The Utilization of Behavior Management in Mainstreaming in Physical Education

John M. Dunn
Oregon State University

H.D. Bud Fredericks
Teaching Research, Monmouth, OR

The mainstreaming of handicapped students into physical education classes is dependent upon teachers who can provide successful learning experiences. The application of behavior management concepts appears to be an instructional technique which physical educators should consider in designing quality mainstreaming experiences. Studies were reviewed that report the application of behavior management principles in various curricular areas including physical education. Additional research is needed to substantiate the importance of behavior management techniques in helping to create a favorable environment in the mainstreamed physical education class.

The successful mainstreaming of handicapped students into physical education classes depends upon the teacher's ability to create a favorable learning environment in which handicapped and nonhandicapped students learn and practice specific motor and physical fitness tasks. Physical education instructors who teach a mainstreamed class may find that much class time is spent managing inappropriate student behavior. There are several reasons for this: students' behavior patterns, nonhandicapped children's negative response to their handicapped peers, and the teacher's own inexperience with behavior management techniques. The need for physical educators to upgrade their knowledge of behavior management skills is critical (Dunn & French, 1982).

The purpose of this paper is to persuade physical education teachers that they should seriously consider behavior management techniques as a teaching tool. The evidence for this persuasion is addressed in these major questions: Is it appropriate to use behavior management in mainstreamed settings? Have behavior management techniques been used in physical education settings? What are some considerations if one is to succeed with behavior management techniques in a physical education setting? Finally, this paper presents some pointers for further research in this area.

Behavior Management in a Mainstreamed Environment

The first question, "Is it appropriate to use behavior management strategies in mainstreamed settings?" is answered in the affirmative. There are sufficient examples of exemplary

Request reprints from Dr. J.M. Dunn, Dept. of Physical Education, 214 Langton Hall, Oregon State University, Corvallis, OR 97331.
behavior management techniques used in classes with nonhandicapped students, and in mainstreamed environments, to indicate that the use of such techniques has value and can be applied to children in mainstreamed physical education classes. The techniques used in the regular classroom are many and varied but they essentially focus on teacher response to children’s behavior and on the establishment of certain rules and contingencies.

Walker, Hops, and Fiegenbaum (1976) demonstrated various effects of teacher praise, token reinforcement (points), and cost contingency (the loss of earned points) in changing the classroom behavior of disruptive children. This study suggested that a combination of teacher praise, tokens, and cost contingency was more effective than either teacher praise alone or teacher praise and tokens in combination. This study reinforced what Patterson (1974) had previously found, that a combination of reward and punishment is the best method of controlling behavior. These techniques were later demonstrated in a variety of studies. Humphrey, Karoly, and Kirschenbaum (1978) found that self-management techniques using both self-reward and self-imposed fines could be successfully employed with handicapped students in integrated settings. Both that study and one by Marholin and Steinman (1977) demonstrated that behavior problems should not be treated in isolation. Although there is need for additional research on the effect of behavior management techniques in mainstreamed settings, the findings to date suggest that this approach can be successfully implemented in integrated classrooms.

Behavior Management in Physical Education Settings

The second question, “Have behavior management techniques ever been used in physical education settings?” likewise is answered in the affirmative. Although few studies have applied behavior management concepts in a physical education environment, those few studies do indicate there is no reason why this approach cannot be successful.

Behavior management techniques have been employed in physical activity programs to help handicapped students build skills, but few studies have analyzed the effect of using these techniques to remediate inappropriate behavior in the gym. Studies have reported that reinforcement techniques improve motor proficiency and enhance the development of physical fitness.

Auxter (1969) observed that higher levels of functioning and faster learning rates in motor skill development were found with emotionally disturbed children who were reinforced through a system of tokens. These findings were obtained with 10 emotionally disturbed children 9 to 12 years of age.

Several investigators have compared the effect of various reinforcement strategies with handicapped students. Schack and Ryan (1978) conducted a study with five trainable mentally retarded youngsters to analyze four different treatment strategies on two motor tasks: a bean bag toss and a ring toss. They concluded that reinforcement procedures in general led to more effective learning, and that the greatest gains were made when social praise was paired with the giving of tokens. The other treatment procedures, in descending order of effectiveness, included social reinforcement only, token reinforcement only, and instruction only with no reinforcement.

