

FOCUS ON EXCEPTIONAL CHILDREN

Curriculum Modification as a Strategy for Helping Regular Classroom Behavior-Disordered Students

Linda L. Edwards

The concept of mainstreaming, which in its broadest interpretation refers to the integration of handicapped learners into regular educational programs, has received acceptance from most special educators during the past decade (Keogh & Levitt, 1976). Despite legal, philosophical, and social support for the concept, however, several investigators (Kaufman, Gottlieb, Agard, & Kukic, 1975; Meyen & Moran, 1979) have noted that emphasis to date has been upon administrative arrangements for its facilitation rather than upon instructional or curricular concerns after the initial stage of the process (placement of the handicapped learner within the regular educational environment) has taken place.

In their review of the limitations of mainstreaming, Keogh and Levitt (1976) pointed out that:

. . . most of the mainstream models provide effective techniques for the placement of the exceptional child in the regular program and identify the kinds of support services needed. Few guarantee, let alone evaluate, what happens to the child once placed . . . Lacking is delineation of possible pupil by program interaction getting at the question of *which* kind of instructional arrangement in the regular program is appropriate for children with *which* kinds of educational characteristics (p. 3).

Several years later, Meyen and Moran (1979) restated this problem from the specific perspective of serving the mildly handicapped mainstreamed pupil. They emphasized that continued effort still has to be given to defining "instructional options that are effective in meeting the needs of students with learning problems" (p. 530). Further, as these options prove to be valid, students in need of them become identified as learning handicapped rather than having identification become the major preoccupation or focus around which program options are later developed.

Dr. Edwards is Assistant Professor, Special Education, at the University of Missouri-Kansas City.

This article presents a validation of a learning strategy found to be effective in ameliorating some of the educational difficulties of mildly behaviorally disordered students in the regular classroom. The emphasis is on defining an instructional methodology to increase the probability that such learners would be successful — both academically and behaviorally — in this environment.

REVIEW OF PAST STRATEGIES

The literature concerning problems presented by mild and moderate behavior disorders of students in regular classrooms has suggested that these problems traditionally have been approached through a behavior analysis methodology. In general, these studies have been of three types: those focusing upon increasing attention to task as a strategy for improving problematic behavior (or decreasing problematic behavior by improving attention); those examining academic performance in addition to or in relationship to attention to task; and those investigating the manipulation of antecedent events and teaching performance and the resulting effect upon behavior and achievement. Implications of the findings of each of these groups are briefly examined as follows.

Attention to Task

Much of the behavioral literature relative to classroom performance of school age children has been de-

voted to measuring the effects of reducing problematic behaviors through a direct approach — i.e., “reinforcement for refraining from engaging in disruption” (Ayllon & Roberts, 1974, p. 71). Since it is logical to assume that one must first attend to a task before it can be successfully accomplished, researchers have focused on results of training teachers to modify inappropriate, disruptive behaviors — those that are incompatible with attention to and completion of academic tasks (Hall, Lund, & Jackson, 1968; Thomas, Becker, & Armstrong, 1968).

In other cases, increasing attention to task was the specific focus of the investigation, in the belief that this would produce a concomitant decrease in disruptive behaviors (Walker & Buckley, 1968). Such modification of classroom behavior has been investigated using single subjects (Wasik, Senn, Welch, & Cooper, 1969), entire classrooms (Robertshaw, 1971), and special problem populations (Schmidt & Ulrich, 1969). Strategies for changing disruptive behaviors or increasing attention (use of token economies, group consequences, teacher approval) have also been thoroughly documented (Barish, Saunders, & Wolf, 1969; Madsen, Becker, & Thomas, 1968).

Results from these numerous studies indicate two clear conclusions. First, teachers can be trained to use behavior modification procedures effectively in their classrooms. Secondly, reduction of disruptive student behaviors results in an increase in attention to task and, conversely, increased attention results in decreased disruptive behaviors.

Attention to Task and Academic Performance

None of the previously mentioned studies was directly concerned with the effects of increasing attention/decreasing disruptiveness upon the academic performance of children. As a result, it was not at all clear whether the reduction of inappropriate behaviors led to improvement in achievement as a function of increased study time (attention to task). In the early 1970s researchers began to challenge the validity of selecting “disruptive behavior” as the major criterion for intervention (Winett & Winkler, 1972). A few studies incorporated a measure of academic performance as a dependent variable and generally concluded that “the relationship between attending behavior and achievement-related behaviors is not clearly understood” (Ferrior, Buckholdt, Hamblin, & Smith, 1972, p. 8).

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In 1974, Ayllon and Roberts suggested that instead of relegating the improvement of students' academic skills as secondary to the "all-out effort to maintain orderliness in the classroom," the reversal of these priorities should be investigated; that is, improved achievement possibly could have the effect of decreasing disruptive behavior. In investigating that hypothesis, they found this indeed to be the case. When systematic token reinforcement was applied solely to the reading performance of five fifth-grade disruptive boys, reading improved considerably and rate of disruptions fell as well. Three studies concerned with the relationships between classroom behavior and academic achievement (Ayllon & Roberts, 1974; Ferritor et al., 1972; Robertshaw, 1971) indicated that performance could be increased if appropriately consequated. A precise relationship between attention and performance remained unestablished, however.

