The purpose of this study was to examine the effect of a mismatch between student ability and task difficulty upon inappropriate classroom behavior in children with behavior disorders. The mismatch condition was evaluated both with and without a reinforcement contingency on task accuracy. An experimenter-constructed pretest was used to assess the level of math functioning in the 15 subjects. Variations on the A-B-A single-subject experimental design were used to evaluate the independent variables. An increase in inappropriate behavior was found during the mismatch condition both with and without a reinforcement contingency on task accuracy. Results suggested that failure-level academic tasks resulted in significant increases in inappropriate behavior for some students. Implications of this study for special educators are discussed.

Student Ability, Task Difficulty, and Inappropriate Classroom Behavior

A Study of Children with Behavior Disorders

DAVID B. CENTER
Mississippi State University
SAMUEL M. DEITZ
MELVIN E. KAUFMAN
Georgia State University

Discipline problems in educational settings are viewed as an important issue by parents, teachers, and administrators. The ninth annual Gallup Poll of attitudes toward the public schools (Gallup, 1977) found that parents of children in the public schools ranked discipline as the number one problem. Discipline has been ranked the number one problem for eight of the nine years during

---

AUTHORS' NOTE: *This study was part of the first author's doctoral dissertation and was completed while the first author was a doctoral candidate in the Department of Special*

BEHAVIOR MODIFICATION, Vol. 6 No. 3, July 1982 355-374

which the poll has been conducted. Similar findings have been reported for teachers and administrators (Duke, 1978).

One of the major approaches employed in attempts to control disruptive behavior in the classroom has been behavior modification. While behavior modification appears to have been effective when used to reduce disruptive behavior in the classroom (Deitz & Hummel, 1978), it has not been without its critics (Winett & Winkler, 1972). The major criticism leveled at behavior modifiers has been that the target behaviors selected probably are not directly related to the learning process itself, nor does deceleration of inappropriate social behaviors increase academic productivity.

In response to that criticism it should be noted that there exists in the literature a number of examples of behavior modification programs designed to accelerate both academic and prosocial behaviors that antedate the publication of Winett and Winkler's challenge to behavior modifiers (Cohen & Filipczak, 1971; Cohen, Filipczak, & Bis, 1967; Cohen, Filipczak, Slavin, & Boren, 1971; Glavin, Quay, & Werry, 1971; Phillips, 1968, 1971). The reports by Cohen et al. (1967) and Cohen and Filipczak (1971) concern project CASE (Contingencies Applicable to Special Education), a program to develop the academic and social skills of delinquent adolescents at the National Training School for Boys. A major thrust of this program was to provide a contingency-managed, individualized, academic intervention that made extensive use of programmed instruction. A public school program for predelinquent youth (Cohen et al., 1971) called PICA (Programming Interpersonal Curricula for Adolescents) utilized an academic program similar to the one employed in CASE. Out of the CASE and PICA projects evolved another program (Filipczak, Friedman, & Reese, 1979) called PREP (Preparation through Responsive Educational Programs) for

---

Education, Georgia State University. The authors gratefully acknowledge the cooperation and assistance of Ms. Sara Reale, Director of Cobb Children's Center and her staff. *Address inquiries for reprints to David B. Center, Ph.D., Department of Special Education, Box 5365, Mississippi State University, Mississippi State, MS 39762.*

youth with academic and/or social problems. The importance placed on contingency-managed, individualized, academic training in CASE and PICA continued in the PREP program.

Also prior to the publication of Winett and Winkler (1972), the Achievement Place Model (Phillips, 1968, 1971) was being developed. This was a program for delinquent youth that employed a home-style rehabilitation setting as an alternative to incarceration. The behavior management program in the model employed a token economy. While these youth continued to attend public school classes, there were reinforcement contingencies built into the token economy used in the Achievement Place home that applied to academic performance. Glavin, Quay, and Werry (1971) reported on a public school program that emphasized the acceleration of academic performance through the use of individualized instruction and reinforcement procedures. While CASE, PICA, PREP, Achievement Place, and the Glavin et al. programs all have been successful in improving both academic and social behavior, none of these has attempted to establish a functional relationship between academic performance and conduct behavior.

Since Winett and Winkler's (1972) article, there have been a number of studies that attempted to decelerate inappropriate behavior through differential reinforcement procedures applied to academic performance. These studies (Ayllon, Layman, & Burke, 1972; Ayllon, Layman, & Kandel, 1975; Allyon & Roberts, 1974; Hundert, Bucher, & Henderson, 1976; Marholin & Steinman, 1977; Winett & Roach, 1973) have demonstrated the functional relationship between acceleration of academic performance through reinforcement contingencies and reduction of inappropriate classroom behavior. Ayllon and his associates have conducted three studies that have employed single-subject designs to evaluate acceleration of academic behavior as a means of decelerating inappropriate behavior. All of these studies have employed some type of systematic instructional procedures along with the reinforcement procedures. The Hundert et al. (1976), and Marholin and Steinman (1977) studies, using single-subject designs, have demonstrated a functional relationship between

reinforcement-accelerated academic performance and the deceleration of inappropriate social behavior. Both of these studies also exercised some control over instructional variables. The Winett and Roach (1973) study compared the effect of a reinforcement contingency on task completion and task accuracy upon both academic productivity and levels of appropriate behavior. Improvements significant at the .01 level were obtained when the subjects' performance under the reinforcement contingency was compared with their performance without the reinforcement contingency. All of the above studies focused primarily upon the reinforcement variable. While all or most gave some attention to the instructional variable, none looked specifically at the relationship of the demand level (difficulty) of academic tasks relative to student ability and inappropriate behavior in the classroom.

