REDUCING DISRUPTIVE BEHAVIORS OF ELEMENTARY PHYSICAL EDUCATION STUDENTS WITH SIT AND WATCH

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This study reduced the disruptive behaviors of students in two elementary physical education classes: a regular fourth-grade class comprised of 30 students and an alternative education class containing 14 fourth- and fifth-grade boys with severe behavior problems. Using a multiple baseline design, we introduced a modified time-out procedure called "Sit and Watch." The procedure reduced the frequency of disruptive behaviors by 95%. Sit and Watch proved to be socially acceptable to parents, school personnel, and the physical education teacher.

DESCRIPTORS: physical education, school, Sit and Watch

The behavior of children in school settings has been a focus of attention by behavioral researchers for the past 20 years (Sulzer-Azaroff et al., 1988). This research has resulted in a technology of behavior change that is effective, reliable, and easily applied by teachers or other school personnel. Although this research has focused primarily on the classroom (Baer, 1987; Barton, Brulle, & Repp, 1986; Fantuzzo & Clement, 1981; Harris & Sherman, 1973), it has also been extended to other settings including bus riding (Greene, Bailey, & Barber, 1981), pedestrian safety (Yeaton & Bailey, 1978), and playground behavior (Murphy, Hutchison, & Bailey, 1983). Thus, behavioral technologies have been developed to control behaviors in both traditional and less restricted school environments.

Physical education classes are a prime location for the occurrence of behavior problems because of a typically less structured and more open environment. The most frequently reported sources of problems in physical education classes at the elementary level include aggression (Logsdon et al., 1984), attention seeking, and unruliness (Corbin,

1976). Despite the wide recognition of these problems, current research has been limited to descriptive studies (Evans, 1974; Vogler, Fenstermacher, & Bishop, 1982) and to studies involving behavior management programs in physical education and therapeutic recreation settings for special populations (see Funabiki, Edney, & Myers, 1982; Lavay, 1986).

There are no reported studies that have examined behavior management programs in regular elementary physical education classes. Physical education is clearly delineated from "recess" or "free play" because it involves the teaching of specified objectives (Corbin, 1976). Therefore, a certain degree of structure and control is necessary to provide the kind of environment conducive to instruction and evaluation.

The authors of this study were referred to a Tallahassee elementary school to assist in managing the behavior of the students in the physical education classes. Of particular concern were the aggressive and noncompliant behaviors of students in an alternative education class for boys with severe behavior disorders. Observations of the disruptive behaviors suggested that they occurred as a result of infrequent and inconsistent consequences applied for inappropriate behavior. Contingent observation, a procedure initially used with preschool children in a day-care setting (Porterfield, Herbert-Jackson, & Risley, 1976), was chosen as the intervention because of its demonstrated effectiveness in reducing disruptive (Porterfield et al., 1976) and ag-

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gressive (Fleece, O'Brien, & Drabman, 1981) behaviors and its ease of implementation. This procedure is known informally as "Sit and Watch." Our study further extends the application of Sit and Watch to a large group of children in an open environment and to children over the age of 5.

METHOD

Subjects and Setting

The study was carried out on the playground of a large elementary school in Tallahassee. Two areas on the playground were used for the physical education classes: an open field with a grass track around it and a concrete basketball court. The materials needed for the classes were brought out each day and consisted of balls, jump ropes, and volleyball nets.

Data were collected for two physical education classes: a regular fourth-grade class containing 30 students and an alternative education class containing 14 fourth- and fifth-grade boys with severe behavior problems. Students in this class had received a number of disciplinary actions for their noncompliant and aggressive behaviors in the classroom, including in-school suspensions, and were placed in the alternative education class as a last resort. The physical education classes met on different days and at different times and were taught by 1 female teacher. The classes met three times a week for 30 min. The classes will be referred to as the alternative education class and the fourth-grade class.

