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STANDARDIZED CLASSROOM MANAGEMENT PROGRAM: SOCIAL VALIDATION AND REPLICATION STUDIES IN UTAH AND OREGON

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A comprehensive validation study was conducted of the Program for Academic Survival Skills (PASS), a consultant-based, teacher-mediated program for student classroom behavior. The study addressed questions related to: (a) brief consultant training, (b) subsequent teacher training by consultants using PASS manuals, (c) contrasts between PASS experimental teachers and students and equivalent controls on measures of teacher management skills, student classroom behavior, teacher ratings of student problem behaviors, and academic achievement, (d) reported satisfaction of participants, and (e) replication of effects across two separate school sites. Results indicated that in both sites significant effects were noted in favor of the PASS experimental group for (a) teacher approval, (b) student appropriate classroom behavior, and (c) four categories of student inappropriate behavior. Program satisfaction ratings of students, teachers, and consultants were uniformly positive, and continued use of the program was reported a year later. Discussion focused upon issues of cost-effectiveness, differential site effects, and the relationship between appropriate classroom behavior and academic achievement.

DESCRIPTORS: Classroom control and discipline, group contingencies, group reinforcement, behavior management programs, program evaluation, social validation, children

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The Program for Academic Survival Skills (PASS) is a standardized behavior intervention package for use in educational settings during academic instruction. The program is comprised of three comprehensive program manuals for *consultant trainer* (Greenwood, Guild, & Hops, Note 1), *consultant* (Greenwood, Hops, Delquadri, & Walker, Note 2), and *teacher* (Greenwood, Delquadri, Hops, & Walker, Note 3) which describe the program's basic operation. The package also includes a filmstrip-cassette overview, a clock-and-light recording instrument, a transparency packet to accompany the consultant trainer manual, a consumable materials packet containing the materials required for one program implementation, and a manual for

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training observers (Greenwood, Stokes, & Hops, Note 4) for purposes of outside evaluation of the program effects.[1]

The program is a group contingency/group consequence management system that is implemented by the classroom teacher as a result of 6 training sessions and 17 consultant classroom visits (Greenwood, Hops, Delquadri, & Guild, 1974). The teacher learns to: (a) develop a list of behavior rules that are incompatible with student competing behaviors and designed to facilitate academic engagement (academic survival skills); (b) record group survival behavior using a clocklight instrument (Packard, 1970; Willis & Crowder, 1972); (c) set up a PASS bulletin board to include the list of rules, group rewards, and recording materials on which daily class performance is graphically displayed; (d) use contingent group consequences and teacher praise to increase group survival behavior; (e) produce maintenance by thinning the group consequence schedule and fading program materials from the PASS bulletin board following attainment of an 80% performance level; and (f) effect generalization to other instructional settings by introducing rules and contingent praise for student behavior in the new setting.

PASS evolved from recent studies of group behavior change procedures (Herman & Tramontana, 1971; Long & Williams, 1973; Medland & Stachnik, 1972; Packard, 1970; Schmidt & Ulrich, 1969; Willis & Crowder, 1972). The program developed through a specific series of investigations. First, significant positive correlations were demonstrated between specific classroom behaviors (i.e., attending to task) and standardized achievement (Cobb, 1972; Note 5). Next, group-based interventions produced improvement in students' survival behaviors and standardized achievement test performance (Cobb & Hops, 1973; Greenwood, Hops, & Walker, 1977b; Hops & Cobb, 1973, 1974; Walker & Hops, 1976a). The sufficient components for group behavior change (i.e., classroom rules plus behavior feedback plus contingent group consequences) were analytically determined (Greenwood et al., 1974), and maintenance of behavior change following removal of program procedures was demonstrated at 3 weeks (Greenwood et al., 1974) and 9 weeks (Greenwood, Hops and Walker, 1977a), respectively, using thinning and stimulus fading. Studies investigating generalization of teacher and student behavior were also completed (Greenwood & Hops, Note 6), and teacher praise and student behavior rules were demonstrated as sufficient components for programming teacher and student generalization to nonintervention settings (Hops, Greenwood, & Guild, Note 7). A set of 2-day workshop procedures for training PASS consultants was also pilot tested, resulting in successful program implementation by seven teachers (Greenwood, Guild, Hughes, Simpson, & Virtue, Note 8).

Currently there is a wide interest in large-scale validation of technological offshoots of applied behavior analysis (Greenwood et al., 1977b). In addition to evaluating the external and social validity of such technological advances, researchers have become increasingly concerned with measures of subjective evaluation and consumer satisfaction, areas traditionally not addressed in behavior analytic research (Baer, 1971; Sidman, 1960).

At the level of packaged behavioral programs, it has become feasible to carry out large-scale group evaluations (Hops, Walker, Fleischman, Nagoshi, Omura, Skindrud, & Taylor, 1978; Kent & O'Leary, 1976, 1977) in which the external validity or representativeness of treatments effects is estimated over subjects and settings (Campbell & Stanley, 1963).

Social validation (Kazdin, 1977) has been described as the objective evaluation of behavior

[1]The complete PASS program package or information about it may be ordered from the Center at Oregon for Research in the Behavioral Education of the Handicapped, 1590 Willamette Street, Eugene, Oregon 97403. Inquires about clocklights and interval timers used in this study can be obtained from Richard Schram, RCS Enterprises, 2287 Olive Street, Eugene, Oregon 97401.

change within the framework of either peer normative data or the performance of equivalent control group subjects. As discussed by Walker and Hops (1976b), the use of peer normative data allows one to estimate the practical importance of the change produced by intervention. Effective programs will bring behavior within the normal range. Control groups provide an estimated rate of change for subjects due to uncontrolled conditions in their immediate environment. Ideal programs will change behavior significantly beyond control group performance and into performance ranges of the normative sample.

Subjective evaluation utilizes the reports of persons involved in the program or in a position to casually observe behavior change. These global measures (e.g., teacher and/or parent surveys or ratings) serve to expand the validity of objective measures of behavior change by reflecting a set of events not necessarily included in the behavioral measures (Kazdin, 1977).

Consumer satisfaction with behavioral programs is also used to establish the social importance of the technology. Its purpose is to provide information for selecting among alternative forms of effective behavioral interventions and/or modifying existing procedures to better suit consumer preferences (Wolf, 1978).