A review of the research literature found only one study (Winett, Battersby, & Edwards, 1975) that attempted to examine the possible relationship between student ability, task difficulty, and inappropriate classroom behavior. Winett et al. (1975) examined the effect of architectural changes, individualization of instruction, a group reinforcement contingency on academic performance, and immediate feedback on the academic and social behavior of a class of sixth-grade students who were divided into three groups according to ability level. During baseline, a group-oriented instructional procedure was followed. Presumably, only the middle ability group was receiving appropriate tasks during this phase. Introduction of architectural change did not result in a significant difference in the dependent variables. However, addition of individualization and the reinforcement contingency resulted in significant improvements in the dependent variables. Unfortunately, the effect of individualization on inappropriate behavior was never examined as a solitary variable, so the results were somewhat confounded by the cumulative introduction of variables.

The purpose of this study is to investigate the relationship between student ability level, task difficulty, and inappropriate classroom behavior in children with behavior disorders. Specifi-

cally, this study examined the effect of a mismatch between ability level and task demand level on inappropriate behavior, where task demand was greater than ability level. A secondary purpose of this study was to examine the relationship between reinforcement for task accuracy and inappropriate behavior when the task was too difficult for a student's ability level. Previous studies have indicated that reinforcement of task accuracy will reduce inappropriate classroom behavior. However, with the exception of Winett et al. (1975), these studies have not examined the effects that might result from using such a reinforcement contingency in a situation where there is a mismatch between a student's ability level and the demand level of assigned tasks.

The "too difficult" mismatch was selected due to the characteristics of the study population. Several descriptive studies (Graubard, 1964; Stone & Rawley, 1964; Swift & Spivack, 1969) of school-age populations have found a consistent relationship between academic problems and behavior problems. Since children with behavior problems tend to be academically behind, there is a reasonable probability that they will be given tasks that are too difficult. Only in classes where individualization of instruction is practiced would this type of mismatch be unlikely. Unfortunately, careful observation (Goodlad & Klein, 1974) has found that little or no individualization of instruction takes place in regular or special classes. If a student is already having behavior problems in the classroom, a mismatch between ability level and task demand level may well aggravate the behavior problems and the academic problems.

METHOD

SUBJECTS

All of the 15 subjects were students in self-contained classes for children classified as behavior disordered. The subjects were all male and predominately white; there was one black subject and one oriental subject. All subjects were of normal intelligence, but were academically behind from one to three years. The subjects

ranged in age from eight to twelve. The subjects were evenly divided between three classrooms. Two classrooms served as intervention groups and the other classroom as a comparison group. Each subject's evaluation on a five-point behavior rating scale, employed as part of a psychoeducational model (Wood, 1975), was obtained and a group mean computed for the subjects in each class. The mean rating for Experimental Group 1 was 3.767, for Experimental Group 2, 3.682, and for Experimental Group 3, 3.592. Differences among the three groups in severity of behavior problems were not statistically significant.

SETTING

The investigation was conducted at the Cobb/Douglas Children's Center. The Children's Center serves a large metropolitan area school system near Atlanta, Georgia. The Children's Center is part of a statewide network of psychoeducational treatment facilities for emotionally disturbed children. Classrooms in which this study was carried out had a master-level teacher and an instructional aide.

Observation of subjects was made from rooms adjacent to the classrooms. Each observation room had a large one-way mirror, which afforded a good overall view of the classroom. In addition, each observation room had an audio system that allowed the classroom being observed to be auditorially monitored.

PROCEDURES

Inappropriate behavior was defined following Madsen, Becker, and Thomas (1968). Behaviors that were considered inappropriate included: gross motor behaviors, object noise, disturbance of other's property, physical contact, verbalization, and turning around.

Data on each subject were obtained using a time-sampling procedure. Number of observations per subject per task period ranged from 10 to 18, with a mean of 13.35. A task period lasted about 15 to 20 minutes, which was the usual length of an academic

period in the classrooms. Recording was on a rotating 10-second observe/5-second record basis throughout each session. Observation began with a different subject each session and then rotated through the remaining subjects back to the initial subject, and so on. Observation was paced using a cassette tape on which had been recorded the words "observe" and "record," spaced at appropriate intervals.

Interobserver agreement checks of inappropriate behavior were made during each phase of the study. Checks were made for each subject, by a trained observer. The reliabilitiy observer was trained to a 90% minimum criterion on both a written test based on the operational definitions used and actual observations and recording paired with the experimenter. The criterion for observational agreement had to be met for three consecutive observational periods. During reliability checks the experimenter and the reliability observer were separated by a particle board partition. Two types of agreement were computed. First, agreement on scored intervals was computed using the formula: agreements on the occurrence of behavior divided by agreements plus disagreements on the occurrence of behavior times one hundred. Second, agreement on unscored intervals was computed using the formula: agreements on the nonoccurrence of behavior divided by agreements plus disagreements on the nonoccurrence of behavior times one hundred.

