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ABSTRACT

The Mainstream Assistance Team (MAT) Project is a 3-year program to develop, implement, and validate a prereferral intervention model with nonhandicapped difficult-to-teach students. This paper presents a rationale for prereferral assessment and intervention focused on the increasing numbers of mildly handicapped students enrolled in special education, the increasing frequency of teacher referrals for student evaluation, and evidence that teacher referrals may be arbitrary and precipitous. Traditional educational assessment is compared to prereferral assessment and intervention. Then the basic dimensions of the MAT are explained, including behavioral consultation in four stages (problem identification, problem analysis, plan implementation, and problem evaluation) and the use of "written scripts" by consultants to ensure all important information is communicated during formal meetings. During year 1 the project was implemented in four inner-city middle schools with 10 school based consultants. Limited success during the first year led to changes in year 2 including requiring the use of contingency contracts and data based monitoring procedures. During year 3 elementary guidance counselors in 20 schools are being trained in the MAT program. Appended are a sample student-teacher contract; a sample "script"; instructions for teacher and student monitoring with an interval recording system; and instructions for the product inspection approach to teacher and student monitoring. (DB)

Prereferral Intervention for Difficult-To-Teach Students: Mainstream Assistance Teams--Years 1 and 2

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Abstract

The Mainstream Assistance Team Project (MAT) represents an effort to develop, implement, and validate a prereferral intervention model. In this paper, we (a) present a rationale for prereferral assessment and intervention, (b) delineate major dimensions of the MAT, (c) summarize our implementation and evaluation of the project for the first two years, and (d) discuss implications for conducting prereferral intervention in school settings.

Prereferral Intervention for Difficult-To-Teach Students: Mainstream Assistance Teams--Years 1 and 2

Since passage of Public Law 94-142, there has been a sharp increase in special education enrollment. It is likely that this increase partly reflects attempts to ensure that handicapped children receive an appropriate education. Nevertheless, there is growing suspicion that (a) too many students are being identified as handicapped and (b) this overidentification or misidentification exemplifies general education's failure to accommodate the heterogeneous nature of its mainstream population. In other words, many view general education as depending more and more on special education to deal with its difficult-to-teach pupils, thereby becoming increasingly exclusive in terms of the students judged appropriate for mainstream education.

Two basic strategies are emerging, which aim to strengthen general education's capacity to deal more effectively with student diversity. The first is development of large-scale, full-time mainstreaming programs that attempt to reintegrate handicapped students into general education (see, for example, Johnson & Johnson, 1986; Slavin, Leavey, & Madden, 1984; Wang, Gennari, & Waxman, 1985). The second approach is prereferral intervention, which targets additional help for nonhandicapped difficult-to-teach pupils, presumably eliminating the need for referral to special education. We currently are involved in a 3-year program of research, funded by the Office of Special Education in the U.S. Department of Education, which aims to develop, implement, and validate a prereferral intervention model entitled the Mainstream Assistance Team Project (MAT).

The primary purpose of this paper is to describe the MAT, including a

detailed description of how it has worked during our first two years. Specifically, we first present a rationale for prereferral assessment and intervention. Second, we delineate major dimensions of the MAT such as our use of Behavioral Consultation and written scripts to assure fidelity of the consultation process. Third, we outline the implementation process, including a description of how we involved schools, consultants, general educators, and students and how we evaluated the effectiveness of the project. Finally, we present a summary of our evaluative data on the MATs and discuss implications of these data for implementing and conducting research on prereferral intervention in the schools.

Rationale

Increasing Numbers of Mildly Handicapped Students

Since the U.S. Department of Education's first child count in 1976-1977, the number of students enrolled in special education has grown each year, with an increase of 17% from 1976-1977 to 1985-1986 (see Singer & Butler, 1987). Dramatic increases in identification of mildly and moderately handicapped pupils account for much of the reported growth (see Annual Report to Congress, U.S. Department of Education, 1984). It is probable that, at least to some degree, this results from legal, legislative, and professional initiatives directed toward assuring handicapped youth a free and appropriate public education. However, there is growing suspicion, both within the Federal government (see, for example, Annual Report to Congress, U.S. Department of Education, 1984) and among professionals (see, for example, Gerber & Semmel, 1984), that too many children are identified as handicapped. There are numerous and obvious reasons for the undesirability of incorrect identification. For example, it causes unnecessary separation and stigmatization of children (Jones, 1972; Reynolds & Balow, 1972), disruption

and fragmentation of school programs (Will, 1986), and additional costs to school districts (Wang, Reynolds, & Walberg, 1985).

These and other negative effects of misidentification argue that we attempt to understand reasons for observed increases in the mildly and moderately handicapped population. There are at least two important explanations. First, classroom teachers are referring increasingly large numbers of children for special education evaluation (Ysseldyke & Thurlow, 1983; Ysseldyke, Thurlow, Graden, Wesson, Algozzine, & Deno, 1983). Second, comparatively few handicapped students exit special education (e.g., Anderson-Inman, in press; Weatherly & Lipsky, 1977; Ysseldyke & Thurlow, 1984). While each explanation appears essential to understand why special education enrollments are expanding, our project, and hence this paper, focuses on the first one, increasing teacher referrals.

Frequency of teacher referrals. It has been estimated that, since 1977, the average number of referrals initiated each year by classroom teachers has nearly doubled, from 2.2 to 4.0 (Ysseldyke & Thurlow, 1983). Furthermore, evidence indicates that teacher referrals are crucial to the ultimate identification of pupils as handicapped. Algozzine and Ysseldyke (1981) reported that, over a 3-year period, 92% of referred students were evaluated and 73% of evaluated students were placed in special education. Similarly, Foster, Ysseldyke, Casey, and Thurlow (1984) found that 72% of students referred were placed in special education and that most were placed in the special education category for which they had been referred. Additionally, Ysseldyke, Algozzine, Regan, and McGue (1981) reported that, when faced with psychometric profiles indicating normal performance, "expert" diagnosticians labeled over 50% of the student profiles as eligible for special education and cited teacher referral reasons as justification for their referral decision.

Arbitrariness and precipitousness of teacher referrals. Despite the apparent confidence that diagnosticians and special educators place in classroom teachers' referrals, empirical evidence indicates that teacher referrals often are arbitrary, if not biased (Lietz & Gregory, 1978; Tobias, Cole, Zibrin, & Bodlakova, 1982; Tucker, 1980; Ysseldyke & Thurlow, 1984). Investigations have found that minority pupils, boys, and siblings of children identified as learning disabled are overrepresented when referrals are initiated by teachers rather than based on objective measurement (see Marston, Mirkin, & Deno, 1984). Additionally, contrary to reasons typically cited on referral forms, general educators frequently refer students primarily because of disturbing behaviors (Algozzine, 1977), which (a) tend to be defined idiosyncratically (Gerber & Semmel, 1984) and (b) often represent situationally specific problems rather than enduring student characteristics (Balow & Rubin, 1973).