Antecedent Events and Teaching Performance

All students whose various behaviors were measured in the previously cited investigations received standard, traditional curricula administered through traditional teaching methods, regardless of possible differing ability levels and interests. No studies could be found that incorporated change in this stimulus dimension along with measurement of its effect upon the possible relationship of achievement and attention to task, despite strong indications that behavior problems increase as age appropriate achievement levels decline (Camp & Zimet, 1975; Graubard, 1971). Several studies, however, have been concerned with alternate ways of presenting curricular tasks or changes in teaching method and the effects of these changes upon the academic performance of behavior problem students in both regular and special classrooms (Gallagher, 1972; Harris, 1972; Lovitt & Curtiss, 1968).

Representative of studies in this latter group is one by Harris (1972), investigating the effects of restructuring teaching procedures for daily spelling lessons of fifth grade pupils who exhibited inappropriate social behaviors in the regular classroom. Subjects were randomly assigned to an experimental or a control group. The experimental subjects were recipients of a teaching procedure that had established daily goals and immediate feedback concerning performance. Students in the control group received a traditional spelling teaching procedure administered to them along with the rest of the class. Correct spelling response rate approximately doubled for the experimental group, while control sub-

jects either maintained constant rates or increased or decreased performance slightly. The effect of the experimental group's dramatic improvement in spelling achievement upon their classroom behavior was not measured.

Each of the cited studies demonstrated that gain in academic achievement through manipulation of the task dimension and/or teaching procedures can be achieved for such children. None investigated the effects of such gains on overt behavior, with the exception of Gallagher (1972), who found that attentional behavior was better in a highly structured, one-to-one (atypical) learning environment.

Since no study examined all of the above elements (relationships between and among attention to task, deviant classroom behaviors, academic achievement, and teaching procedures/task dimensions), and since each factor individually appears to have a bearing upon the successful educational functioning of behavior disordered students, one might profit by attempting to identify the most effective and efficient mix. Some combination of elements possibly could have a synergistic effect. Which factors pertaining to change in the curriculum/teaching procedure dimension and reinforcement of behaviors will lead to optimal academic success and behavioral adjustment for behavior disordered students in the regular class environment? With the perceived and legislated need for establishing individualized education programs for exceptional children of all degrees of handicap (whether these are carried out in a special or regular class environment) comes the research priority of developing and evaluating individualized or specialized approaches.

A STRATEGY FOR INTERVENTION

Recent trends in special education suggest that children who have mild to moderate behavior problems, and who may in addition be underachievers, will be served primarily in the regular classroom, working along with their "normal" peers under the guidance of the regular classroom teacher, rather than being placed in a special classroom. As a cautionary note to this apparent impetus toward mainstreaming practices, some special educators have proposed that past methods which have proved to be effective with handicapped children in special classes *not* be discarded (Adamson & Van Etten, 1972), but also that researchers additionally give attention to which kinds of educational strategies in the regular instructional program are appropriate for which kinds

of problems exhibited by mainstreamed exceptional children.

Among the theories about educating behavior disordered children in the special classroom is one postulating that "achievement precedes adjustment" (Phillips, Wiener, & Haring, 1960; Whelan & Haring, 1966). Several studies have investigated this hypothesis, using students from special class populations, with results that have usually been supportive of the intervention emanating from this theory — called the structured approach (Haring & Phillips, 1962; Gallagher, 1972). The strategies employed in this intervention, however, had not been applied or adapted to less severely handicapped children being educated in regular class environments.

The present investigation has as its major purpose to identify and describe an effective learning strategy for use in the regular classroom which would ameliorate some of the educational difficulties of conduct disordered, underachieving, mainstreamed elementary students. If it can be assumed or accepted that achievement precedes adjustment, it is reasonable to hypothesize that increasing the academic success of such children should function to decrease problematic behavior.

Curriculum Intervention

As a strategy for increasing the academic success of conduct disordered, underachieving students, a carefully designed curriculum plan was drawn up. For convenience, it will be called a *modified curricular approach*. "Modified" is used rather than "individualized" since a major objective of the plan's design was to provide a method by which behavior disordered students could proceed through materials and content areas at the same pace as other children in the regular classroom. To assess the effects of the modified curricular approach, a traditional approach was also studied for comparative purposes. Behavior disordered students receiving the traditional approach used the same texts and materials and received the same assignments and teaching procedures as the rest of the students in their classrooms.

Most of the procedures in the modified curricular approach were adapted directly from some of those of the structured approach, drawing heavily upon instructional methods of known effectiveness in the special class education of behavior disordered students. To provide illustrative and comparative examples, these procedures at times will be applied to the framework of a particular unit in some fourth grade social studies curricula, a unit involving comparison of the structures of state and federal governments.