The agreement scores on the occurrence of inappropriate behavior ranged from 75% to 100%, with a mean of 91%. Agreement scores on nonoccurence of inappropriate behavior ranged from 80% to 100% with a mean of 93%.

The major independent variable investigated in this study was task difficulty relative to student ability. This variable was manipulated within the academic area of arithmetic. There were two levels of student ability and task difficulty relationship. One level was an appropriate match between student ability and task difficulty. This level was termed the success level. The success level in arithmetic was defined as comprising those areas on an experimenter-constructed, criterion-referenced test in which a subject's accuracy equaled or exceeded 60%. The other level of this variable was a mismatch between student ability and task

difficulty. This level was termed the failure level. The failure level in arithmetic was defined as comprising those areas on the criterion-referenced test in which a subject's accuracy was equal to or less than 40%.

The second variable investigated in this study was a reinforcement contingency applied to the accuracy of task performance. The contingency was as follows. Each subject was awarded the number of points that corresponded to his percentage correct score. Each subject's work was scored for accuracy and the percentage correct computed. Each subject had his own point card upon which his earned points were placed. Subjects were able to spend points to purchase comic books, candy bars, and cokes. Reinforcers used were selected on the basis of subjects' preferences, determined by asking them what they would like to be able to buy at school. Anything that the subjects wanted and had sufficient points to buy was available. Special requests had to be made one day in advance to allow time to obtain the item. Reinforcers were priced according to the following formula: ten cents cash value equaled 100 points. Subjects were allowed to spend points on a daily basis during a reinforcement phase.

A variation on the A-B-A single-subject design (Hersen & Barlow, 1976) was used in an attempt to determine: (1) if a mismatch between student ability and task difficulty would affect inappropriate classroom behavior, and (2) if a reinforcement contingency on task accuracy, when there was a mismatch, would affect inappropriate classroom behavior. The evaluation design employed for Experimental Group 1 can be represented by: A-B-A-BC-A. The evaluation design for Experimental Group 2 can be represented by: A-AC-A-BC-A. In the models, A represents a match condition, AC represents a match condition plus a reinforcement contingency on task accuracy, B represents a mismatch condition, and BC represents a mismatch condition plus a reinforcement contingency on task accuracy. The evaluation design for Experimental Group 3 can be represented by: A-AC-A, where the first A phase extended the length of the first three phases in the other groups. Thus, the comparison group had appropriate tasks throughout the study with a reinforcement contingency applied during one phase.

Before the baseline phase began, each subject was assessed to determine his success and failure work levels in arithmetic and his average rate per minute for problems completed. The assessment was performed using an experimenter-designed test developed for this purpose. The test covered basic content areas in arithmetic. There were five items for each area (e.g., addition with single-digit numbers, addition of multiple-digit numbers without carrying, and addition of multiple-digit numbers with carrying). The test was constructed by randomly drawing 5 items from a pool of 100 items for each content area. Items in each content area pool were generated using a random number table. These pools of items and the random drawing procedures also were used to construct daily assignment sheets for the subjects.

The pretest was arranged in hierarchical fashion beginning with items traditionally taught first (i.e., single-digit addition). Testing was terminated for any given subject when he had missed all five problems in two consecutive areas in the hierarchy. All items beyond this termination criterion were assumed to be beyond the subject's ability, since items higher on the hierarchy depended on items lower in the hierarchy (e.g., one can't add fractions if unable to add whole numbers, etc.).

During pretesting, a reinforcement contingency on correct task performance was utilized. The reinforcement contingency was the same as the one discussed above and was subsequently used as one of the independent variables. The reinforcement procedure was used to facilitate maximum performance on the pretest.

Phase One. During this phase all subjects in all groups were given experimenter-prepared assignments that had been individualized for each subject's success work level and pretest work rate.

Phase Two. In this phase the first experimental group was given experimenter-prepared assignments that had been individualized to reflect each subject's failure work level and pretest work rate. The second experimental group remained on its success work level and was placed under the reinforcement contingency for correct task performance. The third experimental group continued as in Phase One.

Phase Three. In this phase, all three groups were under the conditions described in Phase One.

Phase Four. In this phase, the first and second experimental groups were given failure-level assignments and were placed under the reinforcement contingency for correct task performance. The third experimental group remained on the success work level and was placed under the reinforcement contingency.

Phase Five. All subjects were returned to Phase One conditions.

During all phases, subjects were given their task sheets with instructions to attempt all assigned problems. Subjects were told that if they had any questions to raise their hand and wait for the teacher or the aide to come to them. When a reinforcement contingency was in effect, subjects were reminded that the reinforcement contingency was in effect and were reminded of the conditions of reinforcement.

Teachers were instructed that no procedures other than those specified by the experimental conditions could be used during the sessions. In terms of the academic behavior, teachers could respond to questions concerning the suitability of a task with verbal encouragement to do the best that one could. When questions were raised concerning solutions to problems, the teacher was allowed to work one, but only one, teacher-constructed example as a demonstration for the student.