In addition to findings that teacher referrals often are arbitrary, if not biased, evidence suggests teachers frequently make referrals in a precipitous, rather than a deliberate, manner. It seems that classroom teachers typically make few, if any, substantial programmatic changes prior to initiating referral (Ysseldyke, Christenson, Pianta, Thurlow, & Algozzine, 1982; Ysseldyke & Thurlow, 1980). The frequently observed result is that a high percentage of teacher referrals fails to meet local eligibility criteria (Marston et al., 1984; Shepard, Smith, & Vojir, 1983). Findings of arbitrariness and precipitousness in referral-related decisionmaking suggest many classroom teachers do not attempt to accommodate difficult-to-teach students. This is corroborated by a related research literature demonstrating that teachers deliver qualitatively and quantitatively different and inferior instruction to low than high achieving pupils (Allington, 1981; Mosenthal,

1984).

Prereferral Assessment and Intervention

Analysis of the often arbitrary and precipitous nature of the referral-to-special education placement process highlights the importance of modifying conventional practices in educational assessment to permit prereferral assessment and intervention in general education classrooms. Such activity aims to enhance general educators' capacity to instruct and manage difficult-to-teach pupils, thereby reducing the number of students referred for formal assessment and possible placement in special programs.

Traditional educational assessment. According to Salvia and Ysseldyke (1985), traditional purposes of educational assessment are to specify and verify students' problems and formulate decisions about referral, classification, instructional planning, and program modification. The referral and classification phases constitute an identification process in which pupils' performance on nomothetic aptitude and/or achievement measures typically are compared to identify "outliers" who warrant placement in special programs. Contrastingly, the instructional planning and program modification phases together represent a process whereby assessment is relatively idiopathic and related to the content and methods of instruction.

Prereferral assessment. The concept of prereferral assessment requires that we reconceptualize the nature of educational assessment in at least two important ways. First, the concept of prereferral assessment explicitly refers to activity that is preliminary or preparatory to teacher referral, which formalizes the decision whether to refer. Second, and in contrast to activity conventionally associated with referral and classification phases of assessment, prereferral assessment represents an opportunity to collect data helpful to the development of classroom-based interventions. Toward this end,

information frequently is necessary about (a) social and instructional dimensions of the classroom and (b) students' social behavior and/or performance in curricula used in the classroom. In addition to its potential contribution to the creation of classroom-based interventions, prereferral assessment signals effort to "fine-tune" or validate these interventions. Thus, prereferral assessment typically is conceptualized as intervention oriented, thereby necessitating the collection of data that are ecologically sensitive and curriculum based. Moreover, such data may be used formatively to fashion classroom-based modifications that permit general educators to accommodate greater student diversity.

Prereferral intervention. There are at least five characteristics of the prereferral intervention model, a couple of which already have been discussed. First, it is consonant with the least restrictive doctrine set forth in PL 94-142, requiring educators to attempt to accommodate difficult-to-teach students' instructional and social needs in the most "normal" setting possible. Second, and related to the preceding point, prereferral intervention is meant to be preventative. According to Graden, Casey, and Christenson (1985), it focuses on obviating (a) inappropriate referral and placement of students in special programs and (b) future students' problems by enhancing general educators' capacity to intervene effectively with diverse groups of children.

Third, although some general educators may choose to develop and implement prereferral interventions independently, such activity typically is "brokered" by one or more special service personnel, like school psychologists and special educators, acting as consultants. Usually working indirectly with targeted pupils through collaborative consultation with the classroom teacher, these consultants often employ a problem solving approach borrowed from

Behavioral Consultation to design, implement, and evaluate interventions (Curtis, Zins, & Graden, 1987). Fourth, prereferral intervention represents immediate assistance to pupil and teacher, since support is provided at the point at which the teacher contemplates referral. Finally, the prereferral intervention model encourages use of an ecological perspective that identifies teacher, physical setting, and instructional variables as well as individual learner characteristics as possible causes of student difficulties. In other words, rather than assume the source of student problems resides within the child, the prereferral intervention model challenges educators to investigate a larger context for the source(s) and solution(s) to pupil difficulties.

There are many ways to implement a prereferral intervention program. Two alternate approaches are for special service personnel to assist classroom teachers by working alone or as a part of a team. Cantrell and Cantrell (1976), Graden, Casey, and Bonstrom (1985), and Ritter (1978) have described programs in which support personnel consult independently. In contrast, Chalfant, Pysh, and Moultrie (1979) and Maher (cited in Curtis, Zins, & Graden, 1987) have mobilized teams of various professionals to deliver prereferral intervention.

MATs. During the past two years, we have tinkered with a number of salient dimensions of the MAT. At various times we incorporated all of the aforementioned characteristics of the prereferral intervention model, including an ecological perspective and collaborative problem solving version of consultation. We also borrowed salient programmatic features developed by other investigators. For example, following the pioneering work by Cantrell and Cantrell (1976) on prereferral intervention, we constructed the MAT to reflect a behavioral approach to consultation. Additionally, like Chalfant et al. (1979), the MAT in Year 1 involved teams of special support personnel

providing assistance to general educators.

However, the MAT has not been merely reiterative of others' prereferral intervention programs. We believe our version is distinctive in at least three important ways. First, as indicated, we are involved in a 3-year programmatic effort, permitting us to subject the MAT to systematic and on-going formative evaluation. In other words, its nature is dynamic and evolving. Second, our version of prereferral intervention aims to be both effective and practical. Practicality is pursued in three ways: (a) MAT members follow written scripts that presumably contribute to efficient and proper use of Behavioral Consultation, (b) we have conducted component analyses of three increasingly inclusive versions of Behavioral Consultation to identify a most effective and economical process of consultation, and (c) we currently are evaluating the appropriateness of classroom-based interventions that are managed almost entirely by students, thereby reducing teachers' involvement.

A third distinctive aspect of the MAT is that we have used a variety of outcome measures, including checklists, rating scales, open-ended interviews, several types of systematic observation procedures, and standardized achievement tests. These measures have addressed student academic performance, student and teacher classroom behavior, and teacher and consultant satisfaction with the consultative process. In contrast to several prior investigations of prereferral intervention, we have used dependent variables that are subjective, objective, and socially valid. Several of our measures also have been curriculum based, although we have yet to incorporate curriculum-based measurement into our prereferral procedures. More about this later.

With these few remarks on the MAT serving as an introduction, we now turn

to a more detailed description of our prereferral intervention approach.

MATs: Basic Dimensions

Behavioral Consultation

We have based much of our MAT activity on Behavioral Consultation because the process appears straightforward and at least limited support for its effectiveness exists.

Definition and characteristics. Behavioral Consultation (BC), like alternate well-known consultation models of Mental Health and Organizational Development, involves a triadic network (consultant, teacher, and pupil) and indirect service. Unlike these models, BC has roots in the learning theory tradition of Watson, Skinner, and Bandura. Not surprisingly, it emphasizes the role of environmental factors in controlling behavior. That is, it encourages exploration of antecedents and consequences of behavior in naturalistic settings to permit identification of variables influencing the frequency, rate, intensity, and/or duration of problem behavior. Behavioral consultants employ respondent, operant, and modeling procedures to change disturbing behavior.