The specific procedures in the modified curricular approach are: formulation of specific instructional objectives drawn from the broader goals; adaptation of content of the unit to meet various instructional reading levels; provisions for immediate corrective feedback; opportunities for visual reinforcement through self-graphing; and modification of existing workbook materials to promote the probability of successful responding.

Formulation of Objectives

As a preliminary strategy, several broad educational objectives were formulated by teachers who had taught the unit's content for several years. These were then translated into specific instructional objectives (Mager, 1975; Popham & Baker, 1970). For example, a broad goal of the curriculum content was for students to be able to identify and differentiate between the two houses of the legislative branch of government. One of the specific instructional objectives of this goal was that students would be able to list, in writing, at least two of the job responsibilities of members of the House of Representatives.

Adaptation of Content

Adaptation procedures are based on three presumptions. The first is that *at least several pupils in a regular classroom will be identified as possibly benefiting from a modified curricular approach*. Research suggests that regular classroom teachers identify approximately 20 percent of their students as exhibiting mild or moderate behavior disorders (Kelly, Bullock & Dykes, 1977). The second assumption is that a common characteristic of behavior disordered students is *underachievement in academic subjects* (Bower, 1969; Graubard, 1971). A study by Camp and Zimet (1975) pointed out that as reading skill levels, in particular, decreased, instances of deviant behavior increased. A third presumption is that *the regular classroom teacher will have the resources necessary to carry out the curriculum adaptations* critical to successful functioning of the mainstreamed behavior disordered students. Regular teachers must receive help in instructing mainstreamed handicapped youngsters. The procedures described, therefore, are designed to be carried out by the regular classroom teacher and a special education consultant teacher (or curriculum consultant with special education expertise) working in cooperation.

After sequential instructional objectives have been delineated, the content of these objectives of a particular

unit of material can be adapted to meet individual instructional reading levels. This assumes, of course, that an accurate level is available for each student involved. An additional piece of information that may prove useful at this point is an accurate listening grade level score for students with particularly low instructional reading levels. Once these data have been collected, and the range of abilities ascertained for the pupils involved, adaptation activities can proceed.

A first strategy is to try to determine the existence of other textbooks that might approximate the content of the unit but at a lower reading level. If alternative texts cannot be located, the materials presently being used can be adapted. One possibility to consider is audio cassette taping of the reading content of the unit. Listening comprehension scores for each of the students involved in the modified curricular approach should be known in advance so that appropriate taping strategies can be planned. Two levels of taping of existing materials may be necessary. For students with grade level or above listening level scores, a verbatim reading of the text may be sufficient. (A check of the text's readability level should also be carried out.) Deshler and Graham (1980) have provided some interesting ideas about incorporating text usage and study skills into taped reading assignments.

While taping a reading assignment, a teacher has an excellent opportunity to demonstrate how to differentiate between main and supportive material within a chapter; how to use illustrations, graphs, charts, etc. to aid comprehension; how to use questions at the end of a section or chapter to determine major points; and how to use chapter titles, section headings, etc. to skim a reading section for main ideas (p. 53).

An additional consideration for students with grade appropriate listening levels is whether or not the student should have the textbook in front of him or her to read along while simultaneously listening to the recorded version. Some research suggests that approximately two-thirds of students with reading difficulties profit from reading and listening concurrently, while the remaining third are confused by the double stimulus (Mosby, 1977). A quick, informal check of which of these two possibilities is most beneficial to a particular student may be necessary before proceeding.

If a student uses the text in conjunction with the tape, teachers might employ a highlighting and/or text marking strategy — a kind of “coding” system. This might involve marking, in various ways, text passages omitted in the recording, indicating others that are paraphrased on the tape, those recorded verbatim, and marking the places at which the student is to stop the

tape (Deshler & Graham, 1980). An additional suggestion is to highlight major ideas with a transparent yellow marker, and important names or terms in another color (Mosby, 1977). Alternatively, and depending on the age and capability of the student, the tape might include directions for the student to carry out the highlighting activities.

A different form of taping is necessary when students have listening capabilities significantly below grade level or below the readability level of the textbook. In this circumstance, the taping involves simplifying the language of text passages to be recorded by shortening sentence length and explaining key vocabulary terms at the beginning of the passage. This level of taping might also include repeating major ideas to provide additional emphasis, as well as incorporating use of picture, map, and graph cues provided in the text (Deshler & Graham, 1980).

In planning individual tapes the person responsible for the recording must keep uppermost in mind the specific instructional objectives of the unit and ways of emphasizing these objectives. Additionally, length of recordings should be planned to match the attention spans of pupils who will use the tapes.

If audio cassette taping is a method selected for adaptation of materials, a systematic way of presenting these lessons is essential. One possibility is to provide a listening/learning center where students may listen to the tapes through earphones and where instructional objectives can be reinforced in other ways through non-reading tasks. Although taped materials may require a considerable investment of time initially, once made, students can use them individually as needed, without requiring a great deal of teacher supervision.