Inappropriate behavior during sessions was to be dealt with through verbal reprimands (e.g., "We don't do that in this class," or "I don't want to see that again"). If any subject became so unruly as to constitute a threat to the safety of himself or others (in the teacher's judgment), the subject was removed from the room until he calmed down. If a subject did not complete his worksheet due to removal from the classroom, his performance score was based on the work completed (all problems not attempted were counted as incorrect). While a subject was out of the room due to removal for inappropriate behavior, the subject's observation Intervals were scored as inappropriate (this occurred only one time during the study).

A check on the teachers' compliance with these experimental conditions was made. This check was done by observing a teacher's behavior, during each 10-second observation interval, relative to the subject under observation during that interval. This procedure provided an estimate of the proportion of each session that a teacher failed to comply with the experimental conditions. The mean percentage of inappropriate teacher behavior obtained was 2.6%. A further check was made on the teachers' compliance with instructions by inspecting the worked examples on the back of students' task sheets. The teachers were found to have complied with the instructions given them.

RESULTS

Part of Figure 1 displays the data that pertain to the question of the effects of an ability/task difficulty mismatch upon inappropriate classroom behavior. The graph labeled "Group" shows the mean level of inappropriate behavior for the five subjects in Experimental Group 1. The first phase, labeled (M), represents the baseline data on inappropriate behavior under an ability/task difficulty match condition. The second phase, labeled (MM), represents the inappropriate behavior data under an ability/task difficulty mismatch condition. Phase Two is discontinuous with both Phases One and Three; the level of inappropriate behavior is markedly higher during the (MM) condition. Of the five subjects, the individual data for three of the subjects (S2, S3, S5) approximates the group data. For two subjects (S1, S4) there are trends in the individual data that resemble group data. However, variability in the data for subjects S1 and S4 is not as great as for the other three subjects across the first three phases. In summary, graphic data for Experimental Group 1, as a whole, clearly shows a sharp increase in inappropriate behavior during the mismatch condition. The individual data approximate the group data in three subjects, but only trends occurs in the other two subjects.

Parts of Figures 1 and 2 display the data that pertain to the effect of a reinforcement contingency upon inappropriate class-

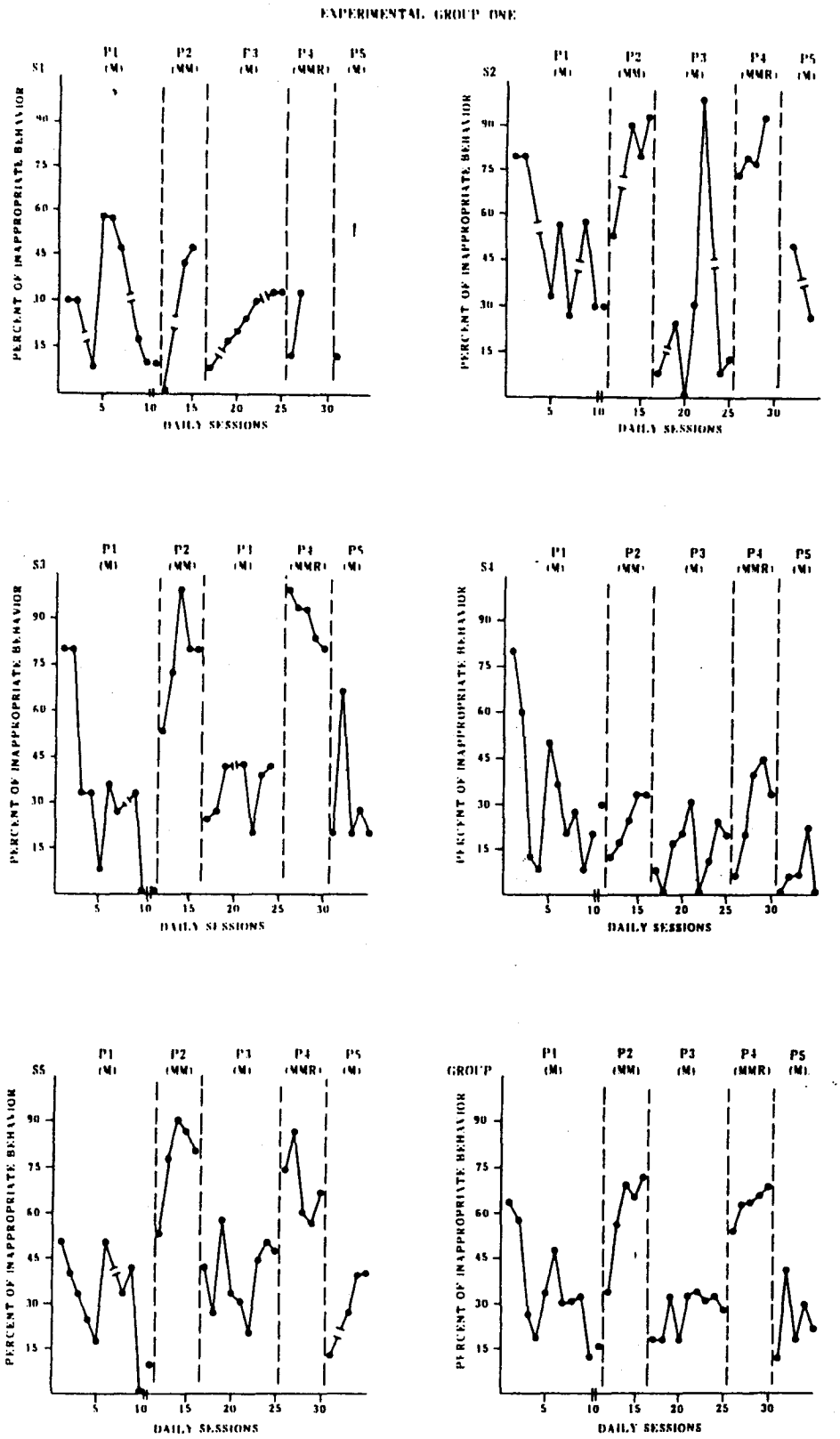

Figure 1: Individual and Grouped Data on Inappropriate Behavior for Experimental Group One