A second feature of BC is that it depicts the consultee, and often the student, as a problem solver who participates as a coequal in designing intervention strategies. Third, BC links decisionmaking to empirical evidence. The model calls for the design and implementation of interventions to be based on behavioral data and empirically validated laws of behavioral change. Fourth, BC evaluations require focus on goal attainment and plan effectiveness. Finally, BC is conducted within a series of four well-defined, interrelated stages: problem identification, problem analysis, plan implementation, and problem evaluation. These stages are described below.

Evidence of effectiveness. The effectiveness of BC has been evaluated

experimentally more often than the success of alternate consultation models (Alpert & Yammer, 1983). Although some of this efficacy research suffers from conceptual and methodological limitations (see Alpert & Yammer, 1983; Meyers, Pitt, Gaughan, & Freidman, 1978), we are impressed with the steadily growing corpus of school-based investigations indicating its success in increaing pupils' attention, study behavior, completion of homework assignments, and mathematics and compositional response rates and reducing lateness, out-of-seat behavior, general disruptiveness, stealing, chronic absences, and digit reversals (e.g., Tombari & Davis, 1979).

Component Analyses of BC

Stages of BC. As mentioned, BC is conducted during a series of four interrelated stages: problem identification, problem analysis, plan implementation, and problem evaluation. The consultant guides the teacher through a majority of these stages in a succession of structured interviews in which specific objectives must be accomplished before consultation can proceed to subsequent stages. The major objectives of the first stage, problem identification, are to define the problem behavior in concrete, observable terms, obtain an estimate of the frequency or intensity of the behavior, and tentatively identify the environmental events surrounding the problem behavior.

In the second stage, problem analysis, the goal is to validate the existence of a problem, discover factors that may influence problem solution, and develop with the teacher an intervention plan that directly addresses the problem. During the third stage, plan implementation, the consultant makes sure the intervention plan is implemented as agreed and is functioning properly. Although plan implementation is primarily the responsibility of the teacher, the consulant monitors details of implementation. The goal of the

final stage, problem evaluation, is for the consultant and teacher collaboratively to evaluate the effectiveness of the implemented intervention and, if it has proved ineffective, to determine how it should be modified.

Rationale for component analysis. An apparent basic and widespread presumption in the literature on BC is that all four stages constituting the model are important; none is indispensable (e.g., Gresham, 1982). Although Bergan and associates (e.g., Bergan & Tombari, 1976; Tombari & Davis, 1979) have indicated that the initial stage may be most important to consultation outcomes, we are unaware of any systematic attempt to determine the relative value of the various stages or components of the BC model.

The absence of component analyses seems to reflect a more general dearth of process-outcome research in the consultation literature (e.g., Alpert & Yammer, 1983; Medway, 1982; Meyers, et al., 1978; Witt & Elliott, 1983). This is unfortunate, since process-outcome research, including component analyses, can help identify dispensable facets of the consultation process, leading to approaches that simultaneously are effective and efficient. Toward this end, as well as in hopes of contributing to the pertinent literature, we undertook component analyses of the BC model in Years 1 and 2 of the project.

Description of component analysis. We decided to explore the importance of the various components of the BC model by creating three increasingly inclusive versions. In the least inclusive variation, the consultant and teacher worked collaboratively on problem identification and analysis. However, the consultant did not help the teacher implement the intervention developed during the problem analysis stage. Moreover, the consultant and teacher did not evaluate intervention effects in any formative fashion, precluding an opportunity to modify or fine-tune the intervention. In other words, our first version of the model incorporated only the first two of the

model's four stages.

The second variant of BC also included the first two stages. Additionally, it required the consultant to make a minimum of two classroom visits to assist the teacher with the intervention. However, like the first version, this second variation of the model did not include a formative evaluation stage. Thus, the second version comprised the first three stages of BC. Finally, our third and most inclusive version required consultant and teacher to formatively evaluate intervention effects, and, therefore, incorporated all four stages of the BC model.

Written Scripts

Three of four BC stages are implemented during the course of formal interviews or meetings. (Stage 3, plan implementation, typically is conducted in the classroom.) Gresham (1982) has provided one of the more comprehensive descriptions of the substance to be covered during these meetings. Inspired by the Cantrell's Heuristic Report Form (see Cantrell & Cantrell, 1980; 1977), we recast Gresham's materials into written scripts that guided much of our consultants' verbal behavior. The scripts provided them with an efficient means to create rationales and overviews for the meetings; to establish structure and maintain a logical and quick-paced "flow;" to obtain succinct descriptions of the classroom environment, qualitative and quantitative evaluations of most difficult-to-teach students, and logistical information such as days and times when the target child could be observed and tested; and to check, and systematically double-check, that key information such as descriptions of the target pupil's behavior was sufficiently elaborate and precise to permit easy identification during the consultant's classroom observations.

In addition to promoting efficiency, we believe the scripts have enhanced

fidelity of treatment. That is, assuming (a) they accurately reflected the BC model and (b) consultants faithfully followed them, we could be confident that the model was implemented as intended. This fidelity of treatment issue has been especially important to us since the majority of our consultants have lacked formal consultation training and experience. Finally, in Years 1 and 2, each of our three versions of BC had its own script. In an Appendix, we have included an unabridged copy of Meeting #1, Problem Identification, which is the only meeting that is the same across the three treatments.

Year 1: Implementation

Participants

Schools. We recruited four inner-city middle schools to serve as project schools. Next, five control schools were selected that matched project schools in terms of (a) location (inner-city), (b) level (middle schools), (c) average SAT reading and math scores, (d) student enrollment, (e) proportion of Black students enrolled, and (f) annual rate of referrals for psychological evaluations. In comparison to all schools in the district, the nine project and control schools demonstrated lower SAT reading and math scores, a higher percentage of Black enrollment, and a greater annual rate of referrals for psychological evaluations.

Consultants. Associated with the four project schools were 10 school-based consultants. Five consultants were special education resource room teachers, two were school psychologists, and three were pupil personnel specialists (PPSs), a newly created position requiring the assessment skills of a psychologist, advising capacity of a school counselor, and family-work experience of a social worker. Among the PPSs, two were formally trained and experienced school psychologists. Additionally, two graduate students with special and general education experience served as consultants. Thus, there

was a total of 12 consultants serving four project schools.

Teachers and pupils. Consultants in project schools helped recruit 24 fifth and sixth grade classroom teachers. In control schools principals and project staff also recruited 24 fifth and sixth grade teachers. In each of the nine schools, classroom teachers were asked to identify their most difficult-to-teach, nonhandicapped pupil. These 48 most difficult-to-teach children were largely boys (71%), mostly Black (65%), and approximately 1 grade below expectations in reading and math. Additionally, 58% of the students were described as most difficult-to-teach primarily because of "off task" or "inattentive" behavior; 23% because of "poor academic work," despite capability to perform better; 4% because they "lacked academic skills;" 8% as a result of "poor interpersonal skills with adults;" 4% due to "poor interpersonal skills with peers;" and 2% because of "intrapersonal characteristics."