Some behavioral programs have been submitted to these aspects of validation in their development and dissemination. These include: (a) Achievement Place, *The Teaching Family Handbook* (Phillips, Phillips, Fixsen, & Wolf, 1972; Jones, Note 9), a program for the residential treatment of children with delinquent behaviors; (b) the Oregon Social Learning Group's model for the treatment of the aggressive child in the home and the school—*A Social Learning Approach to Family Intervention* (Patterson, Reid, Jones, & Conger, 1975); (c) a program manual for the outpatient child therapist working with children (Kent & O'Leary, 1976); and (d) the CLASS program (Hops, Beickel, & Walker, Note 10) developed at the Center at Oregon for Research in the Behavioral Education of the Handicapped (CORBEH) for children with acting-out behavior in the school setting. To date, few of these programs have reported results of large-scale replication studies across sites and settings (Hops et al., 1978; Hops, Walker, Fleischman, Stokes, & Greenwood, Note 11).

The purpose of this paper is to report the results of a systematic field test of the PASS program. This study was performed to evaluate the standard PASS training package, a 2-day intensive workshop for teacher consultants, conducted independently in two separate school sites. The specific questions addressed were:

1. Could consultants trained in a 2-day workshop by the authors, using prepared program manuals and materials, select appropriate classrooms and train teachers to successfully implement the PASS program?
2. Could teachers trained in the PASS program by consultants successfully implement PASS in their classrooms during reading and/or mathematics instruction?
3. In contrast to equivalent control subjects in the natural settings and local normative data, would PASS teachers and students significantly improve their performances on measures of observed teacher skill, observed student behavior, teacher ratings of student behavior problems, and academic achievement?
4. Would the PASS group report satisfaction with the program during and following its implementation up to 1 year later?
5. Would these results be sufficiently powerful to demonstrate replication of effects across two geographically separate school sites in the Western United States?

METHOD

Settings and Participants

Sites. Two separate sites were involved in this evaluation study. Site I included three school districts in the state of Utah; Site II was an Intermediate Education School District near Portland, Oregon.

Consultants. A total of 25 consultants across both sites participated in the study. The 11 Utah consultants were resource teachers. In Oregon, 12 of the 14 consultants in Oregon were elementary school counselors or behavior specialists with master's degrees and 2 were counselor assistants (paraprofessionals) without college degrees.

Teachers. Fifty regular classroom teachers also participated in the study. The 21 teachers at Utah were from 7 different schools; 29 Oregon teachers represented 12 schools.

Class and student selection. A total of 50 regular classes enrolling approximately 1,144 students participated. Grades 1, 2, 2/3, and 3, were represented by 23, 8, 2, and 17 classrooms, respectively. Following consultant PASS training, each consultant was required to select two classrooms whose teachers were willing to participate and that met the following criteria: (a) less than 50% collective group appropriate behavior during either reading and/or mathematics periods, and (b) containing at least one child identified by district records as qualifying for special education services (learning disabilities or emotional disturbance) and currently being served in mainstream regular classroom settings. The majority of these students were full time in the regular classroom.

Each pair of classes identified by a single consultant trainee was randomly assigned by coin toss to PASS experimental and to No-PASS control group conditions for the remainder of the study. In Utah, there were 11 experimental and 10 control classrooms; in Oregon, 15 experimental and 14 control. One consultant in Oregon contributed and trained an additional experimental teacher. One Utah consultant could not locate a second classroom that qualified.

Next, each teacher was asked to subjectively rank order the students in their classes based upon their (a) relative rates of attending to task and work performance and (b) predicted performance on standardized achievement tests. Based on the composite of these two rankings, the low-ranked 11 students plus the mainstreamed student were selected. These students received individual behavior observations and teacher checklist ratings in each class.[2]

Student group classifications. Four distinct student group classifications were created for purposes of data collection and later analysis. The *target 12* group comprised the 11 lowest teacher-ranked students in the class plus the "mainstreamed" target. The *lowest target* group were the students (one per class) with the lowest appropriate behavior score before intervention. The *mainstreamed target* group were the students (one per class) who qualified for special education services. The specific status of this mainstreamed group included 28 students who had been certified as "emotionally disturbed" or "learning disabled" according to local district policy, 6 who had been referred for serious behavior problems, and 12 who were receiving remedial instruction in reading and/or mathematics. The remaining 4 students were receiving remedial instruction from another teacher in either a resource room or the regular classroom setting at times during the day. The *collective* group included all students in the class.

Academic settings. Reading and/or mathematics instructional periods were the locus of the present study. Consultants were encouraged to select classrooms in which behavior was problematic in both reading and mathematics. The program was implemented, however, only in settings where observations indicated group appropriate behavior below 50%. Data were collected in reading only, in mathematics only, and in both reading and mathematics for 24, 6, and 20 classrooms, respectively. Teachers generally reported using district-adopted texts as their major curricula in addition to their own materials.

Experimental Design

A covariance design with repeated measures was used to evaluate the effects of PASS at each

[2]Only 12 students were observed in each classroom to maximize the number of minutes of observed data for each subject.

site (Kirk, 1968). The PASS experimental group teachers in each site were trained to implement the program by their respective consultants; the No-PASS group received no training in the program. The following measures were obtained for both the experimental and control groups. Behavioral observations were recorded prior to teacher training (*pre*), during the program (*during*), and at the end of the school year (*post*). In the Utah site, the opportunity arose to record two *during* measures at early (*during I*) and late (*during II*) portions of the intervention. Achievement testing and behavior ratings occurred at the *pre* and *post* phases only. In all later analyses, the preintervention phase measure served as the covariate.

Behavioral Observation Measures

Direct observation of students and teachers in the classroom setting was obtained by an observer team in each site using the PASS coding system (Greenwood, Stokes, & Hops, Note 4), a 17-category, 10-sec interval time sampling system. Separate behavior codes allowed recording of 11 student behavior categories, 4 teacher responses, and a dichotomous category of collective appropriate/inappropriate group behavior (See Table 1). Observer recordings were made on optical scanning coding sheets. All observation data in this study were machine read, eliminating human scoring errors (Rusch, Walker, & Greenwood, 1975).

Observers' recordings were paced by an auditory electronic timer built into clipboards used to hold observation booklets. In the first 5 sec of the 10-sec interval, the target subject's ID number, the structure of the setting (i.e., group, individual, or transition), and the behavior of the target child was coded. In the next 5 sec, the observer recorded the behavior of the teacher and the behavior of the entire class unit. In the second 10-sec interval, the ID, classroom structure, and a second target subject, and again the behavior of the teacher and the group was recorded. Using this sampling procedure, in each 2-min block, the 12 individual target subjects were coded 1 time each, and the teacher and class 12 times each. Coding ceased at the end of the instructional period.