Behavioral Definitions

Informal observations indicated that disruptive behaviors generally fell into one of three categories: (a) noncompliance—refusal to initiate or complete a request made by the teacher within 5 s; (b) aggression—striking, slapping, kicking, pushing, or pulling others; and (c) throwing objects—throwing sand, sticks, or rocks.

Observers continued to score a child as noncompliant until he or she complied with the request or the teacher gave a new command and the child

complied. There were no instances during the study in which the entire class did not comply with a request, although there were instances in which several students were noncompliant to the same command; those students were scored as noncompliant.

These behaviors did not represent an exhaustive list of the possible disruptive behaviors in which students engaged, but included the most frequently observed behaviors in the classes. Noncompliant behaviors accounted for the majority of disruptive behaviors in the fourth-grade class, whereas noncompliance and more physically disruptive behaviors occurred equally frequently in the alternative education class. Noncompliance was combined with the more salient behaviors of aggression and throwing objects because the teacher reported these behaviors to be most problematic in her classes. Verbal behaviors were not recorded because of the difficulty in obtaining interobserver agreement for these behaviors on the playground.

Materials

A device resembling an hourglass was constructed to monitor the time the child remained in Sit and Watch. Two plastic juice bottles were fastened together at the tops with glue and screws, and a hole was drilled in the middle large enough to allow sand to flow through. The bottles were filled with enough sand to make the time period approximately 3 min. Three timers were available to the teachers. The timers were quite durable, were easily seen by the teacher, and were monitored by the students.

Other materials used in this study included a wireless FM microphone (Philmore, Model CM500), a receiver and cassette recorder (Sony, Model CFM-110), a portable cassette recorder (Sony, Model TCM-12), hand counters, and a VHS videocamera (Panasonic, Model AG-150).

Observation System

The observers stood in a location on the playground that allowed visual access to all students in the class as well as the teacher. The exact location

and distance from the students varied, depending on the activity and which of the two areas was being used. The observers recorded disruptive behaviors on a hand counter. A 5-s interval was used for both observing and recording, and a taped recording instructed the observers to observe and record. During the observation interval, the observers scanned the entire playground in one sweeping motion, recording the occurrence of disruptive behaviors on the hand counter. During the record interval, the cumulative frequency was entered on the data sheet. Disruptive behaviors were not classified into categories but were entered on the data sheet as one total.

Although the classes were scheduled for 30 min, actual time engaged in class activities was typically 20 min. Observation sessions were, on the average, 10 min in length due to the record intervals. The 10-min observation session was specified in order to provide consistency across classes for comparison purposes.

During the intervention, the number of students in Sit and Watch during each interval was also recorded on the data sheet, as well as the total number of students who were sent to Sit and Watch and the number of times each one was sent. The teacher wore a wireless FM microphone that transmitted to a receiver located near the observers to ensure that the observers could hear the teacher's commands in order to record accurately instances of noncompliance.

Observer Training

Two graduate students and one undergraduate student participated as observers in exchange for research credit. Prior to the 1st day on the playground, the first author discussed the definitions and observation system with the observers during one 45-min session. Training on the playground initially involved talking about behaviors as they arose. Later sessions began with a brief review, a short observation period (i.e., 5 min), and feedback on the observer's performance.

Observer training continued until the observer reached the criterion of two consecutive practice periods at 80% agreement with the first author.

All observers reached criterion within six to eight 30-min training sessions on the playground.

Teacher Training

Following the collection of baseline data, the physical education teacher was trained to use the Sit and Watch procedure. She was given a two-page handout describing the procedure, the rationale, and examples of behaviors for which the procedure was to be used. The 30-min training session consisted of modeling and role playing. Throughout the course of the study, the teacher sought feedback and correction about the use of Sit and Watch in specific situations.

Experimental Conditions

A multiple baseline design was used across the two physical education classes.

Baseline. During baseline, disruptive behaviors were recorded without any systematic intervention.