Provisions for Immediate Feedback

A further strategy to enhance successful acquisition of material is that of immediate corrective feedback. Knowledge of whether a particular response was right or wrong given in close temporal proximity to the response itself has been demonstrated to be an effective learning procedure (Gallagher, 1972). In the modified curricular approach, immediate feedback was designed to occur after students had responded to a short daily quiz involving a particular instructional objective presented in the day's taped lesson. In addition to allowing quick confirmation of correctness of response, this procedure also allows the teacher to assess student progress toward accomplishment of instructional objectives and to revise the next day's work, if necessary.

Opportunities for Visual Reinforcement through Self-graphing

Closely related to immediate feedback is the formulation of a way to visually display results of individual work. The daily quizzes mentioned above, for example, provide such an opportunity. Charting daily progress in the form of a bar, line, or other type of graph can be a highly effective extension of immediate feedback. Though students are usually capable of plotting their own graphs, teacher assistance in this activity can serve as a vehicle for praising students' academic accomplishments, thus building in another possible form of positive reinforcement.

Immediate feedback, self-graphing, and teacher praise — while generally effective strategies — may not be individually or collectively reinforcing to some pupils with mild behavior disorders. With those for whom these strategies do not work, alternative reinforcement procedures must be identified and implemented.

Modification of Workbook Materials

As an additional instructional strategy for promoting the successful learning of underachieving behaviorally disordered students, the consumable workbooks that often accompany hard cover texts can often be modified advantageously. Pages pertaining to the unit in question should be carefully examined, looking at the relationship of activities to specific instructional objectives, sequencing, and complexity of activity and response required. Color coding and visual simplification of the pages involved can increase the probability of successful responding in many instances.

An added suggestion is to provide each student with an individual folder in which to keep materials. Graphs, workbook pages, daily quizzes, and perhaps also the cassette tape appropriate for the day's lesson might be included in each child's folder as an organizational aid.

Motivational Intervention

Accompanying curriculum intervention, a second component — motivational intervention — was inserted into the total strategy because of the preponderance of evidence suggesting that increasing task-oriented behavior is a necessary precursor to increasing academic skills (but with a lack of evidence concerning its actual

effect upon achievement). Three motivational procedures were initially designed, to determine which would be most effective in combination with modified or traditional curriculum and teaching methods in increasing adaptive behavior and academic achievement of behaviorally disordered mainstreamed students. These procedures, described briefly below, are: (a) reinforcement of attention to task; (b) reinforcement of a specified percent correct on academic tasks, and (c) a non-reinforcement procedure.

Reinforcement of Attention to Task

Among various reinforcement strategies, token economies have been found to be effective and comparatively easy to administer in regular classroom situations. In an attempt to explore and validate the possible effectiveness of this strategy as an intervention for behavior disordered students, points were awarded for a certain percent of attending behavior. To maintain the consistency necessary to evaluate the outcome, one point was given to each student who successfully attended to task for 90 percent of each 10-minute interval during the social studies period. At the end of each 10-minute interval, points were given (or students were told they had not earned a point), coupled with verbal praise by the teacher. At the end of the day or week, points could be exchanged for a variety of classroom activities or privileges.

Teachers could use a variety of other procedures that would reward attention on a more intermittent basis and thus provide more flexibility and ease of administration. Still, any methodical consequence of attending behavior is a time and attention consuming activity — a major drawback to this motivational procedure in the ongoing regular class.

Reinforcement of Percent Correct

Reinforcement of percent correct — in contrast to reinforcement of attention to task — is a precise and easily administered procedure. By pre-arrangement with the students involved, the teacher can award points on a sliding scale basis. In the case under discussion here, students received one point for 70 percent correct, two points for 80 percent, three for 90 percent, and four for 100 percent correct on daily quizzes or assignments. Again, the teacher accompanied the awarding of points with verbal praise, and points could be exchanged for classroom activities or privileges.

Students could earn a maximum of four points each day under either the procedure of reinforcement of

attention to task or the procedure of reinforcing percent correct.

Non-reinforcement Procedure

In this procedure, students received no systematic reinforcement for any behavior. They operated under the same classroom consequence conditions as their "normal" peers (i.e., no point system was in effect).

EVALUATION OF THE INTERVENTION STRATEGY

A research design was implemented to assess the effects of curriculum variables and differing motivational procedures. Regular classroom teachers identified 23 fourth graders through use of a modified Peterson-Quay Behavior Problem Checklist (Peterson, 1961). (Conduct factor items only were used.) Students scoring in excess of one standard deviation above the mean for all fourth graders rated were considered as possibly behavior disordered. Classroom observation of each student thus identified served to confirm or disconfirm the rating scale selection. This observation revealed that all 23 students were attending to task less than 50 percent of the time during which they were observed. Upon examining the achievement test scores (Comprehensive Test of Basic Skills) along with the discrepancy scores provided in the achievement testing printouts, each of the 23 students was additionally found to be underachieving in several academic areas. All identified students scored significantly lower in the area of reading comprehension than did other students of the same age, grade, sex, and academic ability.