Training

We conducted inservice and on-the-job training to prepare our consultants for their MAT responsibilities. Two all-day training sessions were conducted at our university for the school-based and graduate student consultants. During 14 hours consultants were trained in three areas. First, we discussed the problem-solving, collaborative, and data-based nature of BC. To improve understanding of these features, we asked consultants to role play consultation within the context of several prepared vignettes. Corrective feedback accompanied this role playing. Second, we trained consultants to employ reliably a systematic interval recording procedure. Videotapes of various non-staged incidents of classroom conflict were used to train consultants to criterion. Third, we reviewed how to implement a broad range of behavioral interventions, including token economies, contingency contracts,

and self-management strategies. At the same time, we informed consultants that they were not bound to implement such interventions.

Assignment of Teachers and Scripts to Consultants

Assigning teachers. On the second day of inservice training, the 10 school-based consultants were grouped by school affiliation and handed a list of teachers in their respective buildings who had volunteered for the MAT project. Within these groups each consultant chose an average of two general educators with whom to consult. They also assigned participating teachers to the two graduate student consultants. We purposely did not randomly assign teachers to consultants since many of the consultants worked as members of discrete teacher teams; to have paired them with teachers not part of their team would have violated basic facts of consultants' and teachers' work experience.

Assigning scripts. Nevertheless, we did randomly assign the 24 project teachers to the three script types, with 8 teachers per script. This random assignment of teachers to scripts also meant that a majority of consultants used one form of BC with one teacher and a contrasting (more or less inclusive) variant with another teacher. We were above-board with the consultants about these scripts: We said we had no compelling a priori reason to believe that one script would be more effective than another and, as a consequence, we suggested it would be a mistake for them to guess which script was superior.

Additionally, we asked the school-based consultants to rate each participating teacher in their buildings in terms of the teacher's capacity to work effectively with difficult-to-teach nonhandicapped students. A subsequent analysis of these ratings indicated no reliable differences between teachers assigned to the three variations of BC.

Procedures

Sequences of consultants' activity. Figure 1 displays sequences of salient consultation activity associated with our three versions of BC. In part, Figure 1 graphically presents what already has been discussed. That is, Script 1 (least inclusive version) differs from Scripts 2 and 3 (most inclusive version) in its omission of classroom visitation, whereas the uniqueness of Script 3 in relation to 2 is the more inclusive script's potential for a third classroom visit, fourth meeting, and fifth observation. Figure 1 also indicates that Scripts 1 and 2 call for a 6-week consultation period, while Script 3 requires 6 to 8 weeks of consultation activity.

Insert Figure 1 about here

Multidisciplinary teams. An important distinctive feature of MAT activities in Year 1, which is neither displayed in Figure 1 nor described heretofore in the text, is that, irrespective of script, a multidisciplinary team coalesced for every Meeting 2. The team comprised (a) the classroom teacher, (b) a school-based special educator, and (c) either the building-based school psychologist or PPS. The presence of such a group at Meeting 2 reflected our beliefs that (a) objectives for this meeting, including problem validation and analysis as well as the formulation of a classroom-based intervention, are relatively difficult and important to achieve, and (b) many heads are better than one or two, especially when they collectively represent diversity and richness in formal training and professional experience.

Target behaviors and types of interventions. Approximately 60% of project teachers directed consultants to help them with off-task or

inattentive behavior; about 20% of teachers targeted poor quality of work for planned interventions; and the remaining teachers wished treatment plans to address poor relations with adults, poor relations with peers, and lack of academic skills.

A total of 22 of 24 planned interventions included delivery of some type of reinforcement contingent on display of desired behavior. In two cases, the nature of the classroom-based treatment was unclear. Among the 22 described interventions, 7 involved use of activity reinforcers, 4 included tangible reinforcement, and 3 made use of teachers' verbal praise. Eight interventions did not specify type of reinforcement. Additionally, 17 of these 22 interventions included some form of monitoring of pupil behavior; 5 did not. Among the monitored interventions, 5 teachers developed wall charts, 6 kept track of behavior on informally fashioned tally sheets, and 6 did not use a written record. Combining this last group with the 5 who did not monitor, yields a total of 11 teachers (50% of those on whom we obtained intervention-related information) who we suspect had only vague knowledge of whether, and if so when, a student was deserving of a reward. Finally, teachers dispensed reinforcers in 17 of the 22 described interventions; an aide delivered reinforcement in one case; and 4 descriptions of interventions were unclear on this point.

Year 1: Results and Discussion

Prior to reporting our findings, we have two brief comments. First, we confine our discussion of MAT outcomes to a subset of dependent measures. These are consultants' global evaluations of MAT success, teachers' pre- and post-MAT ratings of most difficult-to-teach pupils' targeted behavior, and pre- and post-MAT classroom observations of the same children and same behavior. Second, our discussion of these data will be general in nature; a

more detailed, researcher-oriented exposition may be found elsewhere (Fuchs & Fuchs, 1987).

Consultants responded to a 4-point scale with the following descriptive anchor points: 1 = MATs were an unqualified failure; 2 = MATs were a qualified failure; 3 = MATs were a qualified success; and 4 = MATs were an unqualified success. Consultants awarded mean evaluations of 2.0, 2.8, and 2.9, respectively, to Script #1 (least inclusive version), Script #2 (more inclusive version), and Script #3 (most inclusive version). When taking the perspective of their consultees (that is, evaluating MAT success as they believed their teachers would), consultants assigned virtually identical mean scores to the scripts. Descriptively, such evaluations suggest that consultants and teachers were rather satisfied with the comparatively inclusive versions of BC, but were disatisfied with the least inclusive variant. However, this difference in evaluations was not statistically significant.

Using 5-point scales, teachers rated the severity, manageability, and tolerableness of their most difficult-to-teach pupils' target behavior on a pre- and post-MAT basis. We aggregated the three ratings to generate a single pre-MAT score and single post-MAT score for each student. Subtracting pre-MAT ratings from post-MAT ratings yielded the following average change scores for control students and project pupils involved with Script #1 through Script #3, respectively: -.2, -.5, -.9, and -1.0.

In other words, descriptively, teachers claimed that control students' problematic behavior decreased least; targeted behaviors of students in the most inclusive version of BC decreased most. Moreover, statistical analyses indicated that the reported decreases in problem behavior associated with Scripts #2 and #3 were reliably greater than the decreases evidenced by pupils

in control and Script #1 groups. Thus, teachers' ratings and the descriptive, rather than inferential, interpretation of consultants' evaluations, evidence a similar pattern: Relatively inclusive versions of BC seem to be viewed as effective and with satisfaction; the least inclusive variant of BC appears to be perceived as ineffective and with dissatisfaction.

Observational data on difficult-to-teach pupils' problem behavior were both consistent and inconsistent with the emerging pattern in our findings. As expected, control students did not display a pre- to post-MAT decrease in targeted troublesome behavior; rather this group's behavior increased by 9%. Predictably, too, Script #2 pupils demonstrated a modest 6% decrease in problem behavior. However, the greatest percentage decrease in troublesome behavior (8%) was associated with the least inclusive variant of BC, or Script #1, which was the script consultants and teachers viewed least effective and least satisfying. Students involved with Script #3 activity surprisingly displayed no change in problem behavior from pre- to post-MAT observations. Differences among the groups' pre-to-post behavior changes "approached" (2-tailed $p = .11$), but did not "reach," the conventional threshold ($p < .05$) of statistical significance. Therefore, there was no reliable difference between the respective groups' observed behavior change.

