered effective in maintaining classroom discipline and that they would suggest the technique to another teacher experiencing discipline problems. In addition to discipline, the teachers also indicated that they would recommend the success technique to a teacher wishing to obtain greater academic gains from his/her children. This suggests that the teachers also considered the technique effective in accelerating academic achievement.

Effects on Teachers. Nearly all of the responding teachers indicated that the technique made teaching a more pleasant job (80 per cent). More importantly, however, the teachers overwhelmingly indicated that they (a) used the principles of positive reinforcement when not monitored by the project data-gatherers and when others were not present and (b) would continue using elements of the success technique if the project were terminated.

Program Implementation. Only two of the respondents said that they found it difficult to apply the success technique consistently throughout the school day, and only one stated that there were particular times of the day, or days of the week, when implementation was especially difficult. Only one teacher indicated that a subject

or content area made implementation difficult. This teacher said that science presented some problems in implementation.

Positive Reinforcement. The teachers were somewhat split on the issue of tangible rewards. Slightly less than half maintaining that tangible rewards were necessary after the first week of implementation while the majority thought that tangible rewards were not necessary.

Nearly all of the teachers indicated that the activity room was a valuable component of the program and that their pupils responded well to activity reinforcers.

Punishment. Half of the respondents indicated that they felt punishment was necessary in the classroom. However, only 20 per cent of the teachers indicated that punishment was more effective than positive reinforcement. Only one of the respondents said that punishment was more effective in generating academic performance than positive reinforcement.

Other. The teachers were nearly evenly divided on the value of the interest stations. They indicated that they had no objection to the data-gatherers being in their room; and they felt that project staff and coordinators services were valuable and supportive.

Parent Questionnaire

Two-hundred and fifty-four of the parents of project pupils completed all or portions of the attached parents questionnaire

TABLE 13

PROJECT SUCCESS ENVIRONMENT
PARENTS' QUESTIONNAIRE

We would be grateful if you would answer the following questions about your child's experience in school this year. We need your opinion about Project Success Environment so that we can improve the project next year. Thank you for your help.

1. Has your child been happier in school this year than in past years? Yes_____ No_____

2. Have you been contacted more or less this year by your child's teacher or principal about discipline problems? More_____ Less_____

3. Is your child's behavior at home better or worse this year? Better___ Worse___

4. Do you think your child is doing better in his school work this year than he did in the past? Yes_____ No_____

5. Has your child expressed any bad feelings about being in a Project Success Environment class? Yes_____ No_____

6. Do you agree that children should be allowed to earn rewards in school if it helps them to work harder on their school work? Yes_____ No_____

7. Would you like to know more about the activities of Project Success Environment? Yes_____ No_____

8. What is your opinion of the project, based on what you may have seen or what your child may have told you?

(see Table 13). In general, the parents expressed a very positive attitude towards the project and indicated that the project had a beneficial effect on their children. They overwhelmingly indicated that their children were happier in school (87 per cent), that they were contacted less by the principal during the year about discipline problems (80 per cent), and that their child did better school work this year than in the past (76 per cent). The parents also agreed with the use of incentives in the school (98 per cent).

Principal Questionnaire

Two out of three project principals responded to an "open-ended" questionnaire given them in May, 1973 (see Table 14).

The principals said that there were fewer discipline referrals from the project classes. In commenting about their own opinions in dealing with problem children, both indicated that before exposure to Project Success Environment they believed in and utilized punishing consequences for inappropriate behavior. One principal indicated that he still used punishment in a few classes but both said that their awareness and use of positive techniques in dealing with children had increased. They also indicated that the success technique seemed to have a positive influence on students' willingness to engage in academic tasks in the classroom. Finally, they reported the most noticeable effects of the project as being:

(1) a good classroom atmosphere; (2) teacher involvement and better organization by the teachers; (3) happier kids; and (4) children more involved in their academic work.

Project Success Environment

PRINCIPAL'S QUESTIONNAIRE

1. Has the frequency and severity of discipline problems in your school been changed by the introduction of PSE and in what ways?

2. In your dealings with problem children in your school have your ideas or actions changed in the past 3 years as a result of being familiar with the success technique?

   a. State your old point of view

   b. Any changes in this point of view?