These 23 children were in four different regular fourth-grade classrooms. The four classrooms were then assigned at random to one of two curricular conditions, modified or traditional, each of which has been described previously. Classrooms rather than students were assigned at random to curricular condition to prevent one classroom from containing students assigned to both curricular conditions. Under the modified curricular approach a social studies unit in the regular curriculum was adapted to meet individual instructional reading levels, along with other modifications including formulation of objectives, provisions for immediate feedback and self-graphing, and adaptation of workbook materials. In the traditional curricular approach students used the same social studies text and received the same assignments and teaching methods as the rest of the students in their classroom. Their teachers were asked to teach as they normally would.

A t-test for differences between two independent means was used to test for differences between the group of students receiving the modified curriculum and the group receiving traditional curriculum on the variables of teacher behavior rating scores, reading comprehension grade level, and IQ scores. Results of these analyses indicated no significant differences between the two groups on any of these measures.

Each student, regardless of traditional or modified curricular condition, was administered each of the three motivational procedures (reinforcement for attention to task, reinforcement for percent correct, and a non-reinforcement procedure at some point during the evaluation process. Since the non-reinforcement procedure was essentially a baseline condition, all students were subject to this procedure first; the remaining two procedures were administered in random order to help counterbalance an order effect. The unit content was to be covered during a six-week period, so each of the three motivational procedures was in effect approximately two weeks.

The research design employed was a 2x3 factorial Analysis of Variance with repeated measures across one factor (motivational procedure). This method was used to determine significance of results in three areas: academic achievement, attention to task, and number of deviant behaviors. A further achievement measure was evaluated using a t-test for the difference between independent means.

Academic Achievement Results

Academic achievement for the group of mild to moderate behaviorally disordered mainstreamed students was measured over a six-week period in two different ways. First, students were given three periodic quizzes, at the end of each two-week interval, coinciding with the conclusion of a given motivational procedure. The quizzes were short (10-question) objective tests covering the social studies content presented during the period in question. Because all four teachers had agreed to cover the unit using the same time and sequence framework, these tests were identical for all students. A second measure was a domain-referenced test reflecting content of the unit developed by the authors of the fourth-grade social studies textbook. This test was administered as a post-test procedure to each identified student along with all other regular class students.

Results of the analysis revealed that the group receiving the modified curricular approach scored significantly higher (at the .05 level) than did the traditional group on both the periodic quizzes and the summative

unit test. Unit test scores were a mean of 8.2 percentage points higher for the modified curricular group, which also scored approximately 10 points higher on each of the three periodic quizzes.

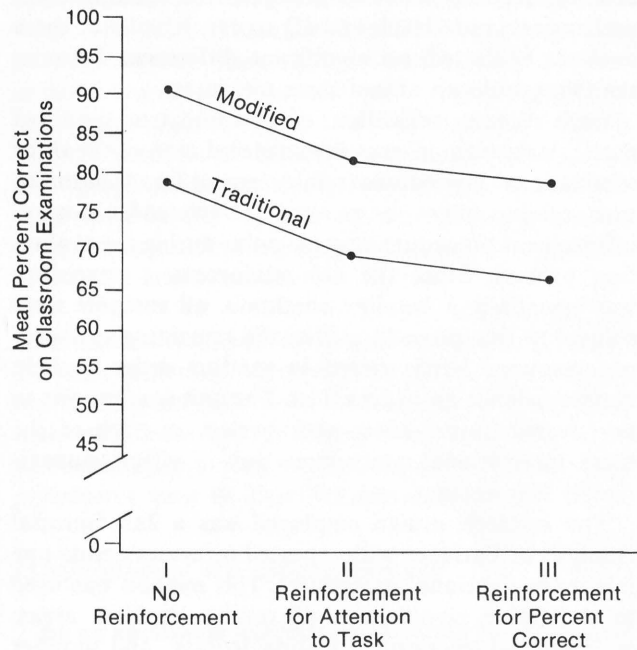


Figure 1. Means for percent correct on classroom examinations for modified and traditional curricular groups under three motivational procedures.

Upon first examining the effect of motivational procedure upon academic achievement (within-group differences), the non-reinforcement procedure seemed to produce superior academic gains for both groups over the other two procedures. Although the graphic data in Figure 1 seem to indicate scores for both groups becoming progressively lower, this conclusion is not warranted. As discussed before, the data do not reflect cumulative time spent under reinforcement since two motivational procedures were randomly assigned. Also, the first test, given invariably after the non-reinforcement procedure, pertained to material introductory to the unit in question and thus seemed to be a simpler test than the other two. Therefore, results may possibly be more reflective of item difficulty level of the tests than changes in motivational procedure.