Behavioral checklist. After 3 days of baseline in the alternative education class, the teacher began using a behavioral checklist in the class. Each child was rated as super, good, fair, or poor in four categories: respecting adults and peers; listening and following directions; keeping hands, feet, and objects to self; and reporting incidents to the teacher. A poor rating resulted in loss of a free-play period later in the week and/or a parent conference or visit to the principal's office. The student was given his checklist to take home to his parents each day. There was no systematic procedure for making sure the students took the ratings home other than an occasional phone call to the parents by the teacher.

The authors of this study were not involved with the design or implementation of the behavioral checklist. The teacher developed the behavior definitions, the rating system, and the range of consequences. Because the checklist was not a planned component of the intervention and was not implemented systematically, the authors chose to treat it as a continued baseline.

Sit and Watch. During Sit and Watch the teacher removed the student from the activity and explained to him or her the reason. The student picked up one of the timers, walked to an area

away from the other students, and sat down on the ground with the timer. He or she turned the timer over and remained in Sit and Watch until all of the sand had flowed through, approximately 3 min. The student was then allowed to rejoin the class.

The teacher requested additional back-up procedures in the form of lost privileges for some students, particularly those in the alternative education class. Back-up procedures were chosen based on existing available consequences and on the reliability with which they could be implemented. For the alternative education class, the contingencies were as follows: (a) Go to Sit and Watch once—lose daily computer time. (b) Go to Sit and Watch more than once—lose a free play period once every 2 weeks. (c) Engage in disruptive behavior while in Sit and Watch—lose free play time later in the same day. (d) Talk to someone in Sit and Watch or tattle on others—go to Sit and Watch.

Students in the fourth-grade class who were sent to Sit and Watch once did not experience a back-up procedure but back-up contingencies were implemented if the student was sent more than once per class or was disruptive while sitting out. The back-up procedures were begun the same day as Sit and Watch and were introduced to the students as part of the Sit and Watch procedures.

Reliability

Interobserver agreement checks were made on 31% of the days across classes and experimental conditions. Frequency reliability was calculated by dividing the smaller observed frequency by the larger and multiplying by 100. Reliability was calculated for the mean reliability for each 2 min of observation. Reliability ranged from 60% to 100%, with a mean of 84%. Frequency reliability was also calculated for the mean reliability for each 2 min of observation within each experimental condition. In the alternative education class, there are no reliability data available for baseline because it lasted only 3 days and a reliability observer was not available during those days. During the behavioral checklist condition, reliability ranged from 77% to 100%, with a mean of 90%. Reliability ranged from 60% to 100% in the Sit and Watch condition,

with a mean of 85%. In the fourth-grade class, reliability during baseline ranged from 60% to 97%, with a mean of 79%. During Sit and Watch, reliability ranged from 60% to 100%, with a mean of 80%.

Social Validation

A videotape of the Sit and Watch procedure was presented to the assistant principal, four parents who served as volunteers in the school, and one classroom teacher. They completed a questionnaire regarding the acceptability of the procedure and were encouraged to ask questions or provide comments about the procedure. The physical education teacher also completed a questionnaire regarding the ease of implementation and effectiveness of the intervention.

RESULTS

Disruptive Behaviors

The number of disruptive behaviors for each 10-min observation period in the two classes is depicted in Figure 1. The number of times Sit and Watch was implemented during each class is also depicted in Figure 1. Missing data points indicate that class was not held due to inclement weather, teacher absence, or other uncontrollable factors.

The mean number of disruptive behaviors during baseline in the alternative education class was 219; the mean decreased to 98.5 with the behavioral checklist. With the introduction of Sit and Watch, the mean number of disruptive behaviors for the 10-min observation period decreased to 4.6.