Heitman (1982) concluded that social reinforcement, particularly verbal praise, was effective in improving the accuracy and speed of motor tasks with trainable and educable mentally retarded boys. Social praise was found to be more effective in enhancing performance than merely providing factual information about the student’s motor task speed and accuracy.
The effect of reinforcement with motor tasks has also been analyzed with severely
handicapped boys. In a study of 6 subjects, Bishop (1981) found that reinforcement pro-
cedures improved attentional behavior. He also concluded that primary or sensory rein-
cforcers were superior to the use of social praise alone in teaching the subjects to attend
to specific tasks. However, Bishop reported that the relationship is not clear between at-
tentional behavior and the occurrence of successful motor performance during reinforced
and nonreinforced conditions.

Leme (1982) compared the effect of tangible reinforcement plus social praise
versus social praise only on the physical fitness performance of severely handicapped
students. The findings of this study suggest that the combination of tangible reinforce-
ment plus social praise was superior to social praise only on sit-up performance. No dif-
ference between reinforcement treatments was found for the five other physical fitness
items that comprise the AAHPER Motor Fitness Test for the Moderately Mentally Retarded
(Johnson & Londeree, 1976).

Two major studies demonstrate the use of behavior management techniques to
remediate inappropriate behavior in a physical education setting. McKenzie and Rushall
(1974) improved attendance in a competitive swimming environment by marking attend-
ance at practice, thereby publicly praising such performance. These same authors (1980)
reduced inappropriate behaviors by controlling the coaches’ verbal feedback to the swim-
mers and by using a behavior technique called disqualification. Although both conditions
decreased the number of inappropriate behaviors, the latter was more effective.

**Major Considerations for Use in Physical Education Settings**

Our experience indicates there are four primary questions teachers ask about applying
behavior management teachings in a physical education setting. Each question is ad-
dressed in turn here.

**Group Setting**

Can behavior management be used effectively in a group setting? Behavior management
techniques have been shown to be effective in a group setting for increasing academic
and skill performance as well as for remediating inappropriate behaviors. Increases in
academic and skill performance have been demonstrated in a variety of classroom set-
tings. For instance, Hopkins, Schutte, and Garton (1971) reported that teachers improved
the rate and quality of printing and writing of first- and second-grade students by social
reinforcement and rewarding with access to a playroom.

Foxx and Jones (1978) reported a remediation program for increasing the spelling
skills of both elementary and junior high students through use of a positive practice pro-
cedure that increased performance by better than 10%. Through behavior management
techniques, Lahey and McNees (1975) reduced letter discrimination errors for children
in the primary grades during a special summer program. Working with 19 third-grade
students, Rapport and Bostow (1976) made access to recreational activities contingent upon
the completion each day of at least 80% of academic tasks: writing, copying words, spell-
ing, and dictionary skills. This procedure produced reliable and substantial increases in
the task performance of all students in the study.

McLaughlin (1981) awarded points to students in a sixth-grade class for increases
in math performance. These points could be exchanged for various reinforcing activities
in school. The results indicated that when students were given points for improved performance and efficiency, their performance increased further. These procedures were replicated, which further confirmed the results. Delinquent boys ages 13 and 15 were given tokens they could redeem for candy, gum, and other canteen items if they performed well on academic tasks. The results indicated their academic performance improved significantly during this time (Tyler & Brown, 1968). Miller (1977) made listening to music contingent upon improved arithmetic performance for EMR children. Statistical analyses revealed significant differences between no-reinforcement and a contingent reinforcement condition.

Behavior management techniques have also been successfully used to manage various activities in a classroom. For instance, Jacobson, Bushell, and Risley (1969) improved the rate at which children moved from one activity area of a Head Start classroom to another. Swinehart (1974) was able to increase the rate at which third-grade students completed math assignments by making morning recess contingent upon the completed math assignment.