M = ability/task difficulty match; MM = ability/task difficulty mismatch; R = reinforcement contingency on task accuracy.

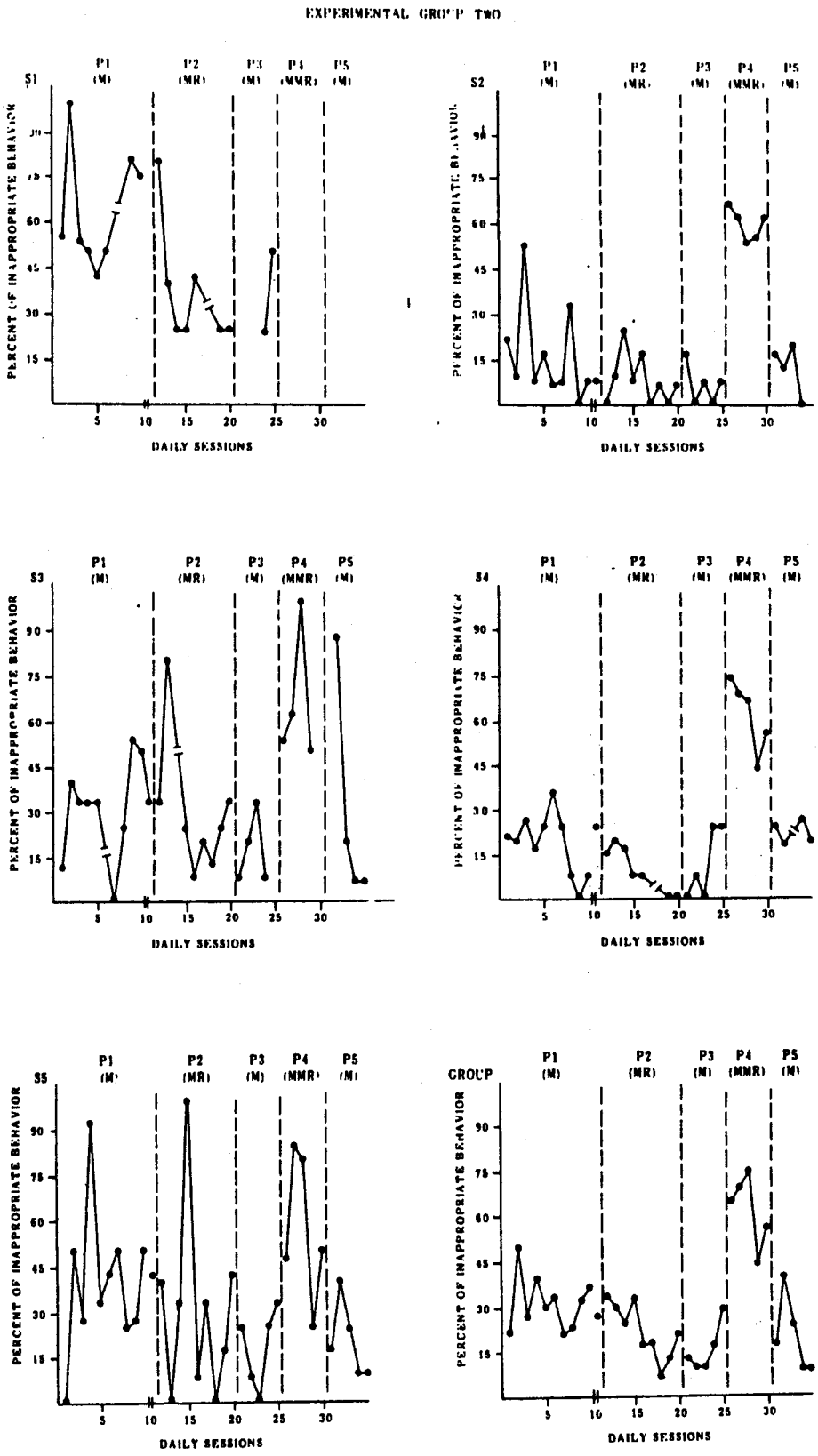

Figure 2: Individual and Grouped Data on Inappropriate Behavior for Experimental Group Two

M = ability/task difficulty match; MM = ability/task difficulty mismatch; R = reinforcement contingency on task accuracy.

room behavior during a mismatch condition. In the third and fifth phases of the graphs labeled "Group," in Figures 1 and 2, the phases labeled (M) represent data under a match condition. The fourth phase in each graph, labeled (MMR) represents data under mismatch condition with a reinforcement contingency on task accuracy. Phase Four is discontinuous with both Phases Three and Five for both Experimental Group 1 and Experimental Group 2. For both groups the level of inappropriate behavior rose markedly during the (MMR) condition relative to the (M) condition.

