

*SELF-INSTRUCTIONAL TRAINING WITH PRESCHOOLERS:
AN ATTEMPT TO REPLICATE*

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We attempted to replicate an intervention program by Bornstein and Quevillon (1976), which had shown that the disruptive classroom behavior of Head Start children could be dramatically reduced through self-instructional training. Although the subject population and procedures were quite similar across studies, our self-instructional training did not produce socially significant, durable increases in either appropriate classroom behavior or changes in teacher ratings of the children's behavior. These results suggest that additional variables may have been responsible for Bornstein and Quevillon's success.

DESCRIPTORS: Self-instructional training, generalization, classroom behavior, preschool children

Within the past 15 years, many researchers have attempted to apply various methods of self-instructional training to the modification of students' classroom behavior or performance on academic tasks (Blackwood, 1970; Kendall & Wilcox, 1980; Meichenbaum & Goodman, 1971; Weithorn & Kagen, 1979). Most of these studies have followed the self-instructional paradigm advanced by Meichenbaum and Goodman (1971). Working with impulsive second-grade children, Meichenbaum and Goodman modeled self-instructions, self-reinforcement, and nonverbal behavior in solving academic-type problems and had their students repeat self-instructions at decreasing levels of overtness. Pretest to posttest changes for a self-instruction group were superior to both an assess-

ment- and attention-control group on psychometric measures, but no differences were found in appropriateness and attentiveness within the classroom.

Most other investigators who have used self-instructional training to improve classroom functioning of children with conduct disorders have found improved performance on the assessment tasks but variable changes in actual classroom behavior and academic performance (Arnold & Forehand, 1978; Bryant & Budd, 1982; Burgio, Whitman & Johnson, 1980; Kendall & Finch, 1978).

One study frequently cited or reprinted (see Abikoff, 1979; Brundage-Aguar, Forehand, & Ciminero, 1977; Hobbs, Mognin, Tyroler, & Lahay, 1980; Kendall & Finch, 1979; Meichenbaum & Asarnow, 1979; O'Leary & O'Leary, 1977; Ross, 1981) because of its success in obtaining positive generalization to classroom behavior as a result of training on psychoeducational tasks is that by Bornstein and Quevillon (1976). These authors demonstrated that the on-task behavior of three overactive preschoolers increased from a baseline level of under 20% to above 75% as a result of self-instructional training. Follow-up after 90 days indicated that the boys' on-task behavior was maintained well above the baseline rate.

Friedling and O'Leary (1979) attempted to repeat Bornstein and Quevillon's study with an older age group of clinically hyperactive children and

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found no significant difference in on-task behavior as a result of the self-instructional training on either psychoeducational tasks or the academic tasks. This replication, however, included neither having the child imagine the teacher was assigning the tasks nor contingent reinforcement for task performance, both of which Bornstein and Quevillon used.

Given the importance attributed to Bornstein and Quevillon's findings, not only with regard to the high interest in cognitive training for self-control, but also in view of the pragmatic importance of time-efficient programs, we proposed to test the effectiveness of the procedure by direct replication with a similar preschool population. Besides assessing the children's observable classroom behavior, data were also obtained on a rating scale indicating the children's degree of self-control and on teacher attention to the children.

METHOD

Children and Setting

A Head Start center in rural North Carolina was selected for this study on the basis of the large number of referrals of children with behavior problems, and because the population was similar to that of the Bornstein and Quevillon study. The lead teacher and assistant teacher were asked to identify all students with off-task, disruptive, inattentive, or undesirable behavior. Then, children most similar to the children from the original Bornstein and Quevillon study—males, at least 4 years 2 months old but not older than 4 years 10 months, from low income families, and who averaged at least 25% off-task behavior—were selected. Four boys were identified for the study, three Black and one Caucasian. One was randomly designated as the control child. Parental permission was obtained for each child's participation. Training took place in an unused room at the elementary school that housed the Head Start Center. The lead teacher, who played a primary role in initially identifying children for the study, left immediately prior to baseline. The assistant was then named lead teacher. Thus, all future references to the teacher refer to the latter instructor.