In each measurement phase, a minimum of 8 min of data over at least 3 school days were collected for each student in each academic period involved. Previous studies had demonstrated this procedure to yield stable average estimates equivalent to estimates based on 11 days (Hops, Greenwood, & Stokes, Note 12). In the Utah site, the average student was observed for 16 to 18 min in each phase. In the Oregon site, the equivalent time observed was 11 to 13 min. No experimental-control group differences were noted in the amount of observed time.

Observer selection and training. Observers in each site were community people responding to an advertisement in the local papers or to posted job descriptions. They were administered a videotape screening test developed for observer selection (Stokes & Hops, Note 13). Applicants were presented with a visual array of coding letters which they were to code on a sample data sheet. Over trials, the rate of array presentation reached and exceeded the optimal speed required for actual observation and recording. Using this test, the number of observer applicants was reduced from approximately 20 in each site to 12 and 14 in Sites I and II, respectively.

Screened observers were trained to use the PASS observation system in a 5-day workshop conducted in each site. Observers were retrained 3 to 5 days before each observation phase. Initial training consisted of the following steps: (a) reading the PASS Observer's Manual, (b) passing a written mastery exam on the code definitions and coding procedure, (c) identification of specific behavior codes from videotape sequences of teacher-child classroom behavior, (d) coding videotaped classroom behavior sequences, (e) generating reliability summaries after simultaneous coding with a peer, and (f) observation in actual classroom settings. Observers demonstrated repeated 85% agreement on videotape tests and on at least one 8-min check in the regular class.

Table 1
Code Categories

STUDENT CODE SUMMARIES

Attending (AT)
The student must be (a) looking at the teacher when the teacher is talking, (b) looking at materials in the classroom that have to do with the lesson, or (c) be engaged in other looking behavior appropriate to the academic situation.

Working (WK)
The student is working on academic material without any overt verbal components either in a group or in individual seatwork situations.

Volunteering (VO)
By verbal or nonverbal means, the student responds to teacher requests by volunteering information of an academic nature.

Reading Aloud (RA)
The student is reading aloud either individually or as a part of a group recitation.

Appropriate Behavior (AB)
This is a broad category used to code appropriate behavior not otherwise specifically defined, including asking or answering questions, raising hand for help, acquiring or passing out materials.

Interaction with Peer about Academic Materials (IP+)
The student is interacting with a peer or peers about academic materials and is not violating classroom rules. Verbal communications between peers, e.g., talking, handing materials, working together on academic materials, etc., were coded IP+.

Interaction with Peer about Nonacademic Materials (IP−)
The student is interacting with a peer about academic materials inappropriate for the period in which the observation occurs (unless this has been approved by the teacher), or about nonacademic material. The interaction may be verbal or nonverbal.

Don't Know (DK)
The child indicates, in either a verbal or nonverbal manner, that he does not know the answer.

Inappropriate Locale (IL)
The child, without the teacher's approval, is in a classroom area that is not appropriate for the academic activity that is going on at the time.

Look Around (LA)
The child is looking away from the appropriate academic task at hand.

Inappropriate Behavior (IB)
This is a second board category used to code inappropriate behaviors not otherwise defined. Illustrations include situations where the child calls out an answer when a question is directed to another student, or interrupts the teacher or another student who is talking.

TEACHER CODE SUMMARIES

Approval (AP)
The teacher gives a clear verbal, gestural, or physical approval to the student or to the group of which the student is a member.

Disapproval (DI)
The teacher gives clear verbal, gestural, or physical disapproval of the child's behavior either individually or as part of a group.

No Response (NR)
The teacher does not respond to the student either as a part of the group or individually.

Verbal Interaction (VI)
Verbalizations directed at the subject or his group which are not approvals or disapprovals. Verbalizations relating to instruction or management.

CLASS CODE SUMMARIES

Appropriate Behavior (AB_g)
The entire class (all students) is engaged in activities that are considered appropriate to the situation as defined by the teacher's rules and the activity at hand.

Inappropriate Behavior (IB)
At least one student in the class is observed engaged in behaviors not considered appropriate according to the teacher's rules and the activity at hand.

Interobserver agreement. Agreement on behavior codes was monitored using the percent agreement method. Randomly assigned observer pairs simultaneously observed the same students for the length of 1 8-min coding booklet, i.e., 48 10-sec intervals. Agreement checks were carried out on a daily basis in the *pre* phase and on an alternate day basis during all subsequent observation phases. Interval-by-interval agreements were recorded for all items coded within each 10-sec interval, i.e., student ID, class structure, student behavior, teacher behavior, and class group behavior.

Agreement on all items was computed by dividing the number of agreements by 240 (48 intervals × 5 items per interval). Percent agreement phase averages ranged from 95% to 98% for Utah and 90% to 94% for Oregon. In a

second analysis, the number of agreements for student behavior, teacher behavior, and class behavior were each divided by 48 (one per interval). Students behavior produced the broadest range of agreements from a low average of 81% at *pre* in Oregon to a high average of 98% at *during II* in Utah.

Measures of Social Adjustment and Achievement

Walker Problem Behavior Identification Checklist (WPBIC). The WPBIC contains 50 items (Walker, 1970) and was completed for each target subject by the classroom teacher. The checklist was originally normed on a sample of 534 intermediate grade-school students. A total adjustment score (the more items checked, the more problematic the child's behavior) discriminates between referred and nonreferred students.

The Gates-MacGinitie Reading Test. The Gates-MacGinitie Reading Test is a group-administered standardized reading achievement test with both vocabulary and comprehension scales (Gates & MacGinitie, 1972).

The Wide Range Achievement Test (WRAT). The WRAT is a group and/or individual standardized achievement test for reading, spelling, and mathematics (Jastak & Jastak, 1965). Only the Level I mathematics test was used in this study. The written section of the test was group administered to all; the oral section, additionally, to all first-graders and any others scoring less than 5 points on the written section.

The Gates-MacGinitie and WRAT achievement tests were administered in each site by 4 or 5 persons hired specifically to administer tests. Tests were administered only in the math or reading setting in each class which fell below the 50% group behavior criterion. University graduate students who had completed testing courses were used in the Utah site, and unemployed teachers familiar with the instruments were used in the Oregon site. Testers were naive to all aspects of the study. *Pre-post* test and checklist administrations were approximately 70 to 80 school days apart.

Participant Satisfaction Scales

Student evaluation of PASS. The student's evaluation of PASS was based on a 13-item questionnaire administered to each experimental class group by the consultant (Greenwood & Guild, Note 14). The instrument was administered at the *during I* phase in the Utah site and the *during* phase in Oregon.