We are at a loss to explain with certitude the inconsistency between our observation and teacher rating data. (See Fuchs & Fuchs, in press, for a discussion of possible reasons for this disjunction.) Regardless, we were not impressed with the conceptualization or execution of many classroom-based interventions. Our impressions were based on our own observations and MAT members' descriptions of these interventions. As already mentioned, among 22 of 24 prereferral interventions employing teacher reinforcement, one-half failed to incorporate a record of student behavior, which raises the question

of how teachers knew whether, and if so when, to reward students for appropriate behavior.

Following numerous debriefings with consultants and teachers, we believe there are at least two important reasons why many interventions were ineffective during Year 1. First, despite our training and materials, many consultants (and teachers) appeared insufficiently skilled to formulate and operationalize meaningful interventions. Second, consultants seemed to waste valuable time trying to engage teachers in collaborative consultation, when many teachers simply wanted to be handed solutions to vexing problems. Not only was time lost, but consultants' efforts to convince teachers to become co-equal partners ironically seemed to irritate many teachers, which, in turn, confused and frustrated the consultants. Such anecdotal findings have strongly influenced the nature of our project in Year 2, which we describe below.

Year 2: Implementation

Participants

Schools. Five project schools participated, three of which served as project schools during the first year. Two of five control schools in Year 1 also continued their involvement in the project. These seven schools were inner-city middle schools that were alike in terms of SAT reading and math achievement, student enrollment, proportion of Black students enrolled, and yearly rate of student referrals for psychological evaluations.

Consultants. There were eight school-based consultants: five special educators, two school psychologists, and a librarian. Four graduate students also served as consultants, bringing to 12 the number of consultants in the five project schools.

Teachers and pupils. Consultants in project schools helped recruit 31

teachers in fifth and sixth grades. In control schools principals and project staff recruited another 12 fifth and sixth grade teachers. Each of the 43 teachers was requested to identify a most difficult-to-teach, nonhandicapped pupil. These students were 77% male, 40% Black, and approximately 1 grade below expectations in reading and math. Additionally, 53% of the students were described as difficult-to-teach primarily because of "off task" or "inattentive" behavior; 21% because of "poor interpersonal relations with adults;" 19% because of "poor academic work," despite capability to perform better; 2% bacause they "lacked academic skills;" 2% because of "poor motivation;" and 2% because of "intrapersonal characteristics."

Training

As in Year 1 we conducted inservice and on-the-job training to prepare our consultants for their MAT responsibilities. Also like last year, in two days of in-service training, we presented the problem-solving, collaborative, and data-based nature of BC, and provided opportunity for consultants to become familiar with a systematic observation procedure. Unlike last year, however, we did not review a broad range of behaviorally-inspired interventions. Rather, we presented details of a specific intervention and communicated an expectation that this procedure would be implemented, in one of several variations, in all participating teachers' classrooms. This intervention is described below.

Prereferral Intervention

In Year 2 we attempted to strengthen project-related interventions by requiring use of contingency contracts and data-based monitoring procedures.

Contracts. Contracts, involving teachers and their most difficult-to-teach nonhandicapped pupil, stipulated six dimensions of the intervention: (a) type and degree of the desired change in behavior or

academic performance; (b) the classroom activity (or activities) to which the contract applies; (c) how student behavior and academic performance will be monitored; (d) the nature of reward; (e) when and by whom the reward will be delivered; and (f) whether the contract may be renegotiated. Contracts were selected as an intervention strategy for two reasons. First, during Year 1, many of our consultants and teachers independently chose to implement contracts. Second, and related, recent surveys (e.g., Martens, Peterson, Witt, & Cirone, 1986) indicate that they are viewed positively by a large proportion of general educators. Blank contracts were provided to project teachers, an example of which appears as Figure 2.

Insert Figure 2 about here

Teachers also were told the following. First, many difficult-to-teach students need motivation to improve their attitude and behavior. Such motivation can take the form of positive reinforcement, which, teachers were informed, is the "presentation of a reinforcer, or reward, immediately following the demonstration of a desirable behavior that increases the future rate and/or probability of that desirable behavior." Second, to use positive reinforcement effectively, teachers were encouraged to (a) choose reinforcers based on a student's interests, (b) award reinforcers only after the student has performed the desired behavior, and (c) dispense reinforcers as soon as possible after a student's demonstration of appropriate behavior. Finally, teachers were reminded that there were three major types of positive reinforcers from which to choose: activity, material, and token reinforcers.

Project teachers were required to use the contracts for a minimum of three weeks. They were directed to reinforce students everyday during the

first week, and a minimum of two times during the second and third weeks. Therefore, the minimum number of days covered by a contract was nine.

Data-based monitoring. Our data-based monitoring procedures involved either time interval recording or product inspection. Interval recording was defined as, "A monitoring technique used to record whether a social behavior occurs or does not occur during a predetermined period or interval." Consultants and teachers were directed to use interval recording when a student's behavior was viewed primarily as disruptive to the teacher's and/or classmates' work or well-being. Examples of such behavior included rudeness, teasing, and frequent talking to peers. Specific steps guided teachers' use of interval recording, which, in addition to an interval recording sheet, are presented in the Appendix (see Teacher Monitoring with an Interval Recording System).

Product inspection was defined as, "The evaluation of academic work at the end of a predetermined duration." This form of monitoring was to be used for behaviors that primarily interfered with the student's own academic work. Examples of this type of behavior included daydreaming, being off-task or inattentive, and getting out of seat. By requiring the imposition of a time limit on academic activity specified by the contract, we were encouraging teachers to observe and record the amount and quality of work the student completed during the specified work interval. As with interval recording, teachers were required to adhere to specific guidelines in using product inspection. These are presented, along with a product inspection sheet, in the Appendix (see The Product Inspection Approach to Teacher Monitoring).

Teacher vs. student monitoring. Building on the work of Meichenbaum (1977) and Meichenbaum and Asarnow (1979) as well as Hallahan and associates (e.g., Hallahan, Lloyd, Kosiewicz, Kauffman, & Graves, 1979; Hallahan,

Marshall, & Lloyd, 1981), we also explored experimentally the effectiveness and efficiency of teacher vs. student self-monitoring. That is, irrespective of use of interval recording or product inspection, 15 and 16 project teachers were assigned to teacher- and student-monitoring conditions, respectively. As the name implies, pupils implementing self-monitoring evaluated their own social behavior (via interval recording) or academic performance (by product inspection), following a brief period in which their teacher modeled the monitoring procedures for them. Our student-monitoring procedures are presented in the Appendix (see Student Monitoring with an Interval Recording System and The Product Inspection Approach to Student Monitoring).

Procedure

Assigning teachers and scripts to consultants. The eight school-based and four graduate student consultants were matched to 31 participating teachers in a manner identical to that followed in Year 1. Also, as last year, one of our three scripts was randomly assigned to each teacher so that 10, 10, and 11 teachers were assigned to the least, more, and most inclusive scripts, respectively.

Sequences of consultants' activity. In Year 2, sequences of consultants' activities associated with Scripts 1, 2, and 3 were similar to the previous year. In Year 2, Scripts 1 and 2 required 8 and 9 weeks of consultation, respectively, whereas Script 3 involved a maximum of 10 weeks of consultation.