Procedures

The first author conducted individual, 2-hour self-instruction sessions, with a 20-min break half-way through each session. For each task, the basic self-instructional procedure was: (a) the trainer modeled the task while talking aloud to herself, (b) the child performed the task while the trainer instructed aloud, (c) the child then performed the task talking aloud to himself while the trainer whispered softly, (d) the child performed the task whispering softly while the trainer made lip movements but no sound, (e) the child performed the task making lip movements without sound while the trainer covertly assisted, and (f) the child performed the task with covert self-instruction. When the sequence was completed, the trainer returned to the first step with a new task. The tasks were borrowed directly or modified slightly from the *Stanford-Binet Intelligence Scale*, the *Wechsler Intelligence Scales for Children-Revised*, and the *McCarthy Scales of Children's Abilities*. The original Bornstein and Quevillon (1976) study has additional information on procedures.

Classroom observations. Baseline data for classroom observations of the children's behavior were collected on 6 days over a 2-week period before the first child was trained. Behaviors were coded using the Children's Classroom Behavior Scale (CCB) (see Simmons and Wasik, 1976). This scale has six categories of child behavior classified as either appropriate (attending or transition) or inappropriate (nonproductive, inappropriate for time or place, attention-getting, or resistive-aggressive). Each of the children was observed daily for 10 min in a randomized order, with each child's behavior coded into one of the six categories at 10-s intervals using a paper, pencil, and stopwatch. CCB data were collected only during structured, teacher-directed groups in the morning.

Concurrent with observations of the children, the observers collected data on the teacher's interactions with the targeted children, using a simplification of the code found in Simmons and Wasik (1973). Basically, all positive teaching or structuring responses were coded under positive/instructional and all negative responses or ones by which

the teacher redirected the child from an inappropriate to an appropriate behavior were coded under negative/redirecting. All teacher interactions with the target child throughout each 10-s observation interval were recorded.

The three observers were trained to code using a videotape of an analogue classroom situation. A prescored record of the videotape served as the standard. Observers 1 and 3 were university graduate students, and Observer 2 was an early childhood paraprofessional employed by the local school district. The observers were required to attain an interobserver agreement level of at least 85% on the CCB both in recording from videotapes and in the classroom. The percent agreement was calculated as the number of agreements divided by the number of agreements plus disagreements $\times 100$.

Reliability was checked by the first author at least once with each observer during each of the three phases of the study, including follow-up. The percent agreement during baseline observations was 88% for each of the observers, ranged from 87%–90% during the training phase and was 86% at follow-up. All observers were naive as to the design of the study and were never aware which child had received self-instructional training for a given week.

Teacher rating scale. The Self-Control Rating Scale (SCRS) (Kendall & Wilcox, 1979), a 33-item measure designed to assess generalized changes in a child's self-control, especially those due to cognitive-behavioral treatments, was used. Each item was scored by the teacher on a 7-point scale. Although normed on elementary-age children, the items seemed valid for younger children and we used the measure as an additional and potentially useful source of information. The SCRS was completed five times for each of the four students: the first day of baseline observations, the day immediately following each of the three training sessions, and the last day of follow-up.

RESULTS

Classroom Behavior

The effectiveness of the self-instructional training to improve the children's classroom behavior

was assessed through a multiple-baseline-across-individuals design. The daily percentages of attending behavior for each child across experimental conditions are presented in Figure 1. It can be seen that the training failed to produce any major effects in classroom behavior for the students. Although there was an increase in the attending behavior following the treatment phase for each child, these gains were not maintained at follow-up 2 weeks later. Also, the control student's (Andy) attending behavior increased from the first six days of baseline recording to the last six days of baseline.

All off-task behaviors that were coded as either appropriate-transition behavior or in one of four categories of inappropriate behaviors were also analyzed. Although changes in these behaviors were inversely related to changes in attending behaviors, the data showed a high degree of individual variation. They indicate that the self-instructional training did not bring about positive or uniform changes in any child's behavior.

Teacher Interactions

Data on teacher-student interactions were collected to determine if they varied across the conditions of the study and if positive teacher attention increased during self-instructional training. The mean number of total teacher interactions, shown in Table 1, tended to decrease across the conditions of the study, but an inspection of teacher-student interactions does not suggest that teacher interactions varied systematically for the boys across the conditions of the study.