Teacher evaluation. The teacher's evaluation was administered only to the PASS teacher group. It consisted of 22 5-point Likert scale items related to interactions with the consultant, training, the PASS manuals, effects noted for students, and general satisfaction.

Consultant evaluation. The consultant PASS evaluation included items covering consultants' training, evaluations of the consultant manual and of teacher training components, and satisfaction with the program. Teacher and consultant evaluations were administered at the *post* phase.

Follow-up questionnaires. Two follow-up questionnaires, one in October and one in May, were mailed to consultants and teachers in the next academic year. The questionnaires requested information on the continued use of and satisfaction with the program. The return rate on the questionnaire was approximately 60% in both sites.

Procedures

Consultant training. At each site, consultant groups were trained to use the PASS program in a 2-day workshop directed by the first and fourth authors. Training for consultants involved: (a) prior reading of the PASS manuals, (b) mastery test exercises over program manual materials, (c) didactic presentation, and (d) role playing of specific procedures.

On Day 1, the major topic was the teacher's manual. Major areas covered were: (a) the survival skill concept, program, and research results; (b) specifying survival skill rules; (c) recording group survival skills; (d) using group consequences; (e) using teacher approval; (f) maintaining the effects of the program; and (g)

generalizing the program to other academic periods.

Day 2 was devoted to problems related to the consultant manual. Topics were: (a) handling a referral, including an observational assessment and teacher interview; (b) observing, graphing, and interpreting graphed data; (c) personal and social skills; (d) conducting teacher-training meetings; (e) implementing the program; and (f) common problems.

The trainers had no further contact with consultants following training until the end of that school year, when a report of preliminary results was made to both teachers and consultants in both sites.

Consultants in both sites were supervised by an on-the-site project coordinator who handled communications with principals, teachers, parents, and implementation questions regarding the program when they arose. Coordinators were instructed to direct all implementation questions to the PASS manuals for solution and to keep a record of problems referred to them. The coordinators furnished consultants with a checklist which delineated implementation steps with completion dates. This was done to insure timely referral, selection, teacher training, and required classroom visits to assist the teacher to implement the program.

A data collection coordinator, hired from the observer group in each site, was responsible for activities of the separate observer and tester teams. Coordinators were naive with respect to the experimental aspects of the study. Each coordinator arranged schedules of observations and testing with teachers in the local schools and was directly responsible to an on-site project coordinator and to the authors, who jointly monitored data operations. Questions from teachers and principals about observation and testing procedures and so forth were referred to the on-site project coordinator. In both sites, the project coordinator was affiliated with the local schools in which PASS was being used. In each site, the observer-tester teams were housed in separate office facilities away from the schools in which they were collecting data. Both observers and testers were specifically cautioned not to spend time in the faculty lounge while in the schools and not to discuss the project with school personnel. Observers were also instructed on how to be nonreactive when in the classroom, specifically by limiting their interaction with both teacher and students.

Payment contingencies for consultant implementation. Stipends were paid to consultants to insure implementation. Amounts paid differed across sites in accordance with local estimated pay scales. Payments were made to each consultant in the following amounts after: (a) selection of two classrooms meeting criteria (Utah $50, Oregon $50), (b) PASS Program Day 8 in which all components were introduced (Utah $40, Oregon $100), (c) During II phase in Utah only ($40), and (d) the *post* observation phase (Utah $40, Oregon $100).

Teacher training. The PASS teacher was taught to use the program in 6 standard 2-hr meetings (12 hr) with their consultant covering 6 units in the teacher's manual. The consultant also made a minimum of 17 20-min visits to the classroom to assist the teacher in implementing new steps and to provide prompts, corrective feedback, and praise.

In the first three meetings, the teacher read and discussed with the consultant the rationale and prior results of the program, principles and procedures for developing survival skill rules for their classroom, and observations using the clocklight to record group survival skills during instruction. Next, teacher baseline recording of group behavior was initiated in the classroom using the clocklight instrument—a clock and light wired in series and operated by a telemetric switch worn by the teacher. When the entire class was engaged in survival skill behavior, the teacher switched the clocklight to the on position, the light came on providing feedback, and the clock, set at 12, began recording the duration of group behavior. Each time at least one child

was observed engaged in competing behaviors, the teacher switched the clocklight to the off position, the light went out, and recorded time stopped. When the group was again engaged in survival skills, the clocklight was reactivated. At the end of the instructional session, a percentage score was computed by the teacher reflecting the proportion of time the group was engaged in the survival skills. This score was graphed and served as the criterion for awarding group consequences. Observer reliability between teacher and consultant observations was demonstrated during the baseline period. As described in the PASS consultant's manual, the consultant made simultaneous observations with the teacher using a stopwatch. These teacher and consultant data served as part of the PASS intervention and are not presented in the report.

Next, a sequence of program components designed to modify student behavior was introduced in Teacher Meetings 4 and 5. These were: (a) presentation and roleplaying of survival skill rules; (b) instructions connecting the rules, the clocklight, and group reinforcement contingencies; (c) the delivery of contingent group consequences; and (d) teacher approval. Maintenance procedures were taught in Teacher Meeting 6 and were implemented following acquisition of group appropriate behavior level to 80%. This was done by increasing the number of 80% sessions required for a single group consequence, increasing the magnitude of the consequence (type and length of activity), and removing program materials from the PASS bulletin board according to a preestablished schedule.

Payment contingencies for teacher implementation. Stipends were also provided for teachers to insure implementation of the program and completion of data collection. Amounts were again decided on a local basis and were made equally to experimental and control teachers within each site. Payments were made following: (a) *during I* (Utah $90) -during (Oregon $100), (b) *during II* (Utah $60) and *post* (Utah $25, Oregon $100) phases.

RESULTS

Data from each site were analyzed by using an analysis of covariance for repeated measures and unequal *N*.[3] In all cases, the *pre* phase scores were used as the covariate to control for any preexisting group differences. The number of scores in each analysis were the number of classrooms for which data were available. The adjusted (for *pre* scores) and unadjusted phase means for teacher behavior, group student appropriate behavior, and individual student behavior categories are presented in Tables 2, 3, and 4, respectively, and represent the average percentage of observed intervals per phase. Analyses were conducted separately for the *target 12,* the *lowest* targets, the *mainstreamed* targets, and the *collective* group. Since these student classifications were not independent, that is, 17 of the 50 students *lowest* in appropriate behavior were also in the *mainstreamed* group and both *lowest* and *mainstreamed* targets in each class were included among the *target 12,* comparisons across student classification groups were not made.

Effects for Teacher Behavior

Utah. Covariance analysis indicated a significant treatment effect for Approval only, $F(1,18) = 20.77$, $p < .001$. No phase or interaction effect was noted. The experimental teachers were significantly higher (5%) than controls (1%) across all phases.