The mean number of disruptive behaviors in the fourth-grade class during baseline was 53.6 and decreased to 3.7 with Sit and Watch. Four students in the alternative education class and 1 student in the fourth-grade class went to Sit and Watch twice during the study, which caused them to lose a free play period. All students who were sent to Sit and Watch in the alternative education class lost computer time for that day.

The primary observer kept a tally of the number

Figure 1. Number of disruptive behaviors per 10-min observation period. The numbers above the data points represent the number of times Sit and Watch was implemented during the class.

of students sent to Sit and Watch during each class period. The mean number sent at least once during the class period was 4.6 for the alternative education class (range, 2 to 11) and 5.3 for the fourth-grade class (range, 1 to 8). In general, 1 or 2 students

were in Sit and Watch simultaneously during the class periods. On five occasions 4 students were out at the same time, which necessitated sharing of timers. All of these instances occurred in the early stages of the intervention.

Teacher Questionnaire

The physical education teacher reported that Sit and Watch was effective in reducing the number of disruptive behaviors in her classes. She did not find anything about the procedure offensive and did not observe any negative effects on the students. She also reported that Sit and Watch did not require much time to learn or to implement in her classes. The teacher reported that she used Sit and Watch in her other classes and that she would recommend the procedure to other teachers. She further commented that Sit and Watch is fast and direct and she enjoyed using it. She also stated that Sit and Watch is most effective when used in conjunction with classroom consequences (e.g., loss of computer time) for the disruptive behaviors that occurred on the playground.

Parent and School Personnel Questionnaire

The assistant principal, classroom teacher, and four parents all reported that they would support the use of Sit and Watch in their school. They did not find anything offensive about the procedure nor did they foresee any negative effects on the students. The parents found the use of the timer particularly helpful because they were concerned that some children were being put in time-out for indefinite periods. They were also pleased that the children could monitor themselves with the timers.

DISCUSSION

This study clearly shows that Sit and Watch is an effective procedure in reducing the disruptive behaviors in elementary physical education classes. Disruptive behaviors were reduced by 98% with severe behavior problem children and by 93% in a regular fourth-grade class. When applied correctly, Sit and Watch is easy to use and is accepted by teachers and parents. This research further extends the use of behavioral technologies in a school setting outside the classroom and provides an effective behavior management program for students with severe behavior problems.

During the course of the study, several instances of incorrect implementation of Sit and Watch occurred. Two of the most problematic included not monitoring the child who was in Sit and Watch and placing children too close together when more than 1 child was removed from the group. When either of these situations occurred, the children continued to engage in disruptive behavior by playing or conversing with their peers. The teacher was subsequently reminded of the correct procedure and prompted to monitor the students in Sit and Watch.

There were instances in which Sit and Watch could have been used and was not because the teacher could not see every occurrence of disruptive behavior. It may be unreasonable to expect that this procedure will reduce disruptive behaviors to a near zero level in all cases; however, it can be expected to decrease disruptive behaviors significantly.

The number of times the procedure was used daily was quite low. The mean number of times Sit and Watch was used during a typical class period was 4.8 (averaged across both classes). Because only 1 or 2 students typically were in Sit and Watch simultaneously during any class period, the decrease in disruptive behaviors was not a function of a large number of students being removed from the class at the same time.

A question not addressed by the present study is the effectiveness of Sit and Watch without the use of the back-up procedures. Back-up procedures were used because the teacher requested them; they may have contributed to the decrease in the disruptive behaviors. It is important to note that the present study differs from earlier research on Sit and Watch with the inclusion of the back-up procedures.

We do not consider the behavioral checklist to be a necessary precondition to Sit and Watch for reducing disruptive behaviors because it was not implemented systematically. Although the students obtained a daily rating of their behavior, there was no systematic follow-up or consequences for a poor rating. The behavioral checklist was, therefore, considered to be a kind of modified baseline. Its ineffectiveness in reducing disruptive behaviors should

not be interpreted as an indication of the effectiveness of behavioral checklists when implemented carefully and systematically.

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