Multidisciplinary teams. In Year 2 we eliminated the multidisciplinary nature of Meeting #2. Instead of the obligatory three-member team, representing school psychology and special and general education, we required only consultant and teacher to meet to review the prereferral intervention. Two factors argued for elimination of the multidisciplinary team. First, we now had a "packaged" classroom-based intervention, which reduced much of the

need for a team's collaborative generation of interventions. Second, getting three school-based professionals together for an hour during Year 1 proved difficult; two-member teams were viewed by school people and ourselves as more feasible.

Dependent measures. Three of our more important dependent variables were (a) teachers' pre- and post-intervention ratings of the severity, manageability, and tolerableness of their difficult-to-teach pupils' most problematic behavior, (b) consultants' pre, post, and follow-up observations of the frequency with which difficult-to-teach pupils, and randomly selected peers, displayed this problematic behavior, and (c) teachers' pre and post responses to the Revised Behavior Problem Checklist (Quay & Peterson, 1983).

Year 2: Results and Discussion

As in Year 1, teacher ratings of difficult-to-teach pupils' most problematic behavior were aggregated across dimensions of severity, manageability, and tolerableness, generating a single pre- and post-intervention score for each student (the higher a score the more positive a rating). Whereas control teachers' average pre-to-post ratings showed virtually no change (pre = 5.8, post = 6.0), teachers involved in each of the three MAT scripts expressed an impression of strong, positive pupil change. Mean ratings of teachers in least to most inclusive scripts were 5.5 to 10.2, 5.8 to 10.1, and 6.6 to 11.3, respectively. Statistical analysis indicated that (a) the three groups of project teachers' ratings reflected reliably greater change than the controls' ratings, and (b) there was no significant difference among the project teachers.

Teacher responses to the Revised Behavior Problem Checklist (RBPC) were basically consistent with their severity, manageability, and tolerableness ratings. Total averaged pre and post RBPC scores for control teachers and

those teachers associated with least to most inclusive MAT scripts were 53.8 to 56.0, 58.5 to 45.9, 60.8 to 40.3, and 42.6 to 28.0, respectively (where a lower score reflected a more positive rating). On the Conduct Disorders subscale, one of four major dimensions of the RBPC, teachers involved with Scripts 2 and 3 noted a significantly greater improvement in their difficult-to-teach pupils than did Script 1 and control teachers. On the Attention Problems subscale, all three script groups indicated (a) significantly greater positive change among their students than did control teachers, and (b) no reliable difference among themselves.

Whereas difficult-to-teach pupils in non-project schools displayed scant pre-to-post change in the observed frequency with which they displayed problematic classroom behavior (pre = 41%, post = 37%), their counterparts in project schools evidenced dramatic improvement: 46% to 25% (Script 1), 53% to 24% (Script 2), and 42% to 17% (Script 3). Statistical analysis indicated that (a) positive changes among Script 2 and 3 pupils were significantly greater than those of Script 1 and control pupils, and (b) Script 2 and 3 students accomplished a change of similar magnitude as did Script 1 and control pupils. Moreover, there was no statistically significant difference between behavior displayed at post-observation and at 2 to 3 week follow-up, suggesting that Script 2 and 3 pupils' positive behavior change was maintained, at least short-term, beyond the intervention's time frame.

One more aspect of the Year 2 observation data is noteworthy. Not only did project pupils reduce their problem behavior in an <u>absolute</u> sense, they also lessened it <u>relative</u> to the frequency of peers' display of identical behavior. Difficult-to-teach pupils involved with Script 1, for example, demonstrated problem behavior 21% more often than peers at pre-observation, but only 7% more frequently at post-observation. Script 2 students showed

problem behavior 19% more often at pre-observation, but reduced this figure to 1% less than peers at post-observation. Similarly, Script 3 students were 25% and 3% discrepant from peers at pre- and post-observation, respectively. Contrastingly, difficult-to-teach pupils in non-project schools evidenced problem behavior 29% more often than peers at pre-observation and 27% more frequently at post-observation.

Project pupils' positive change in Year 2 was greater than during the previous year, a fact clearly indexed by the observation data. As indicated, in Year 2 Script 1, 2, and 3 pupils evidenced pre-to-post reductions in problem behavior of 26%, 34%, and 28%, respectively. These decrements compare very favorably to reductions in similar behavior in Year 1 (i.e., Script 1 = 8%, Script 2 = 6%, and Script 3 = 0%). Additionally, unlike in the project's first year, Year 2 observation data were supported by teachers' ratings and responses to the Behavior Problem Checklist.

What accounts for project students' greater positive change in Year 2? We believe the answer is straightforward: Our intervention of contingency contracts and data-based monitoring was (a) understood by teachers and pupils, (b) implemented more or less as intended, and (c) sufficiently motivating for difficult-to-teach pupils. Moreover, in response to a questionnaire administered following completion of the project in Year 2, teachers indicated our intervention strategy was unobtrusive (providing an average rating of 1.2 on a scale where 1 = "not at all obtrusive" and 4 = "most obtrusive"). They also described the project as worthwhile (mean rating of 3.3 where 1 = "not at all worth doing" and 4 = "definitely worth doing"), and contributing to their professional development (average rating of 3.2 where 1 = "contributing not at all" and 4 = "contributing very much"). In short, we believe the evidence indicates our prereferral intervention was effective and feasible.

Year 2 school-based consultants, however, were considerably less satisfied with the project than teachers. Contributing to this dissatisfaction was a widespread view that our directive approach preempted opportunity for them to exercise their professional knowledge, skill, and judgment. In the words of one consultant, "our pre-packaged approach to intervention reduced them from clinicians to clerks."

Central adminstration in the school district was as impressed by the salutary effects of the MAT project as by the resentment among our experienced consultants. Guided by both impressions, administration recently earmarked a newly-created and inexperienced group of support staff, elementary guidance counselors, to implement MAT activity as a formal part of their job description. The explicit hope is that, <u>despite</u> the counselors' inexperience, our training will prepare them for their MAT role, and, <u>because</u> of their inexperience, they will be more satisfied than previous support staff with our variant of consultation.

We are pleased with the school district's vote of confidence and "institutionalization" of MAT activity. Working with the elementary guidance counselors in Year 3, we intend to build on past efforts by determining how to transfer positive behavior change across school settings. The need for such generalization presented poignantly to us when several pupil participants in Year 2, despite noticeable improvement in classrooms targeted by the project, were suspended from school for behavior displayed in non-targeted settings. Toward this end, we have developed a program for generalization that relfects Stokes and Baer's (1977) "sequential modification," and plan to implement it and the rest of our consultative activity in more than 20 elementary schools.

As for subsequent years, we plan to incorporate greater opportunity for

decision making by consultants and their teacher clients. One example of such decision making will be use of curriculum-based measurement. Another will be availability of a larger set of valid, operationalized classroom-based interventions from which to choose, depending on child, teacher, and setting characteristics. Such additions will make our consultation process more flexible, adaptive, and sophisticated. To assure feasibility, we believe such consultation will require use of advanced computer technology, including so-called "expert systems" software with which we have just begun working.