Attention to Task Results

Attention to task was measured using a direct observation technique developed by Madsen, Becker, and

Thomas (1968) and modified by Weery and Quay (1968, 1969). This procedure consists of classifying and recording specific overt classroom behaviors of individual children in three major categories: (a) on-task behavior; (b) deviant behavior; and (c) teacher-pupil interaction. The child is observed for two 20-second intervals per minute and behaviors recorded during the two 10-second rest periods. All behavior disordered students were observed and their behavior recorded daily for at least 15 minutes per student during their social studies period (approximately 40 minutes in length).

Upon analysis, between-group differences on attention to task thus measured were found to favor the modified curricular group. This group had significantly higher percentages of attention to task than did the traditional group. (See Figure 2.)

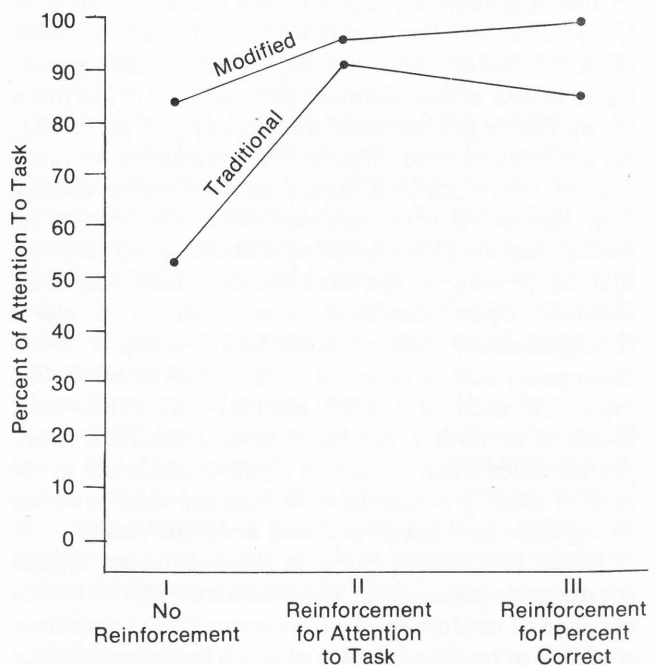


Figure 2. Means for percent of attention to task for modified and traditional curricular groups under three motivational procedures.

All three motivational procedures seemed to produce differential effects upon the two groups. The traditional group attended significantly more when this variable was specifically reinforced than they did under either of the two procedures. For the modified curricular group, however, reinforcement of attention to task produced significantly higher results over the non-reinforcement procedure only. The two procedures of reinforcing attention to task and reinforcing percent

correct had an equal effect upon the attention behavior of these students. Even for the traditional group, however, reinforcement of percent correct resulted in a significantly higher level of attention than did the non-reinforcement condition. The largest difference between the two groups (approximately 30 percentage points) occurred when no reinforcement was present.

Comparison of Deviant Behaviors

Deviant classroom behaviors of the mainstreamed behaviorally disordered students were measured using the same observation instrument as described under Attention to Task, above. A possible seven different behaviors could be recorded. A simple frequency count of deviant behaviors during social studies was obtained for each child daily. As might be expected, analyses of this factor closely resemble those for percent of attending behaviors.

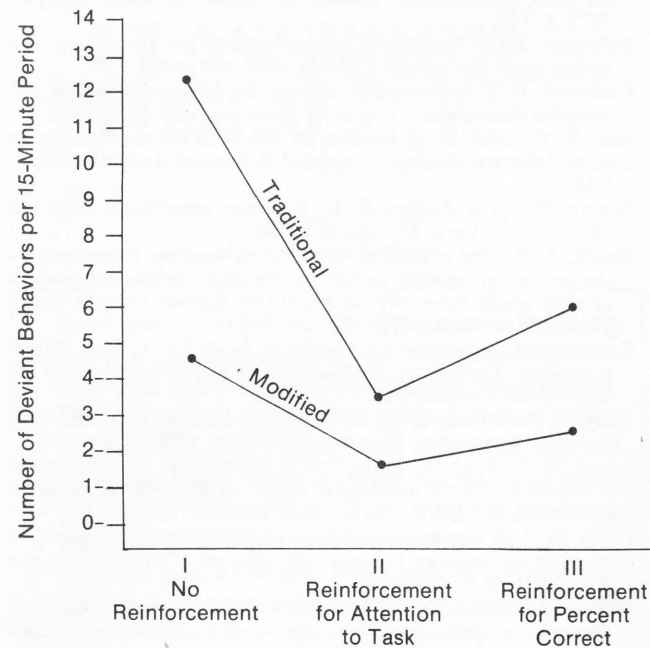


Figure 3. Means for numbers of deviant behaviors for modified and traditional curricular groups under three motivational procedures.

As can be seen in Figure 3, the modified curricular group exhibited significantly fewer deviant behaviors than did the traditional group. A post hoc analysis revealed that the traditional group had significantly fewer instances of deviant behaviors when attention to task was being reinforced than they did under either

of the other two motivational procedures. However, they also emitted significantly fewer deviant behaviors when academic performance was reinforced than they did when no reinforcement was in operation.