In Experimental Group 1, the individual data for three of the subjects (S2, S3, S5) approximates the group data. For one subject (S4), there are trends in the individual data that resemble the group data. However, the variability in the data for subject S4 is not as great for subjects S2, S3, and S5. For the remaining subject (S1), there is insufficient data during the last two phases to allow an analysis. In Experimental Group 2, the individual data for four of the subjects (S2, S3, S4, S5) approximate the group data. For one subject (S1) there is insufficient data during the last two phases to allow an analysis. In summary, data for Experimental Groups 1 and 2 show a sharp increase in inappropriate behavior during the mismatch condition even when a reinforcement contingency on task accuracy was present.

Further support for the mismatch variable as a source of inappropriate behavior can be seen by examining Phase Two and Phase Four (disregarding the reinforcement contingency in Phase Four) of the graphs in Figure 1. The data then follow an ABABA design, where A represents the match conditions and B represents the mismatch condition. The data show two sets of reversals as the independent variable is presented and withdrawn. This is most clearly seen in the group data and the individual data for S2, S3, and S5.

Figure 3 displays the math scores as well as the inappropriate behavior for each of the three experimental groups. The data for Experimental Group 3 show that under a continuous match condition, the math scores remain consistently high and the inappropriate behavior remains fairly stable. No apparent effect

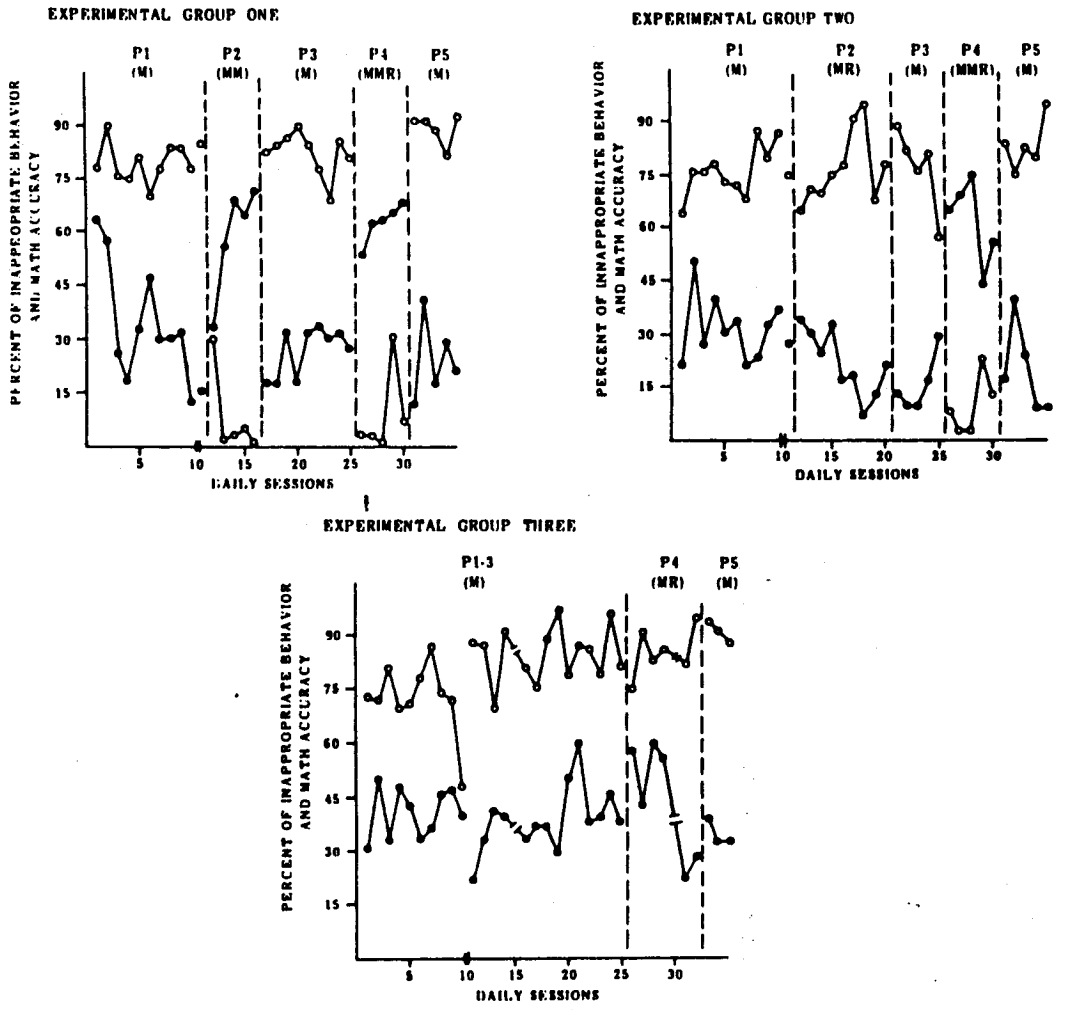

Figure 3: Mean Inappropriate Behavior and Math Accuracy Data for All Three Experimental Groups

Inappropriate behavior (●); Math accuracy (○); M = ability/task difficulty match; MM = ability/task difficulty mismatch; R = reinforcement contingency on task accuracy.

was noted when the reinforcement contingency for math performance was added. For Experimental Groups 1 and 2, math accuracy declined markedly during the ability/task difficulty mismatch conditions both with and without a reinforcement contingency on task accuracy. Likewise, it can be seen in the graph that the level of inappropriate behavior increased during the mismatch conditions both with and without a reinforcement contingency on task accuracy.