It is important to note, however, the type of teacher interactions with the two students with the lowest rates of attending behavior. The teacher was not observed to interact positively with Brian during any data collection period and only three positive interactions with John were noted. Twenty-four negative interactions with Brian and 18 negative interactions with John were recorded. The child with the most positive and fewest negative teacher interactions generally had the highest attending levels. These data suggest that teacher attention may have been related to the children's classroom behaviors.

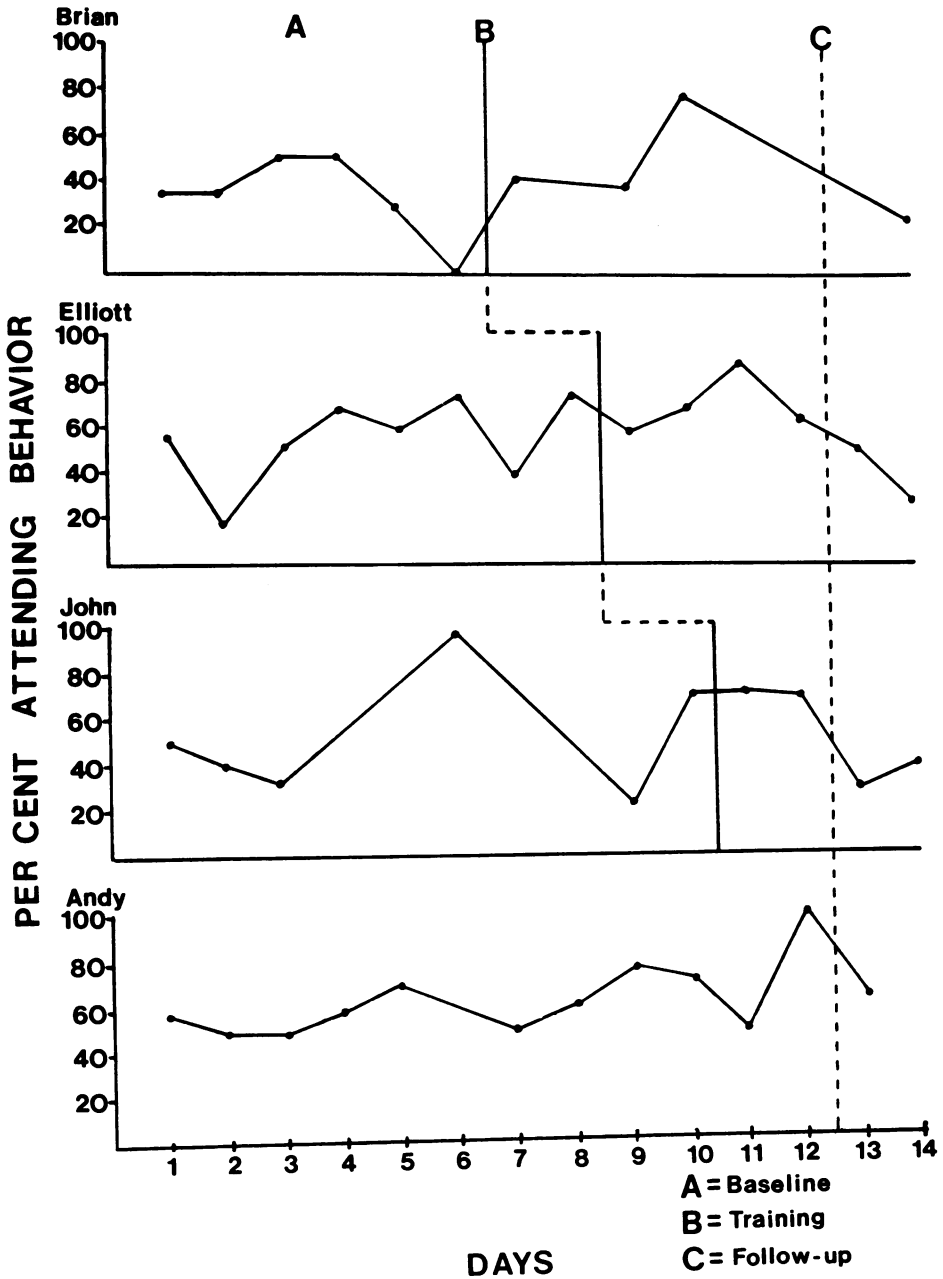


Figure 1. Daily percent attending behaviors across experimental conditions.