Results of the analysis for the modified curricular group demonstrated that this group had fewer occurrences of deviant behaviors when either attention to task or academic percent correct was reinforced than they did when no reinforcement was given. Again, as in the analysis of percent of attention to task, they performed equally well under both of these two reinforcement procedures. One was not significantly better in decreasing deviant behaviors than the other.

IMPLICATIONS FOR TEACHERS

These data seem to point toward the quantitative superiority of a modified curricular approach over a traditional one when used with behavior disordered students in regular classrooms. Academic achievement as measured by percent correct on examinations was unequivocally higher for students receiving modified curriculum. An interesting implication for teachers is that reinforcement procedures did not seem to have a beneficial effect on the achievement of either group, even when achievement was specifically reinforced. A conclusion to be drawn from this combination of factors could be that a specific and organized change from traditional curricular materials and methods of using them is warranted in order for achievement to be increased for this type of exceptional student being educated in the regular classroom.

The data also provide further verification of the efficacy of strategies and procedures adapted from the structured approach concerning their use within a regular classroom and with a mildly handicapped population. A consultant teacher in cooperation with a regular class teacher possibly can design an educational intervention based on these procedures which will increase the academic performance of conduct disordered, underachieving children. The importance of this concept cannot be minimized when considering the circular nature of the relationship between academic deficiency and behavior disorders.

When attention to task is the factor being measured, the group receiving a modified curriculum again showed superior performances. This effect was particularly pronounced when no systematic reinforcement procedure was being employed. Without reinforcement, students in the modified curricular group attended approximately 85 percent of the time they were observed, whereas the traditional group had a mean percent of attending of

only about 55 percent under this procedure. When reinforcement of attention to task was specifically reinforced, the traditional group closely approximated the performance of the modified group on this dimension. This increase in attention, however, did not result in a concomitant increase in academic achievement for the group receiving traditional instruction and curriculum. Therefore, the effects of increased attention seem to be directly related to the specific variable being reinforced. Reinforcing academic performance had as beneficial an effect upon the modified curricular group's attention as did reinforcing attention to task itself. Both resulted in significant increases in attention over non-reinforcement, but neither produced significantly better results than the other.

This same effect also operated for decreasing deviant behaviors for the modified group. Implications of this finding for teachers might be that when curriculum and instruction are designed to be appropriate for the needs and abilities of conduct disordered, underachieving students, systematic reinforcement seems to further increase attending and decrease inappropriate behaviors. Importantly, reinforcing percent correct on daily exercises — a procedure that might be more easily managed by the classroom teacher than systematically reinforcing for attending — is equally as effective as reinforcing on-task behavior. Neither of these procedures can be expected to increase achievement, however, whether or not instruction is modified. Modification of materials and instruction in itself resulted in high rates of attending accompanied by significantly higher achievement.

Fewer deviant classroom behaviors were noted for the traditional curricular group when attention to task was reinforced as well as when academic performance was reinforced; and deviant behaviors were significantly fewer than when no reinforcement was operating. Again, though, decreased numbers of inappropriate behaviors did not lead to increased levels of academic performance. Therefore, it seems, without more basic curricular and instructional changes, the effects of systematic reinforcement (i.e., rewarding attention or percent correct) do not lend themselves to academic remediation, but do increase attention and decrease deviancy.

Finally, a major purpose of these explorations was to identify the most effective and efficient combination of factors concerning curriculum variables and reinforcement of behaviors which would lead to optimal academic success and behavioral adjustment for conduct disordered, underachieving students in regular classrooms. Based on the present analysis, this combination seems to be a *modified curricular approach*

paired with a token reinforcement system in which academic percent correct is rewarded.

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CLASSROOM FORUM

by Beverly Dexter
Lynchburg College

Last year I tried to develop some learning activity packets (LAPs) for my students, but they just didn't do the job I thought they would. The students enjoyed the games and activities in the LAPs, but I didn't feel that they learned as much from them as they could have from my direct instruction. Still, they allowed me time for individualized instruction during the day. Do you have any suggestions for improving my LAPs to make them more worthwhile?

Since I don't know how you organized your LAPs originally, I'll start from the very beginning with LAP development. A LAP is a kit or booklet organized to help teach a specific topic in such a way that the student can complete the work independently. Therefore, it should be as individualized and self-instructional as possible, although each LAP may be used by more than one student in the course of the school year. A LAP usually contains an introduction and directions for its use, a pre-test, instructional objectives, activities, and a post-test.

The introduction and directions guide the student by telling him or her what to expect in using the LAP. A pre-test is helpful in letting the teacher know where the student is with respect to knowledge of the content area. Instructional objectives specify the behaviors expected through use of the LAP activities, and the activities break down the learning sequence into smaller steps for easier and more functional learning. After the activities have been completed, the student is given a post-test to evaluate the learning outcomes based on the instructional objectives.