Oregon. As in the Utah site, a significant treatment effect for Approval was noted, $F(1,26) = 26.62$, $p < .001$. Approval accounted for nearly 10% of the Oregon experimentals' total observed intervals *during* the program, with only a slight reduction at *post* (8%), in contrast to a stable 1% across phases for controls. The Oregon PASS teachers' approval level was nearly twice that of the Utah experimental teachers.

[3]Analyses were computed using the UCLA Health Services BMDP2V (Dixon, 1975).

Table 2

Adjusted and Unadjusted Phase Means for Teacher Behavior Categories

		Utah[a]							*Oregon*[b]				
			Unadjusted means			*Adjusted means*				*Unadjusted means*		*Adjusted means*	
Teacher's behavior	*Condition*	*Covariate (PRE)*	*During I*	*During II*	*Post*	*During I*	*During II*	*Post*	*Covariate (PRE)*	*During I*	*Post*	*During I*	*Post*
Approval	E	01.9	05.9	05.0	05.3	05.7	04.8	05.1	00.9	09.6	08.0	09.9	08.3
	C	*01.3*	*01.2*	*01.0*	*01.3*	*01.3*	*01.2*	*01.2*	*01.6*	*01.2*	*01.4*	*00.8*	*01.0*
Disapproval	E	00.7	00.3	00.3	00.7	00.6	00.6	01.0	01.5	00.7	00.8	00.7	00.8
	C	*01.4*	*01.6*	*01.8*	*01.5*	*01.3*	*01.4*	*01.2*	*01.6*	*01.8*	*02.1*	*01.8*	*02.1*
Verbal interaction	E	34.5	35.1	36.9	34.2	35.0	36.8	34.1	55.2	49.8	50.7	48.8	49.8
	C	*34.2*	*36.5*	*32.9*	*34.7*	*36.7*	*33.0*	*34.8*	*52.4*	*51.9*	*52.7*	*52.9*	*53.8*
No response	E	62.9	58.7	57.8	59.7	58.7	57.9	59.8	42.4	39.9	40.5	40.5	41.2
	C	*63.1*	*60.7*	*64.4*	*62.8*	*60.6*	*64.4*	*62.8*	*44.4*	*45.1*	*43.8*	*44.4*	*43.1*

[a] $n = 11$ Experimental, $n = 10$ Control.
[b] $n = 15$ Experimental, $n = 14$ Control.

At Oregon, the treatment effect for Disapproval was also significant, $F(1,27) = 9.64$, $p < .005$, experimental teachers dispensing half the number used by controls.

Effects for Student Appropriate Behavior

Utah. Individual student appropriate behavior scores for the *target 12, lowest target,* and *mainstreamed target* were formed using a composite of the following a priori determined appropriate behavior codes [(AT + WK + VO + RA + AB + IP$^+$/total intervals) × 100]. In the *target 12* comparison, the 12 target subjects' scores in each class were averaged to form a mean class score to be entered in the analysis. For the *lowest* and *mainstreamed targets,* the individual's composite score (one student per class) served as the unit of analysis.

Covariance analysis indicated a significant treatment effect for all three comparisons: *tar-*

Table 3

Adjusted and Unadjusted Phase Means for Student "Appropriate" Behavior Measures

		Utah[a]							*Oregon*[b]				
			Unadjusted means			*Adjusted means*				*Unadjusted means*		*Adjusted means*	
Variable	*Condition*	*Covariate (PRE)*	*During I*	*During II*	*Post*	*During I*	*During II*	*Post*	*Covariate (PRE)*	*During*	*Post*	*During*	*Post*
Target 12	E	77.2	87.7	84.7	82.4	87.2	84.2	82.0	74.8	87.1	85.2	88.0	86.2
	C	*75.9*	*78.7*	*79.1*	*75.1*	*79.1*	*79.6*	*75.5*	*78.3*	*78.4*	*78.8*	*77.4*	*77.8*
Lowest target	E	64.1	86.8	83.8	81.6	85.2	82.3	80.0	56.4	85.5	84.3	85.8	84.7
	C	*58.3*	*67.6*	*72.2*	*68.5*	*59.2*	*73.9*	*70.2*	*60.2*	*78.3*	*75.0*	*78.0*	*74.6*
Mainstreamed target	E	69.8	87.5	83.7	81.8	87.7	83.8	81.0	74.2	87.1	84.0	87.0	83.8
	C	*70.8*	*74.7*	*74.6*	*69.9*	*74.5*	*74.4*	*69.7*	*71.5*	*73.3*	*76.5*	*73.4*	*76.7*
Collective group	E	30.0	53.9	56.9	44.9	56.3	59.3	52.3	23.8	57.3	44.3	60.5	47.5
	C	*36.4*	*35.0*	*37.2*	*32.5*	*32.4*	*34.6*	*29.9*	*34.2*	*30.7*	*28.6*	*27.2*	*25.1*

[a] $n = 11$ Experimental, $n = 10$ Control.
[b] $n = 15$ Experimental, $n = 14$ Control.

get 12, $F(1,18) = 43.66, p < .001$; *lowest target,* $F(1,18) = 37.75, p < .001$; and the *mainstreamed target,* $F(1,18) = 15.13, p < .001$. Only in the *target 12* comparison was the main effect for phases also significant, $F(2,38) = 10.45, p < .001$. No significant interaction effects were noted.

The *collective group* comparison was based on the dichotomously coded appropriate group measure recorded by observers, i.e., the number of intervals the collective group was coded appropriate divided by the total number of intervals observed. A significant treatment effect was also indicated on this measure, $F(1,18) = 30.53$, $p < .001$. No other effects were significant.

The adjusted mean gains of experimentals over controls across phases ranged from 5% to 8% for the *target 12,* from 8% to 16% for the *lowest target,* and from 9% to 13% for the *mainstreamed target* groups. The *collective group* comparison demonstrated experimental group differences ranging 22% to 25% over controls.

Oregon. Significant main effects for treatment favoring the experimentals were noted here for all four student group analyses replicating the Utah results: *target 12,* $F(1,26) = 23.57, p < .001$; *lowest target,* $F(1,26) = 9.55, p < .005$; *mainstreamed target,* $F(1,22) = 10.11, p < .004$;[4] and the *collective group,* $F(1,26) = 15.47, p < .001$. Only in the *collective group* analysis was the phase effect also significant, $F(1,27) = 7.20, p < .01$, as both experimental and control groups tended to drop from the *during* to *post* measurement phases. This replicated similar but nonsignificant drops for both Utah experimental and control groups. No significant interaction effects were noted.