Self-Control Rating Scale

The children's Self-Control Rating Scale (SCRS) scores for each assessment period are presented in Table 2. Using the guideline of scores beyond one standard deviation above the mean ($M = 100$,

$SD = 46$) to indicate clinical significance, only Brian and John would have been identified as exhibiting problems in behavioral self-control had teacher perception been used as a selection device. The teacher's perception of Elliott's behavior did

Table 1
Teacher Interactions with Target Students

Children	Assessment period										
	Baseline		Posttreatment with Brian		Posttreatment with Elliott		Posttreatment with John		Follow-up		
	+	-	+	-	+	-	+	-	+	-	
Brian	0	14	0	1	0	3	0	0	0	0	6
Elliott	9	4	4	0	0	1	0	1	0	0	4
John	0	7	0	0	0	5	3	0	0	0	6
Andy	10	5	7	0	1	0	0	0	0	0	0

Note. +—positive/instructing interactions; ——negative/redirecting interactions.

change in a positive direction immediately following treatment, but John's behavior was seen as improving the week prior to treatment, and teacher perceptions of Brian's behavior did not change until the week after he had received training. Thus, it seems that any positive change in the teacher's perceptions of the children's behaviors cannot be directly attributed to the self-instructional training. Although Kendall and Wilcox's normative data (1979) are not strictly applicable to a preschool population, teacher perceptions on the SCRS were fairly consistent over time, with the students initially rated higher remaining in the range of clinical concern.

DISCUSSION

Replication efforts in applied settings are difficult to conduct because of the many variables that can alter the results. We attempted to minimize differences in subject selection, intervention variables, setting variables, subject variables, observational recording procedures, training tasks, and teacher sensitization to treatment. Even with such care, socially significant durable increases in appropriate classroom behavior were not obtained. Most individuals who may wish to use these procedures would typically not find it possible or desirable to adhere to such preciseness in variable control, further decreasing the likelihood that the results of the original study would be obtained.

In light of our data, one might conclude that the variables responsible for the original results have

not yet been identified. This potential problem of having unspecified variables account for the difference in effects is inherent in any replication effort and underscores the difficulties involved in identifying controlling variables.

One explanation made by some researchers to account for the original results is that Bornstein and Quevillon's findings may have been enhanced by increases in positive teacher attention (Friedling & O'Leary, 1979; O'Leary & O'Leary, 1977), a suggestion also expressed by Bornstein and Quevillon (1976). Because it is known that teacher attention to appropriate behavior can maintain that behavior (e.g., Madsen, Becker, & Thomas, 1968; Wasik, Senn, Welch, & Cooper, 1969), we monitored the quantity and type of teacher interactions with the target children. The results suggested that positive teacher attention did not vary significantly over time. Nevertheless, because relatively high

Table 2
Individual SCRS Scores Across Administrations

Children	Assessment period				
	Base-line	Post-treatment with Brian	Post-treatment with Elliott	Post-treatment with John	Follow-up
Brian	197	198	184	175	178
Elliott	130	130	118	128	129
John	197	205	178	181	177
Andy	120	130	118	125	123

levels of negative teacher attention and little or no positive attention were observed for two of the children during the times data were collected, it is possible that attention to inappropriate behaviors maintained these behaviors.

Another important alternative explanation for the differences in results between our study and the Bornstein and Quevillon study may be related to therapist variables (P. Bornstein, February 1984). Although therapist variables have not been a traditional focus in the area of applied behavior analysis, we agree with Bornstein that therapist variables influence outcome. Bornstein has suggested that important therapist variables might include experience, prestige, confidence, and other relatively stable personal-social characteristics such as age, gender, manner of interaction, and therapist style.

Future investigations should also focus on other variables that can potentially influence whether one can successfully modify behavior through self-instructional training. The child's developmental age, the length of training, the intensity of training, and the training components all need to be studied more closely in relation to self-instructional training. Furthermore, intervention itself needs to be more closely related to assessment measures that identify specific problems or potential areas of concern for treatment. Finally, the social validation of change should be documented through a combination of direct observation and recording of the child's behavior and through assessing changes in perceptions of significant adults in the child's life.

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