3. Has the project, in your opinion, had any effect on students' academic performance and in what ways?

4. What effects of PSE have been the most noticeable to you?

SUMMARY YEAR III

The results obtained in Year III successfully replicated those of Year II, again demonstrating that the application of the success technique produces a more reinforcing, less punitive classroom environment with few disruptions, a high degree of task involvement, and greater academic achievement than is typically produced by traditional teaching methods. Thus, we can say with confidence that the success technique provides the inner-city teacher with both an effective classroom management system and an effective program for the acceleration of academic performance.

Data obtained in project classes during Year III from systematic observation of teacher and pupil behavior at both the elementary and middle school were compared with similar data from elementary control classes collected in Year II and from middle school control classes collected in Year III. These data were graphed and comparisons clearly show both that in Year III project pupils maintained a reduced level of disruption and a high percentage of time on assigned tasks relative to controls and that project teachers in Year III reinforced with high frequency and punished with low frequency relative to controls. As expected, then, the results for Year III are consistent with those from Year II.

Since these findings had been firmly established in Year II, during Year III two other questions concerning in-class behavior were the focus of evaluation: (1) Were the results obtained for Year I

and II caused in part by the fact that observations were frequent, occurring two to four times per week in every class? and (2) Can inexperienced teachers operate as effectively as experienced teachers?

In class observations were made only twice each month during Year III. These data taken as a whole indicate that pupil behavior during the third year was as good as pupil behavior for Year II, particularly for the latter half of the school year, but that teacher behavior was altered somewhat by less frequent observation -- specifically, teachers reinforced only one half as often when they were observed infrequently. However, project teachers continued to reinforce at a much higher rate than they punished and the reduction in reinforcement frequency did not cause a change in pupil behavior from Year II to III. The results suggest, then, that the absolute number of classroom observations may be substantially reduced without adversely affecting the effectiveness of the success technique.

The behavior of teachers and pupils in classes with experienced teachers (at least one year in the project) were compared to teacher and pupil behavior in classes with inexperienced teachers. The experienced and inexperienced teachers differed little in their delivery of reinforcement and punishment. The results with respect to pupil behavior are less clearcut. Pupils in the classes of inexperienced teachers at the elementary level did as well as or better than pupils in experienced teachers' classes on both disruptions and per cent involved. On the other hand, at the middle level, pupils in classes of experienced teachers clearly out performed pupils in the classes

of inexperienced teachers. This result may be important. Project staff have observed that it is more difficult to implement the success technique with older children. By the time a child reaches sixth grade, he has had extended experience with school. If this experience has been predominantly negative rather than positive, considerable time would be required to overcome these expectations. Furthermore, the teachers of older children may need more time and experience to apply the success technique effectively to children with extended histories of failures.

Project Success Environment was successful in promoting academic achievement in Year III of its operation just as it had been in Year II. Project pupils, in general, gained significantly more in both reading and arithmetic than a comparable group of control pupils gained over the same period of time. In addition, project pupils were also successful in achieving at least one month's gain in both reading and arithmetic for each month that they participated in the project. During Year II of the project's operation, project pupils gained an average of 6.9 months on the California Achievement Test (CAT) in reading compared to the 3.4 months gained by controls. During Year III project pupils gained 7.0 months in reading compared to the 4.6 months gained by controls. Arithmetic gains made during Year III also substantiate the findings of Year II. In Year II project pupils averaged 6.5 months gain on the arithmetic section of the CAT while control pupils gained an average of 3.9 months. During

Year III project pupils gained 7.3 months in arithmetic achievement while the controls gained only 5.3 months. Thus, the findings related to academic achievement in Year III replicated the findings of Year II and further substantiates the hypothesis that Project Success does indeed improve the academic performance of both elementary and middle school pupils.