Experimental group means in Oregon were 11% and 8% greater than controls for the *target 12,* 8% and 10% for the *lowest target,* and 14% and 7% for the *mainstreamed* target at *during I* and *post,* respectively. Equivalent values for the *collective group* measure indicated differences of 33% and 22% for experimentals over controls.

Effects for Specific Student Behavior Categories

Utah. Specific student behavior codes were separately analyzed for the *target 12* only. Treatment effects were located for Attending, experimental group means being significantly greater than controls across phases, $F(1,18) = 6.38$, $p < .02$. Significant treatment effects were also noted for Inappropriate Behavior, $F(1,18) = 4.25, p < .05$; Interaction with Peer about Nonacademic Materials, $F(1,18) = 23.48, p < .001$; Inappropriate Locale, $F(1,18) = 16.98, p < .001$; and Look Around, $F(1,18) = 6.64, p < .02$. PASS group means for these behaviors were lower than those of the control group. Phase effects were also significant for Inappropriate Behavior, $F(2,38) = 3.58, p < .04$, and Look Around, $F(2,38) = 9.04, p < .001$. No interaction effects were significant.

Oregon. At Oregon, Work demonstrated significantly higher levels for the experimentals, $F(1,26) = 4.05, p < .06$, whereas Attending behavior was not significantly improved. Inappropriate Behavior, $F(1,26) = 13.11, p < .001$; Interaction with Peer about Nonacademic Materials, $F(1,26) = 11.66, p < .002$; Inappropriate Locale, $F(1,26) = 8.82, p < .006$; and Look Around, $F(1,26) = 7.00, p < .01$, all showed significant treatment effects, experimentals systematically lower than controls (See Table 4). Interaction with Peer about Nonacademic Materials also indicated a significant interaction effect, $F(1,27) = 5.68, p < .02$, as experimentals increased in relation to controls at the *post* phase. Both significant treatment, $F(1,26) = 4.72, p < .04$, and interaction effects, $F(1,27) = 7.12, p < .01$, were located for Reading Aloud in the Oregon site, due to the substantial drop in the control group mean level at *post.*

[4]Drop in degrees of freedom due to subjects (a) moving from classroom and/or school following *pre* phase or (b) the number of reading classes available.

Table 4

Adjusted and Unadjusted Phase Means by Individual Behavior Category

		Utah[a]																					
		AT		*WK*		*VO*		*RA*		*AB*		*IP+*		*DK*		*IB*		*IP−*		*IL*		*LA*	
		E	*C*	E	*C*	E	*C*	E	*C*	E	*C*	E	*C*	E	*C*	E	*C*	E	*C*	E	*C*	*E*	*C*
Covariate	*Pre*	27.6	*28.9*	29.8	*28.0*	.5	*.8*	1.4	*1.2*	15.4	*15.7*	2.6	*1.2*	.0	*.0*	4.8	*6.2*	3.6	*3.4*	1.8	*2.0*	12.4	*12.5*
Unadjusted means	During I	35.9	*30.6*	33.3	*30.4*	.8	*.9*	.9	*1.3*	14.8	*13.6*	1.9	*2.1*	.0	*.0*	2.1	*4.6*	1.3	*2.9*	.6	*2.4*	8.4	*11.5*
	During II	37.6	*32.0*	29.7	*27.6*	1.0	*.8*	1.3	*1.1*	13.5	*14.9*	1.6	*2.7*	.0	*.0*	3.0	*5.0*	1.4	*3.4*	.6	*2.6*	10.3	*9.9*
	Post	36.5	*32.3*	32.3	*26.9*	.8	*.5*	1.3	*1.7*	10.3	*10.5*	1.8	*3.2*	.0	*.0*	4.3	*5.2*	1.4	*2.6*	1.0	*2.9*	11.5	*14.2*
Adjusted means	During I	36.2	*30.3*	33.1	*30.6*	.9	*.8*	.8	*1.3*	14.9	*13.5*	1.7	*2.2*	.0	*.0*	2.4	*4.3*	1.2	*3.0*	.7	*2.3*	8.4	*11.5*
	During II	37.9	*31.7*	29.5	*27.9*	1.1	*.7*	1.2	*1.1*	13.6	*14.9*	1.4	*3.0*	.0	*.0*	3.3	*4.7*	1.4	*3.5*	.7	*2.5*	10.3	*9.9*
	Post	36.8	*32.0*	32.0	*27.1*	.9	*.4*	1.3	*1.7*	10.3	*10.4*	1.7	*3.4*	.0	*.0*	4.6	*4.9*	1.3	*2.7*	1.1	*2.9*	11.5	*14.2*

		Oregon[b]																					
		AT		*WK*		*VO*		*RA*		*AB*		*IP+*		*DK*		*IB*		*IP−*		*IL*		*LA*	
		E	*C*	E	*C*	E	*C*	E	*C*	E	*C*	E	*C*	E	*C*	E	*C*	E	*C*	E	*C*	*E*	*C*
Covariate	*Pre*	26.0	*30.1*	28.4	*29.1*	.2	*.3*	1.0	*1.7*	16.7	*16.1*	2.6	*1.0*	.0	*.0*	4.8	*5.2*	4.0	*2.5*	3.4	*3.4*	12.9	*10.7*
Unadjusted means	During I	30.4	*30.4*	39.3	*32.2*	.5	*.5*	1.3	*1.5*	13.3	*12.0*	2.4	*1.8*	.0	*.0*	2.5	*5.6*	.9	*2.3*	1.3	*2.3*	8.2	*11.3*
	Post	30.6	*28.9*	36.9	*33.5*	.5	*.4*	1.8	*.8*	13.5	*13.9*	2.0	*1.4*	.0	*.0*	3.1	*6.2*	1.6	*1.9*	.9	*2.4*	9.2	*10.7*
Adjusted means	During I	31.2	*29.4*	39.5	*31.9*	.6	*.5*	1.4	*1.4*	13.2	*12.2*	2.0	*2.2*	.0	*.0*	2.6	*5.5*	.6	*2.5*	1.3	*2.3*	8.0	*11.5*
	Post	31.5	*28.0*	37.1	*33.3*	.5	*.3*	1.9	*.6*	13.4	*14.0*	1.7	*1.8*	.0	*.0*	3.2	*6.1*	1.4	*2.1*	.9	*2.4*	9.0	*10.9*

[a] $n = 11$ Experimental, $n = 10$ Control.

[b] $n = 15$ Experimental, $n = 14$ Control.