DISCUSSION

The results of this study suggest that an appropriate match between student ability and task difficulty is a potent influence on inappropriate behavior in the classroom. Instructional variables such as task difficulty can significantly affect the conduct of some students. Other studies (Ayllon et al., 1972; Ayllon et al., 1975; Ayllon & Roberts, 1974; Hundert et al., 1976; Marholin & Steinman, 1977; Winett et al., 1975; Winett & Roach, 1973) have reported that placing a reinforcement contingency on task accuracy reduced inappropriate behavior. Only in the Winett et al. (1975) study, however, was an assessment of the differential effects of instructional variables and reinforcement undertaken. Unfortunately, the results of that study were somewhat confounded by the cumulative introduction of several variables.

In another study (Ayllon et al., 1972) during a three-day baseline, a systematic instruction procedure was introduced on the third day and was continued as part of the intervention. It was noted that inappropriate behavior dropped sharply with introduction of systematic instruction. A functional analysis of this effect was not attempted. The authors concluded that the reinforcement of task accuracy was the critical variable in reducing inappropriate behavior in their study. However, the level of inappropriate behavior had dropped with the introduction of systematic instruction. Introduction of the reinforcement contingency did not appear to have reduced the level of inappropriate behavior any further. On the basis of the results of the present study, it appears that the instructional variable may have made the most significant contribution to the reduction of the inappropriate behavior.

In the present study, the reinforcement contingency during the match or mismatch conditions failed to have any apparent effect upon the level of inappropriate behavior. It cannot, however, be concluded that reinforcement for task accuracy is an ineffective procedure for reducing inappropriate behavior when the task is too difficult. This conclusion would be unwarranted in view of the rather limited effect that the reinforcement contingency had under the match conditions in Experimental Groups 2 and 3. The

failure of the reinforcement contingency under the match condition casts doubt upon the reinforcing properties of the contingency employed.

The student ability/task difficulty mismatch variable examined in this study needs further research in other populations. The efficacy of the variable may very well extend to public school students in general. Further research is also needed to determine if the mismatch variable will produce similar effects when the mismatch is due to material that is too easy rather than too difficult. The question concerning the efficacy of reinforcing task accuracy as a procedure for reducing inappropriate behavior when a student has been assigned a task too difficult for his or her ability level needs further investigation. In particular, a clear functional relationship between the reinforcement procedure and the subjects' behavior needs to be established before testing the hypothesis.

Several writers in special education have stressed, as an important condition for learning, the necessity of having an appropriate match between student ability and task difficulty level (Haring, 1977; L'Abate & Curtis, 1975; Otto, McMenemy, & Smith, 1973). Other authors have stated their belief that mismatching student ability and task difficulty can produce or be a contributing cause of inappropriate behavior (Lerner, 1971; Long & Newman, 1971; Strauss & Lehtinen, 1947). While the opinion that student ability, task difficulty, and inappropriate classroom behavior are related seems to be widespread, no data in support of this belief were cited by any of the above writers. The results of this study support the assertions of these writers that when behavior problems arise in the classroom, one of the first factors to be examined should be instructional procedures and materials and their appropriateness for the offending student. It is possible that many of the behavior problems referred to special educators for intervention could be reduced or eliminated by curriculum adjustment.

Another implication for the results of this study bears on the current emphasis on mainstreaming. Perhaps the most basic step that special educators can take to ensure the reintegration of

behavior disordered students back into the regular school program is to make sure that the mainstreamed student is placed in an appropriate curriculum.

Finally, the antecedent variable evaluated in this study by no means exhausts the population of potential antecedent variables to be found in instructional settings. Effectiveness of the ability/task difficulty match in reducing inappropriate behavior suggests the investigation of other instructional variables. Such variables as mode of presentation (e.g., PSI or tutorial instruction versus group instruction) may be found to be important. An effort to identify and evaluate these and other antecedent variables in educational environments that might affect inappropriate behavior seems justified by the results of this study.

REFERENCES

Ayllon, T., Layman, D., & Burke, S. Disruptive behavior and reinforcement of academic performance. *Psychological Record*, 1972, 22, 315-323.

Ayllon, T., Layman, D., & Kandel, H. J. A behavioral-educational alternative to drug control of hyperactive children. *Journal of Applied Behavior Analysis*, 1975, 8, 137-146.

Ayllon, T., & Roberts, M. D. Eliminating discipline problems by strengthening academic performance. *Journal of Applied Behavior Analysis*, 1974, 71-76.

Cohen, H. L., & Filipczak, J. *A new learning environment*. San Francisco, CA: Jossey-Bass, 1971.

Cohen, H. L., Filipczak, J., & Bis, J. S. *Case I: An initial study of contingencies applicable to special education*. Silver Spring, MD: Educational Facility Press, Institute for Behavioral Research, 1967.