A P P E N D I X

In-Class Observations: Analyses of Variance Comparing Year II Versus Year III Behaviors

In-Class Observations: Analyses Comparing Experienced Versus Inexperienced Teachers

California Achievement Tests: Analyses of Variance Comparing Project Versus Control Gains

Comprehensive Instructional Program's Diagnostic Tests: Analysis of Variance Comparing Project Versus Control Gains

In-Class Observations: Analyses of Variance

Comparing Year II vs. Year III Behaviors

Reinforcement, Elementary School

Source	df	SS	MS	F
Mean	1	48.81	48.81	
Year	1	5.32	5.32	1.94
Blocks	2	0.41	0.21	1.75
Teachers	5	13.76	2.75	
Years x Blocks	2	0.22	0.11	0.92
Years x Teachers	5	2.75	0.55	
Teachers x Blocks	10	1.17	0.12	
Teachers x Blocks x Years	10	1.20	0.12	

Reinforcement, Middle School

Source	df	SS	MS	F
Mean	1	21.44	21.44	
Years	1	1.35	1.35	7.11**
Blocks	7	3.77	0.54	9.00***
Teachers	4	0.78	0.19	
Years x Blocks	7	0.41	0.06	0.38
Years x Teachers	4	0.30	0.08	
Teachers x Blocks	28	1.59	0.06	
Teachers x Blocks x Years	28	4.38	0.16	

Punishment, Elementary School

Source	df	SS	MS	F
Mean	1	1.60	1.60	
Years	1	0.36	0.36	0.49
Blocks	2	0.20	0.10	5.00**
Teachers	5	3.67	0.73	
Years x Blocks	2	0.45	0.22	0.92
Years x Teachers	5	1.88	0.38	
Teachers x Blocks	10	0.22	0.02	
Teachers x Blocks x Years	10	2.39	0.24	

**$p < .05$

***$p < .01$

In-Class Observations: Analyses of Variance

Comparing Year II vs. Year III Behaviors

Punishment, Middle School

Source	df	SS	MS	F
Mean	1	13.20	13.20	
Years	1	0.03	0.03	0.04
Blocks	7	1.53	0.22	0.85
Teachers	4	3.23	0.81	
Blocks x Years	7	2.48	0.35	1.21
Years x Teachers	4	2.30	0.58	
Teachers x Blocks	28	7.37	0.26	
Teachers x Blocks x Years	28	8.19	0.29	

Disruptions, Elementary School

Source	df	SS	MS	F
Mean	1	4.51	4.51	
Years	1	0.08	0.08	0.18
Blocks	2	0.04	0.02	0.50
Teachers	5	2.27	0.45	
Blocks x Years	2	0.23	0.11	1.83
Years x Teachers	5	0.15	0.03	
Teachers x Blocks	10	0.38	0.04	
Teachers x Blocks x Years	10	0.63	0.06	

Disruptions, Middle School

Source	df	SS	MS	F
Mean	1	8.16	8.16	
Years	1	0.09	0.09	0.31
Blocks	7	0.24	0.03	1.50
Teachers	4	1.15	0.29	
Blocks x Years	7	0.51	0.07	2.33
Years x Teachers	4	0.19	0.05	
Teachers x Blocks	28	0.60	0.02	
Teachers x Blocks x Years	28	0.79	0.03	

In-Class Observations: Analyses of Variance

Comparing Year II vs. Year III Behaviors

Per Cent Involved, Elementary School

Source	df	SS	MS	F
Mean	1	23.68	23.68	
Years	1	0.02	0.02	2.00
Blocks	2	0.001	0.000	0.00
Teachers	5	0.05	0.01	
Years x Blocks	2	0.06	0.03	10.00***
Teachers x Years	5	0.05	0.01	
Teachers x Blocks	10	0.08	0.018	
Teachers x Blocks x Years	10	0.03	0.003	

Per Cent Involved, Middle School

Source	df	SS	MS	F
Mean	1	62.44	62.44	
Years	1	0.02	0.02	5.00*
Blocks	7	0.07	0.01	2.00
Teachers	4	0.18	0.04	
Years x Blocks	7	0.04	0.006	3.00*
Teachers x Years	4	0.01	0.003	
Teachers x Blocks	28	0.15	0.005	
Teachers x Blocks x Years	28	0.07	0.002	

*$p < .10$

***$p < .01$

In-Class Observations:

Analyses of Variance on the Effects of

Experienced Vs. Inexperienced Teachers

Reinforcement

Source	df	SS	MS	F
Experience	1	3.25	3.25	2.62
Grade	1	6.39	6.39	5.14
Experience x Grade	1	- 0.36		
Error	11	13.63	- 0.36	-0.29
Blocks	7	4.63	1.24	6.29
Experience x Blocks	7	0.41	0.66	0.55
Grade x Blocks	7	1.29	0.06	1.75
Grade x Experience x Blocks	7	1.01	0.14	1.37
Error	77	8.10	0.11	