Behavior management concepts applied to group settings has proven to be effective in remediating inappropriate behaviors. Fishbein and Wasik (1981) modified a good behavior game to reduce disruptive behaviors of a fourth-grade class during their weekly library period. The students designed the rules and stated them in positive terms, and the librarian and teacher observed and kept score. Reinforcers consisted of special classroom activities conducted by the teacher with the winning team. As a result, disruptive and off-task behavior decreased significantly. Using a variety of reinforcers, O'Leary and Becker (1967) demonstrated that a teacher's awarding of tokens that could be exchanged for the reinforcers decreased the disruptive behavior of a third-grade class. In fact, the deviant behavior was reduced from 76% to 10% within 40 days. Talking out loud, a frequent disturbing element in a classroom, was significantly decreased in a study reported by Hall, Fox, Willard, Goldsmith, Emerson, Owen, Davis, and Porcia (1971). A frequency tally was maintained and positive reinforcement, praise, and access to games were awarded for proper hand raising without talk-outs.

As noted, the principal methods used in group management techniques have been some form of token systems and group contingencies. In addition, Robinson, Newby, and Ganzell (1981) used tokens in a third-grade class of 18 hyperactive boys. Four different colored tokens could be earned and exchanged for 15 minutes of play on electric video games when the boys successfully completed two tasks that involved learning to read and to use new vocabulary words in sentences, and two tasks in which they served as proctors to students who had not yet completed the former tasks. The mean number of tasks completed during the intervention periods rose to over nine times the number completed without the tokens. All 18 students responded to the token program with an increase in their academic performance. In some cases tokens can be self-determined. For instance, Glynn (1970) targeted the learning of history and geography, awarding tokens contingent on test grades. The tokens could be redeemed for prizes that were relevant to the academic material. Students in one group were to decide for themselves how many tokens they earned, a second group was teacher-determined, a third was chance-determined, and a fourth group received no tokens. The self-determined and teacher-determined groups achieved better performance than the chance-determined and no-tokens group and in fact made significant improvements over baseline.

Reinforcers for tokens seem primarily to have focused on free time or special recreational activities (Glynn, 1970; Lovitt, Guppy, & Blattner, 1969; Robinson et al., 1981; Strandy, McLaughlin, & Hunsaker, 1979). Another technique used is to post in public and invite peer comments in order to increase performance. Van Houten and Van
Houten (1977) compared the effectiveness of posting individual performance with posting individual plus team performance. Individual plus team posting led to better academic progress and to more comments from students about academic performance than did individual posting alone. It was further demonstrated that increased levels of performance could be maintained by appointing class captains who were encouraged by their teachers to give peer recognition.

Performance Versus Behavior

A second major question is, if one is faced with a class of poor performing students and also students who engage in inappropriate behaviors, should the behavior management procedures address performance or the remediation of inappropriate behaviors? The data from the literature are quite mixed. Haubrich and Shores (1976) support the use of contingent reinforcement for academic performance as a primary classroom strategy that increases both academic performance and attending task behavior. This study replicated the findings of the Shores and Haubrich (1969) study. Ayllon and Roberts (1974) demonstrated that disruptive behavior in a fifth-grade classroom could be decreased by reinforcing improved reading performance.

On the other hand, McKenzie, Clark, Wolf, Kothera, and Benson (1968), focusing on a token reinforcement system and nonattending behavior during reading and arithmetic lessons, increased attending behavior from 68% to 86% with a subsequent increase in reading and arithmetic achievement. Finally, Ferritor, Buckholdt, Hamblin, and Smith (1972) discovered that when their behavioral contingencies focused on academic performance, academic performance improved but attending declined and disruption increased. They found they needed to combine contingencies for both performance and attending. Thus one gains little guidance from the literature, although certainly most practitioners prefer to focus on the positive performance of the student, reinforcing that performance in the hope of decreasing the inappropriate behaviors that interfere with learning.

Amount of Social Reinforcement

Perhaps one of the most important considerations in managing behavior in a classroom is, how much social reinforcement should a teacher deliver? In a study conducted by Hill and Strain (1977), EMR children were grouped with a regular fourth-grade class during a social studies period. The EMR children were divided into two groups. Using a reversal design, social reinforcers were delivered that were contingent upon task-persistent behavior of the target children. Subjects in the control or nonreinforcement groups were not reinforced as they engaged in appropriate task related behaviors. Results showed that increases in the level of task-persistent behavior and the administration of social reinforcement were functionally related.