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Figure Captions

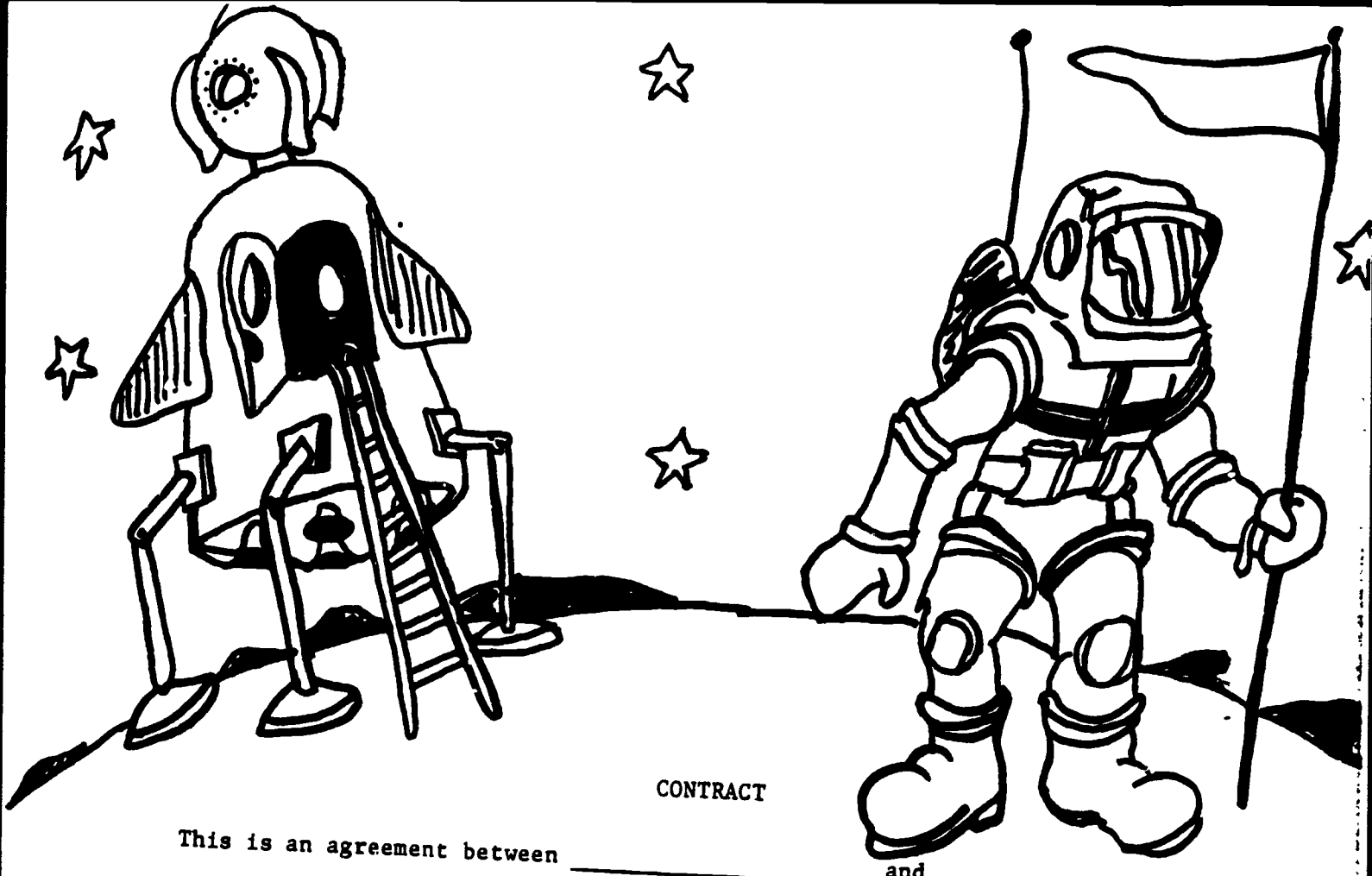
Figure 1. Sequence of consultant activity in Scripts 1, 2, and 3.

Figure 2. Example of teacher-pupil contract used in Year 2.

Week	Consultant's activity	Scripts[a]		
		1	2	3[b]
1	Meeting 1	X	X	X
	Observation 1	X	X	X
2	Observation 2	X	X	X
	Meeting 2	X	X	X
	Intervention begins	X	X	X
3	Classroom visit 1		X	X
4	Classroom visit 2		X	X
5	Observation 3	X	X	X
	Observation 4	X	X	X
	Intervention ends	X	X	X
6	Meeting 3	X	X	X
7	Modified intervention begins			?
	Classroom visit 3			?
8	Observation 5			?
	Modified intervention ends			?
	Meeting 4			?

[a]Scripts 1 and 3 represent our least and most inclusive versions of BC, respectively.

[b]Question marks in this column denote that consultants using Script 3 had an option to pursue the associated activities, depending on the evaluation of MAT effectiveness up to that point.



CONTRACT

This is an agreement between _____ (student) and _____ (teacher).

If the student does _____ (nature and amount/frequency of desired behavior),

or does NOT _____ (problem behavior) during _____ (classes/time/periods),

the student will earn _____ (rewards/privileges). The student will receive the rewards/privileges as described above by _____ (method of delivery) _____. The teacher will monitor _____ (student's) behavior by _____ (type of monitoring). The student's behavior will be evaluated _____ (frequency of evaluation). This agreement will begin _____ (date), and will end _____ (date), at which time renegotiation may be/may not be possible. I agree with the contract as specified:

_____ (student) _____ (date) _____ (teacher) _____ (date)

Appendix

MEETING #1: PROBLEM IDENTIFICATION

Start time _____ Date _____

As you know, the goal of this project is for us to work together to make your most difficult-to-teach student easier to teach. Toward this end, we will meet like this 3 or 4 times over the next 2 months.

The purpose of this meeting is to get some general information on your most difficult-to-teach child and to try to specify his (her) most troublesome behaviors.

Before beginning, I'm wondering if you wouldn't mind me recording just the first discussion. We value what you have to say, and we wish to get it all and get it right. The tape will be erased after it's transcribed and neither your name nor the child's name will be associated in any way with the information.

A. Describing the Target Child

1. Describe your most difficult-to-teach student, or what we'll call the target child. What is he (she) like in the classroom?

_____

_____

_____

_____

_____

_____

2. What does he (she) do that makes him (her) difficult to teach? Identify behaviors and academic performance that make teaching the target child difficult.

a. _____ d. _____

b. _____ e. _____

c. _____ f. _____

3. (Encourage the teacher to describe <u>at least</u> 1 behavior problem and, if appropriate, <u>at least</u> 1 academic problem.)

4. How severe are each of these problems, using a scale of 1 to 5 (where 1 = mild and 5 = most severe)?

Behavior/Academic Problems	Rating
a. _____	1 2 3 4 5 (mild) (most severe)
b. _____	1 2 3 4 5 (mild) (most severe)
c. _____	1 2 3 4 5 (mild) (most severe)
d. _____	1 2 3 4 5 (mild) (most severe)
e _____	1 2 3 4 5 (mild) (most severe)
f. _____	1 2 3 4 5 (mild) (most severe)

5. Mild problems are not always the most controllable or manageable; severe problems are not always the least manageable. Thus, I'd like you to rate each of these problems, using a scale of 1 to 5 (where 1 = easily manageable and 5 = unmanageable).