Walker Problem Behavior Identification Checklist

Utah. Experimental-control group differences were not statistically significant.

Oregon. Covariance analysis indicated a significant treatment effect between postadjusted mean scores for the *target 12* only, $F(1,26) = 4.62$, $p < .04$. The mean number of problem behaviors checked for the experimental *target 12* group was 7.9 contrasted to 10.6 for the controls.

Reading Achievement

In all cases only experimental classroom settings using PASS contributed data to these analyses for reading and math.

Utah. Analyses of reading achievement were based on the combined vocabulary and comprehension raw scores of each student. Significant treatment effects were indicated for only the *mainstreamed* target comparison, $F(1,15) = 4.25$, $p < .057$.[5] Approximately an 8-point difference was noted in favor of the experimental group.

Oregon. No significant differences were obtained.

Mathematics Achievement

Utah and Oregon. No significant differences were noted.

Student Satisfaction with PASS

Utah and Oregon. The satisfaction ratings were based on the 283 Utah students and 352 Oregon students who completed the questionnaires.

Students clearly regarded the program in a positive light. For example, almost all liked earning group rewards (Utah 99%, Oregon 98%) and having the PASS clocklight in their classrooms (Utah 93%, Oregon 94%), and felt that their teachers were more positive (Utah 93%, Oregon 90%). They also liked working as a group for rewards (Utah 95%, Oregon 92%). Over 75% at each site indicated that the clocklight did not make their teacher, peers, or themselves nervous. Students recognized peer pressure as the result of being the one keeping the clocklight off (Utah 58%, Oregon 74%). They thought that they were getting more work done with the program (Utah 85%, Oregon 86%), thought the teacher's survival skill rules helped them work better (Utah 98%, Oregon 95%), and said that they spent more time working (Utah 71%, Oregon 74%). Finally, when asked if they would like to stop using the clocklight, again an overwhelming majority (Utah 83%, Oregon 89%) indicated they would not. Further, they reported they would like their teacher to use the program next year (Utah 76%, Oregon 86%).

Consultant and Teacher Satisfaction with PASS

Utah and Oregon. Based on a 5-point scale, the average satisfaction rating with the program was relatively high for both consultants (Utah 4.2, Oregon 4.6) and teachers (Utah 4.1, Oregon 4.3). Consultants' and teachers' mean ratings for the improvement in the entire class and individual students were all above 4.5 in both sites. The *lowest targets* in the class received the highest ratings as most improved behaviorally (Utah 3.7, Oregon 4.0) and with respect to their achievement (Utah 4.0, Oregon 4.0). Improvement of student behavior in other periods and the lasting effects of the changes received ratings only slightly above 3.0 in both sites.

Consultants indicated that the techniques learned by teachers implementing the program were useful (Utah 4.2, Oregon 4.6), and teachers indicated that their interactions with consultants had been highly valued (Utah 4.4, Oregon 4.5).

Teachers and consultants in both sites reported experiencing less than average (3.0) pressure during the program's implementation. Relatively high ratings were noted for both con-

[5]Drop in degrees of freedom due to subjects (a) moving from classroom and/or school following *pre* phase or (b) the number of reading classes available.

sultants (Utah 4.7, Oregon 4.7) and teachers (Utah 4.1, Oregon 4.5) on the likelihood of using the program partially or in its entirety into the next school year.

Followup Questionnaires for Consultants and Teachers

Utah and Oregon. A majority of consultants reporting indicated that their teacher trainees were continuing to use some or all of the program in the fall (Utah 56%, Oregon 60%) and spring (Utah 63%, Oregon 63%) of the next academic year. In both sites, consultants reported that they had trained new teachers to use the program or components of it. The program components used most frequently were, in rank order: (1) praise, (2) survival skill rules, (3) group activity rewards, and (4) the clocklight. Teachers reported that the most long-lasting change produced by the program was in their continued use of praise as a technique for "positive discipline" and improved "classroom atmosphere." All but one teacher reported their intent to use the program in the next school year.

DISCUSSION

Overview

The results of the present investigation have demonstrated the generality of the PASS program package across diverse personnel and settings. Consultant trainees demonstrated conceptual and then acquired behavioral mastery of the program in a 2-day training workshop. Next, using standardized manuals to direct their activities (Walker, Hops, & Greenwood, 1976), they appropriately selected lower functioning classrooms and initiated successful behavior change programs in 25 separate classroom replications across 2 independent school sites. These positive effects were produced via a behavioral consultation model (Tharp & Wetzel, 1969), replicating similar mediated effects obtained by Cossairt, Hall, and Hopkins (1973), Hops et al. (1978), Kent and O'Leary (1976, 1977), and Patterson (1974). These successes stand in contrast to the large number of consultation failures reported (see review by Mannino & Shore, 1975).

While training occurred at the consultant level, significant behavioral changes were noted for both teachers and students, subjects once and twice removed from the initial training procedures. With respect to controls, experimental teachers in both sites increased their use of Approval (and decreased their use of Disapproval in Oregon) as a consequence for student behavior. Moreover, they introduced rules to the class, conducted daily observations, and dispensed contingent group consequences. Uniform improvement in students' behavior was also demonstrated to be a general phenomenon occurring across the *lowest target,* the *mainstreamed target,* the *target 12,* and the *collective* class groups. Not only were these changes significantly greater than control group performance, but the *during* and *post* means indicated individual functioning about 80% appropriate behavior and well within the "normal" range for primary grades as reported by Patterson (1974) and Greenwood et al. (Note 12). These findings also replicated those in a series of previous studies using the PASS program (Greenwood et al., 1974; Greenwood et al., 1977a, 1977b; Greenwood & Hops, Note 6; Hops et al., Note 7).

The beneficial effects of the program were also confirmed by satisfaction measures. Most noteworthy were: (a) teachers' ratings valuing their interactions with consultants, (b) consultants' high ratings of the skills taught teachers, (c) teacher and consultant recognition of student behavior improvement, (d) students' positive satisfaction reports, (e) the convergence of reports indicating less than average amounts of pressure associated with their involvement, and (f) reports of continuing and expanding use of the program a year later.