Unfortunately, our own experience with the amount of social reinforcement being delivered in regular classrooms indicates that it is very low. White (1975) recorded the natural rates of teacher approval and disapproval in the classroom. The rates of teacher verbal approval dropped markedly after the second grade; in every grade thereafter, the rate of teacher verbal disapproval exceeded the rate of teacher verbal approval. Thomas, Presland, Grant, and Glynn (1978) examined the natural rates of teacher verbal approval and disapproval in 10 seventh-grade classrooms. The majority of the teachers displayed individual approval rates. Jones and Jones (1981) reported a study conducted by Fredericks of first-grade teachers in which it was found that only 9 of the 17 teachers had reinforce-
ment rates over 50%. Seven were above 70%. These data were correlated with children’s liking of school. Baseline data indicated that more than 90% of the first-graders liked school during the first 2 weeks of the school year. Returning in February and surveying the same children, the experimenters found that 90% of the children whose teachers achieved 70% verbal approval still liked school. Children in classrooms where verbal disapproval exceeded verbal approval generally disliked school; in fact, 100% of them disliked school in those classrooms where verbal disapproval was 60% or higher. Teachers’ approval and disapproval rates did not change significantly between September and February.

Duration

A fourth major question about the application of behavior management techniques is, how long must a contingency management program that uses tokens remain in effect? The general rule is to keep it in effect until a target objective has been achieved, such as 80% or 90% compliance with classroom rules, a certain performance level, or any other goal that has been established. Token reinforcement systems have been known to be utilized for large portions of the school year and, even after being withdrawn, improvements in behavior were maintained without further use of a token system. Both Jones and Kazdin (1975) and Main and Menro (1977) demonstrate how treatment effects were maintained after tokens were withdrawn. If inappropriate behaviors reemerge or if performance levels decrease, the token system is reestablished and maintained for a longer period of time so the skills and behaviors learned through the token system become a natural part of the student’s repertoire of performance skills.

We believe the principles that have been demonstrated in other classrooms and with other groups of children of all ages are applicable to physical education settings. Behavior management in a group setting can eliminate inappropriate behaviors and increase performance skills. Token systems or point systems with backup reinforcers of free time or access to other activities are easily employed. Public posting of performance levels and peer feedback together serve as another valuable use of group management techniques. But above all, the teacher must recognize the importance of increasing the amount of social reinforcement to students as they perform successfully and maintain appropriate behavior. This verbal approval, perhaps one of the most important of the group management techniques, will not only increase student behavior but will also increase student enthusiasm for the subject material being presented. Even after tokens are no longer used, the social reinforcement continues and, through that, the improved student behavior as well.

Considerations for Further Research

Clearly, additional research is needed on behavior management concepts and their application in the physical education environment. There are data to support the application of behavior management techniques with handicapped students in special classes and integrated classes, but few studies have analyzed the effect of this approach on the acquisition of motor skills and remediation of inappropriate behavior in the gym. Some areas of investigation that should be undertaken to help practitioners implement appropriate physical education experiences for handicapped and nonhandicapped students include the following:

1. If handicapped students are to be successfully mainstreamed into physical education classes, the behavior of handicapped and nonhandicapped children as a group will
be important in establishing a positive learning environment. Few studies have analyzed the effects of behavior management strategies on group behavior rather than individual behavior. Vogler (1981) demonstrated that a group oriented contingency management system was effective in a physical education setting for increasing the on-task behavior of 23 behavior disordered children. Studies of this nature should be extended to other disability populations as well as integrated physical education classes.

2. The studies reviewed here which used behavior management techniques should be replicated in various settings with other populations of different ages and disabilities. All these studies except for Heitman's (1982) were conducted with reasonably small sample sizes. This is understandable, given the severity levels of some of the populations studied, yet this limitation can be overcome with replicated research designs. Studies should be extended to populations other than the mentally retarded or emotionally disturbed.

3. Some of the studies indicated that social reinforcement alone (Bishop, 1981; Heitman, 1982) could be used as an effective behavior management strategy. Others reported that social reinforcement was most effective when combined with a token (Leme, 1982; Schack & Ryan, 1978). Additional studies are needed in order to clarify under what conditions and with what populations social reinforcement alone can be utilized. It would also be helpful to determine if social praise is a more powerful reinforcer in the physical education setting compared to other academic environments. Perhaps participation in some motor tasks is reinforcing to the extent that elaborate behavior management strategies are not necessary within the gymnasium environment.

References