Punishment

Source	df	SS	MS	F
Experience	1	0.39	0.39	0.62
Grade	1	3.34	3.34	5.36
Grade x Experience	1	0.49	0.49	0.78
Error	11	6.84	0.62	
Blocks	7	1.00	0.14	0.41
Experience x Blocks	7	7.24	1.04	3.00
Grade x Blocks	7	1.13	0.16	0.47
Grade x Experience x Blocks	7	2.83	0.40	1.17
Error	77	26.55	0.34	

In-Class Observations:

Analyses of Variance on the Effects of

Experienced Vs. Inexperienced Teachers

Disruptions

Source	df	SS	MS	F
Experience	1	7.47	7.47	21.47
Grade	1	2.47	2.47	7.00
Grade x Experience	1	14.94	14.94	42.97
Error	11	3.82	0.35	
Blocks	7	2.05	0.29	2.52
Blocks x Experience	7	2.01	0.29	2.48
Blocks x Grades	7	1.43	0.20	1.75
Blocks x Grades x Experience	7	1.16	0.17	1.43
Error	77	8.95	0.12	

Per Cent Involved

Source	df	SS	MS	F
Experience	1	0.13	0.13	3.01
Grade	1	0.08	0.08	1.75
Grade x Experience	1	0.67	0.67	15.12
Error	11	0.49	0.04	
Blocks	7	0.65	0.01	1.01
Blocks x Experience	7	0.04	0.01	0.69
Blocks x Grades	7	0.06	0.01	0.95
Blocks x Grades x Experience	7	0.05	0.01	0.83
Error	77	0.71	0.01	

CALIFORNIA ACHIEVEMENT TESTS: ANALYSES OF VARIANCE COMPARING PROJECT VS. CONTROL GAINS

Arithmetic (Grades 2-6)

Source	SS	df	MS	F
Treatment (T)	2.44	1	2.44	8.71**
Grade (G)	6.66	4	1.67	5.96**
Sex (S)	2.76	1	2.76	9.86**
T x G	1.79	4	0.45	1.61
T x S	0.00	1	0.00	0.00
G x S	0.81	4	0.20	0.71
T x G x S	2.11	4	0.53	1.89
Within Cell	117.38	419	0.28	
Total	133.94	438		

Arithmetic (First grade)

Source	SS	df	MS	F
Treatment (T)	0.19	1	0.19	1.05
Sex (S)	0.19	1	0.19	1.05
T x S	0.00	1	0.00	
Within Cell	13.62	74	0.18	
Total	14.00	77		

**$p < .01$

CALIFORNIA ACHIEVEMENT TESTS: ANALYSES OF VARIANCE COMPARING PROJECT VS. CONTROL GAINS

Reading (Grades 2-6)

Source	SS	df	MS	F
Treatment (T)	2.44	1	2.44	10.17**
Grade (G)	3.25	4	0.81	3.38**
Sex (S)	1.95	1	1.95	8.13**
T x G	3.58	4	0.90	3.75**
T x S	0.00	1	0.00	0.00
G x S	1.95	4	0.49	2.04
T x G x S	1.95	4	0.49	2.04
Within Cell	101.30	419	0.24	
Total	116.42	438		

Reading (First grade)

Source	SS	df	MS	F
Treatment (T)	2.67	1	2.67	11.12**
Sex (S)	0.76	1	0.76	3.17
T x S	0.76	1	0.76	3.17
Within Cell	17.90	74	0.24	
Total	22.09	77		

**$p < .01$

COMPREHENSIVE INSTRUCTIONAL PROGRAM'S
DIAGNOSTIC TESTS PASSED
PROJECT VS. CONTROL

Grades 1-3

Source	SS	df	MS	F
Treatment (T)	1.26	1	1.26	0.13
Grade (G)	107.99	2	54.00	5.76**
Sex (S)	0.00	1	0.00	0.00
T x G	2.90	2	1.45	0.15
T x S	21.34	1	21.34	2.28
G x S	9.09	2	4.55	0.49
T x G x S	42.69	2	21.35	2.28
Within Cell	1,501.00	160	9.38	
Total	1,686.27	171		

**$p < .01$