Differential Results

Several differences in outcome were noted with respect to site and type of measure. Oregon teachers spent a greater proportion of their in-

structional time (approximately 50%) in direct Verbal Interaction with their students than did the Utah teachers (approximately 35%). In contrast, the Utah teachers spent almost 60% of their time in noninteractive behavior compared to the Oregon teachers' 40%. It is interesting to speculate on how these differences might account for the differential effects in the students' behavior, Utah showing higher proportions of Attending with Oregon higher in Work behaviors. One possible explanation is that the Oregon teachers may have organized more individual seat work for their students (accounting for the higher Work) which required more teacher-student interaction to accurately monitor student performance, e.g., answer students' questions. Other variables which may have contributed to these data are: (a) differences in the proportions of reading and mathematics taught, (b) curriculum, and (c) individual teacher's instructional idiosyncrasies. While Utah teachers spent less time than the Oregon group interacting with their students (perhaps more Utah teachers engaged in such management behaviors as preparing materials, etc.), there was no discernible differential site effect on overall student appropriate behavior.

Minimal site differences were noted in problem behavior ratings and achievement. Only the Oregon PASS teachers rated their *target 12* group as being significantly less problematic at *post* than did the control teachers. However, in both sites there was a strong tendency for control teachers to rate their students improved (lower) at *post*. Since all teachers completed the *pre* ratings only on their lower functioning students (*target 12*), a regression effect might have contributed to the generally improved ratings. Moreover, while controls did not experience the PASS program, they were observed and tested, producing some treatment expectations even for control teachers. Certainly the failure to detect experimental effects in studies using subjective measures without comparison control groups can yield erroneous results due to statistical regression and/or bias.

A significant treatment effect was noted only for reading achievement in the Utah *mainstreamed* target group. These disappointing effects, while not an uncommon result in studies of behavior change in which standardized achievement is assessed (Kent & O'Leary, 1976, 1977), are in contrast to previous demonstrations of increased first grade reading achievement following the use of PASS (Cobb & Hops, 1973; Greenwood et al., 1977b; Hops & Cobb, 1973, 1974). Particular problems in the present study may have accounted in part for the absence of such findings. These include: (a) classrooms as a unit of analysis, thereby reducing the *n* at each site; (b) individual and combined reading/mathematics interventions using PASS; and (c) inclusion of multiple grade levels. These factors precluded analysis by academic setting and grade.

Behavior and Achievement Relationships

Unfortunately, the current literature on the relationship between behavior change and achievement has confounded the collateral effects of specific contingencies with various measures of achievement change. At first glance, there appears to be two separate literatures: process studies using daily measures of accuracy and/or rate of academic responding, and investigations of longer-term outcome based almost exclusively on the results of standardized achievement tests as measures of academic skill. For example, in studies documenting increased appropriate behavior without increased academic responding (Ferritor, Buckholdt, Hamblin, & Smith, 1972; Hay, Hay, & Nelson, 1977), the dependent variable was a criterion-referenced measure, e.g., percent correct. In contrast, correlational investigations (Cobb, 1972; Lahaderne, 1968; McKinney, Mason, Perkerson, & Clifford, 1975; Samuels & Turnure, 1974; Cobb, Note 5) and those showing increases in survival skills or appropriate behavior leading to increased academic responding (Cobb & Hops, 1973; Greenwood et al., 1977b; Hops & Cobb, 1973, 1974; Walker & Hops, 1976a) have exclusively used

standardized achievement tests with pre-post testings of 50 to 70 days because of the relative short-term insensitivity of the measure.

It must be pointed out that daily rates of correct responding within the same or highly similar academic skill classes provide a different dimension of achievement than do scores resulting from a test designed to sample a range of academic skills in a child's repertoire. Thus the possibility of seemingly divergent results in studies of behavior contingencies on achievement becomes clear. Accuracy and rate provide short-term results on acquisition of single skills; the standardized measures provide status reports on growth in skills repertoires and maintenance of prior taught skills. Certainly, these tests have been criticized for their methods of skills sampling (Eaton & Lovitt, 1972), yet whether such tests are criteria referenced to a specific instructional sequence or a national norm, the need for status information in addition to daily performance measures is a relevant one. Future research in this area must integrate both forms of achievement, repeatedly measured, within the same studies. This will enable process description, i.e., the relationship of accuracy and rate to skills acquisition and maintenance over time. Only in this manner will it be possible to clarify the collateral behavior-achievement contingencies relationship over both the short and long term of teaching.

On both logical and empirical grounds, some researchers have argued that the best procedures for change in achievement also will employ contingencies for change in behavior as well (Ayllon & Roberts, 1974; Walker & Hops, 1976a). Hops and Cobb (1974) have also demonstrated the importance of curriculum programming to achievement change. Comparing a survival skill intervention and a curriculum intervention to control subjects, they reported increased achievement from curriculum programming, without a concomitant gain in survival skill behavior. Thus, within limits as yet undetermined, curriculum, behavior, and achievement may all be independent and each may require separate procedures for inducing change.

The PASS clearly provides procedures for increasing classroom survival skills and thus student engagement with academic tasks. The validation of the program has been conducted almost entirely via observational measures of behavior and standardized achievement change. The program procedures do not directly target student academic responding, e.g., rate or accuracy, although unpublished data suggest that problems attempted in reading and mathematics increase as a result of using the program (Hops & Greenwood, Note 15). The PASS program is designed to be a tool in efficient, flexible teacher consulting. Because it is independent of specific curriculum, teachers in differing instructional settings can use it successfully. The program can be implemented to assist behavior management control and to complement other procedures facilitating achievement.

Cost Effectiveness

The cost effectiveness of the PASS can be evaluated from several points of view. The formal training of consultants and the subsequent training of the teachers by those consultants required approximately 40 hr of extra class time for both. Given approximately 23 students in each class, the program required 1.7 hr of out-of-class training for each student. Payments to both teachers and consultants ranged from $335 to $450 by site—a cost of approximately $15 to $20 per student per class. Further, the complete package including the clocklight is presently available at $116.55. While the overall cost may appear to be somewhat high to school personnel, the followup reports indicating continued and new use of the program, at no additional cost, substantially reduced the original training costs of the program. The potential for assimilation of the program into a school district service plans seems clear.

Further Research

Few behavioral programs have been submitted to the level of validation demonstrated in this report. Similar studies conducted by independent investigators and under conditions of no incentive for consultant and teacher implementation could be the next logical step for further evaluative research with the PASS program (Kent & O'Leary, 1976). Additional research could be designed to establish the kind of consultant training, beyond the program manuals, required to successfully implement the program. Recent research suggested that varying consultant training formats (i.e., mastery workshop, self-instruction) were equally effective when consultants had access to standardized training manuals and had demonstrated content mastery of the program manuals via written examination (Hops et al., Note 11). At this early stage, it is entirely possible to assume that personalized instructional manuals, e.g., PASS, contain sufficient procedures to result in trained teachers and change in student behaviors if implemented to specification. Further study of consultant behavior and its mediation as it continues to replace direct service delivery methods in many educational and psychological settings is certainly required.

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