Cohen, H. L., Filipczak, J., Slavin, J., & Boren, J. *Programming interpersonal curricula for adolescents* (PICA), project year three: *A laboratory model*. Silver Spring, MD: Educational Facility Press, Institute for Behavioral Research, 1971.

Deitz, S. M., & Hummel, J. H. *Discipline in the schools*. Englewood Cliffs, NJ: Educational Technology Publications, 1978.

Duke, D. L. How administrators view the crisis in school discipline. *Phi Delta Kappan*, 1978, 59, 323-331.

Filipczak, J., Friedman, R. M., & Reese, S. C. Prep: educational programming to prevent juvenile problems. In J. S. Stumphauzer (Ed.), *Progress in behavior therapy with delinquents*. Springfield, IL: Charles C. Thomas, 1979.

Gallup, G. H. Ninth annual Gallup poll of the public's attitudes toward the public schools. *Phi Delta Kappan*, 77, 59, 33-48.

Galvin, J. P., Quay, H. C., & Werry, J. S. Behavioral and academic gains of conduct problem children in different classroom settings. *Exceptional children*, 1971, 37, 441-446.

Goodland, J. I., & Klein, M. F. *Looking behind the classroom door.* Worthington, OH: Charles A. Jones, 1974.

Graubard, P. S. The extent of academic retardation in a residential treatment center. *Journal of Educational Research*, 1964, 58, 78-80.

Haring, N. G. Measurement and evaluation procedures for programming with the severely and profoundly handicapped. In E. Sontag (Ed.), *Educational programming for the severely and profoundly handicapped.* Reston, VA: Council for Exceptional Children, 1977.

Hersen, M., & Barlow, D. H. *Single case experimental designs: Strategies for Studying behavior change.* New York: Pergamon, 1976.

Hundert, J., Bucher, B., & Henderson, M. Increasing appropriate classroom behavior and academic performance by reinforcing correct work alone. *Psychology in the Schools*, 1976, 13, 195-200.

Kirk, R. E. *Experimental design: Procedures for the behavioral sciences.* Belmont, CA: Brooks/Cole, 1968.

L'Abate, L., & Curtis, L. T. *Teaching the exceptional child.* Philadelphia: W. B. Saunders, 1975.

Lerner, J. *Children with learning disabilities.* Boston: Houghton Mifflin, 1971.

Long, N. J., & Newman, R. G. In N. J. Long, W. C. Morse, & R. G. Newman. *Conflict in the classroom.* Belmont, CA: Wadsworth, 1971.

Madsen, C. H., Becker, W. C., & Thomas, D. R. Rules, praise, and ignoring: Elements of elementary classroom control. *Journal of Applied Behavior Analysis*, 1968, 1, 139-150.

Marholin, D., & Steinman, E. M. Stimulus control in the classroom as a function of the behavior reinforced. *Journal of Applied Behavior Analysis*, 1977, 10, 465-478.

Otto, W., McMenemy, R. A., & Smith, J. *Corrective and remedial teaching.* Boston: Houghton Mifflin, 1973.

Phillips, E. L. Achievement Place: Token reinforcement procedures in a home-style rehabilitation setting for "pre-delinquent boys." *Journal of Applied Behavior Analysis*, 1968, 1, 213-223.

Phillips, E. L., Phillips, E. A., Fixsen, D. L., & Wolf, M. M. Achievement Place: Modification of the behaviors of predelinquent boys within a token economy. *Journal of Applied Behavior Analysis*, 1971, 4, 45-59.

Stone, F. B., & Rowley, V. N. Educational disability in emotionally disturbed children. *Exceptional Children*, 1964, 30, 423-426.

Strauss, A., & Lehtinen, L. E. *Psychopathology and education of the brain-injured child.* New York: Grune & Stratton, 1947.

Swift, M. S., & Spivack, G. Clarifying the relationship between academic success and overt classroom behavior. *Exceptional Children*, 1969, 36, 99-104.

Winett, R. A., Battersby, C. D., & Edwards, S. M. The effects of architectural change, individualized instruction, and group contingencies on the academic performance and social behavior of sixth graders. *Journal of School Psychology*, 1975, 13, 28-40.

Winett, R. A., & Roach, A. M. The effects of reinforcing academic performance on social behavior: A brief report. *Psychological Record*, 1973, 23, 391-396.

Winett, R. A., & Winkler, R. C. Current behavior modification in the classroom: Be still, be quiet, be docile. *Journal of Applied Behavior Analysis*, 1972, 5, 499-504.
Wood, M. M. (Ed.) *Developmental therapy*. Baltimore: University Park Press, 1975.

David B. Center is Assistant Professor of Special Education at Mississippi State University. His current research is related to interpersonal behavior in adolescents with behavior and learning problems. His most recent publication was in Behavior Disorders.

Samuel M. Deitz is Professor of Educational Psychology at Georgia State University. His primary interests are theoretical analyses, experimental methodology, and stimulus control in education. His most recent articles have appeared in the American Psychologist *and* Behavior Therapy.

Melvin E. Kaufman is Professor of Special Education at Georgia State University. He received his doctorate in clinical psychology from the University of Pittsburgh.