When organizing LAPs, follow these steps:

STEP 1: Select the topic.

When selecting the topic, focus on useful, yet interesting content areas. Remember that the LAP should be a systematic presentation of a specific topic and the contents should be specific enough so the student can work independently. Keep in mind the strengths and weaknesses of the student(s) for whom the LAP is designed so that the topic and its contents will be realistic and appropriate for the learner.

STEP 2: Write the instructional objective.

This objective should be stated behaviorally; that is, the behavior you anticipate should be both observable and measurable. The instructional objective should state the final goal or what you expect the student to be able to do upon completion of the LAP.

STEP 3: Break down the instructional objective into small, sequential steps.

What you are actually doing here is a task analysis of the learning sequence. The steps should be logically sequenced so that completion of each sub-skill becomes the foundation for accomplishing the next task in the series. You must be knowledgeable about the task itself, as well as the learner(s) for whom the LAP is intended. You must be aware of the major components of the teaching task in order to know whether or not the sub-skills presented in the LAP are actually teaching the learner what he or she must know to accomplish the final task.

STEP 4: Write the pre-test and post-test.

The pre-test lets you know what the learner can do prior to completing the LAP. It should also inform the

learner about where his or her particular strengths and weaknesses are concerning the outcomes specified in the LAP. The post-test is given upon completion of the LAP to measure the learning that has taken place as a result of the LAP activities. It is generally recommended that the two tests be similar, but not identical, so that teaching or learning for the test will not take precedence over the teaching or learning of the LAP skills. This point may be argued, however, since for some skills the same test may be best for both the pre and post evaluations. The important point to remember is that whichever technique is used, the learner should be requested to demonstrate those skills specified in the instructional objective.

STEP 5: Select appropriate activities.

The activities selected should directly reflect the learning tasks as described in Step 3. At least one activity should accompany each of these tasks, with some variety among tasks to encourage the use of more than one learning modality. Merely clipping together a series of worksheets for this section of the LAP will not entice the students to complete the task. A workbook is still a workbook, even when it is subdivided into various LAPs. The activities should be just that — *activities*.

Do a little brainstorming to see what types of equipment, size of groups, room arrangement, etc., will lend themselves best to successful completion of the learning tasks at hand. Be certain that the activities build from the simple to the more complex, that they allow the student to practice his or her newly acquired skills, and that there is a provision for immediate feedback throughout the learning process.

STEP 6: Write the introduction and directions.

This may seem like the initial step, but it cannot be done satisfactorily until the other five steps have been completed because this section tells the student what he or she is expected to learn and how he or she is expected to learn it. For non-readers, a cassette tape of this section may be provided, or a symbolic representation of it may be given in picture or rebus form. Or another student (or the teacher) could read this section to the learner.

A few cautions should be noted concerning the use of LAPs in the classroom. First, the LAP should not be considered as a replacement for the teacher. Rather, it should be viewed as an enrichment of what the teacher can provide to the learning situation. As such, although independence is stressed, the teacher should carefully monitor LAP activities while they are in progress and

review these same activities upon completion of each LAP by individual students.

Second, LAP activities should be flexible so that the needs of several students may be met through minor variations provided within the LAP. This allows the use of similar activities by several students who need to learn the same skills, but perhaps through different learning modalities. By building in this flexibility, you will save yourself and your students from unnecessary frustration as well as wasted time and effort.

A third caution concerns the preparation and planning necessary for properly introducing the LAP to the students. They should already have some independent learning skills before they attempt to complete their first LAP. Also, you must be aware that not all of your students will be at the same stage of readiness for being introduced to the LAP concept. If students are expected to master a LAP before they have the necessary prerequisite skills, they may become frustrated and refuse to attempt later LAPs. Thus, the teacher must have adequate knowledge of both the students and the learning task in order to present the LAP in the most effective manner.

The final caution is one that most teachers hate to face: the possibility of cheating which may be encouraged by the use of LAPs. By providing self-scoring answer sheets, the teacher may be unintentionally inviting cheating by the students. Many commercial self-pacing learning kits have been abused for this same reason. Students push through the activities merely to be the first ones finished, and in so doing they do not grasp the content material at the mastery level. Therefore, it is recommended that answer keys be kept separate from the LAPs, except where mastery of the concept is self-evident — such as in a science experiment.

Also, the teacher should provide a re-check or re-test of the learning material and/or concepts on a periodic basis. This may be done informally through a discussion with the child shortly after he or she has completed the LAP and again several days later. An alternative would be to have the child demonstrate the newly acquired skill in one form or another. For certain skills, such as in arithmetic, this would be much more informative and objective than the informal discussion. Whichever method is used depends on the teacher, the learner, and the skill presented in the LAP.

Following the above guidelines and cautions will not automatically guarantee success with LAPs in the classroom, but it will help weed out many of the initial problems experienced by teachers using LAPs for the first time. As with all other teaching techniques, skill with LAPs comes with systematic planning, practice, experience, and patience.