Behavior/Academic Problems	Rating
a. _____	1 2 3 4 5 (easily managed) (unmanageable)
b. _____	1 2 3 4 5 (easily managed) (unmanageable)
c. _____	1 2 3 4 5 (easily managed) (unmanageable)
d. _____	1 2 3 4 5 (easily managed) (unmanageable)
e. _____	1 2 3 4 5 (easily managed) (unmanageable)
f. _____	1 2 3 4 5 (easily managed) (unmanageable)

6. I'm also interested to know how easy or hard it is right now for you to live with these behaviors. In other words how tolerable are each of these problems, using a scale of 1 to 5 (where 1 = easily tolerated and 5 = intolerable)?

Behavior/Academic Problems	Rating
a. _____	1 2 3 4 5 (easily tolerated) (intolerable)
b. _____	1 2 3 4 5 (easily tolerated) (intolerable)
c. _____	1 2 3 4 5 (easily tolerated) (intolerable)
d. _____	1 2 3 4 5 (easily tolerated) (intolerable)
e. _____	1 2 3 4 5 (easily tolerated) (intolerable)
f. _____	1 2 3 4 5 (easily tolerated) (intolerable)

7. Pick a second student who is also difficult to teach. Think about this student for a minute. Then tell me what makes the target child more difficul the second child?

_____

_____

_____

_____

8. Why do you think the target child behaves or performs this way? What makes the child "tick"?

_____

_____

_____

_____

_____

9. Have you referred the child for a psychological assessment? _____

10. In your opinion, how appropriate would it be to refer the target child for some type of specialized professional help, such as placement in special education, counseling provided by a school psychologist or pupil personnel specialist, or a comprehensive assessment at a nearby hospital or clinic?

1 2 3 4 5

very appropriate inappropriate

B. Specifying the Problem

1. Earlier you mentioned the target child is difficult to teach because of these problems: (Restate the teacher's response to A-2.)

2. Rank order these problems from most to least pressing or troublesome.

a. _____ d. _____

b. _____ e. _____

c. _____ f. _____

3. Among this group, please select the one behavior problem that, if solved, will lead to the greatest improvement.

_____

4. Describe this behavior problem as concretely as possible, since this should become the target behavior that we work on together.

_____

_____

_____

5. In the past, have you taken any steps to address this problem behavior?

_____ (Y/N) (If "yes":) Specifically, what have you tried to do?

_____

6. When during the day (two academic activities and times) does the student typically demonstrate this behavior?

Academic Activity #1 _____ Time _____

Academic Activity #2 _____ Time _____

7. On which level in Ginn 720 is the target child reading? _____

8. (If the target child is not in Ginn 720, which reading materials are being used and on what level is he/she reading?) _____

_____

C. Summarizing the Target Child's Problem Behavior

1. Let's see if I have a clear understanding of the target child's most important behavior problem. (Restate the child's problem behavior. Be sure that your retelling is clear and concrete enough so you would have no trouble seeing it in the classroom.)

2. Have I got it right? If not, please help me. _____

_____

_____

3. Do we agree that this will be the problem that we will work on? _____

D. Identifying Class Times and Days to Observe and Test the Target Student

1. I would like to observe the target child two times. Keeping in mind I need to observe during the academic activities already identified, when would be good days and times to observe?

Observation #1	Observation #2	Observation #3 (Back-up)
Date _____	Date _____	Date _____
Time _____	Time _____	Time _____

2. When I come to observe the target child it is very important that you try to to relate to him (her) as you normally do, since I'd like to watch the child under typical circumstances.

3. Testing can be completed in one session, lasting between 30 and 40 minutes. Which are good days and times of the week when the target child can be tested?

Good days _____ Good times _____

E. Administering the Quay Scale

Stop time _____

Meeting #1 lasted _____ minutes.

Appendix

TEACHER MONITORING WITH AN INTERVAL RECORDING SYSTEM

INTERVAL RECORDING

A monitoring technique used to record whether a social behavior occurs or does not occur during a predetermined period or interval.

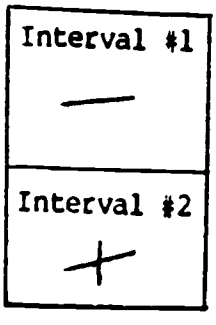
HOW TO USE INTERVAL RECORDING:

1. Use the "Interval Recording" sheet attached to this cover page.
2. Determine how long the interval of recording will be. Use an interval of 3, 4, or 5 minutes in duration.
3. Determine how long the observation period will last. This period should be no less than 15 minutes and no more than 30 minutes.
4. Obtain an audiotape corresponding to the interval duration selected in Step 2.
5. Begin observing.
6. At the end of each interval, signaled by a beep, place a minus sign in the corresponding box if the target behavior occurred during that particular interval. Place a plus sign in the box if it did not occur. (The target behavior may occur more than once during an interval. Even if it does, place one and only one minus sign in the corresponding box for a given interval.)
7. Determine the frequency of the target behavior by following these four steps. First, at the end of the observation period, total the number of intervals in which the target behavior occurred (number of minus signs). Second, total the number of intervals during which the target behavior did not occur (total number of plus signs). Third, sum the number of minus signs and plus signs. This sum equals the total number of intervals recorded. Fourth, divide the number of minus signs by the sum of the minus and plus signs. This gives the frequency of the target behavior.
8. The teacher should use this system for a minimum of three weeks. During the first week, the teacher should monitor everyday (total of 5 observations). During the second and third weeks, the teacher should monitor a minimum of two days, if not more, per week.

EXAMPLE:

If the target behavior occurred one or more times during an interval, place a <u>minus sign</u> in the corresponding space on the recording sheet.

If the target behavior did not occur at all during the interval, place a <u>plus sign</u> in the correponding space.



INTERVAL RECORDING SHEET

Date: _____

Teacher Name: _____

Target Student: _____

Class Activity: _____

Target Behavior: _____

Length of Observation Period: _____ minutes

Minus Sign (-) = Target Behavior Occurs At Least Once

Plus Sign (+) = Target Behavior Does Not Occur

Interval #1	#2	#3	#4
#5	#6	#7	#8
#9	#10	#11	#12

STEP A: Sum the number of intervals in which target behavior occurred (total number of minus signs): _____

STEP B: Sum the number of intervals in which target behavior did not occur (total number of plus signs): _____

STEP C: Sum the total number of minus signs and plus signs (add STEP A and STEP B): _____

STEP D: Divide the number of minus signs (Step A) by the sum of minus signs and plus signs (Step C). This is the frequency of the target behavior: _____

* * PLEASE RETURN THIS SHEET TO CONSULTANT * *

Appendix

THE PRODUCT INSPECTION APPROACH TO TEACHER MONITORING

PRODUCT INSPECTION

The evaluation of academic work at the end of a predetermined time period.

HOW TO USE PRODUCT INSPECTION:

1. Select an academic activity that results in an observable product such as a worksheet or essay.
2. Set a time limit for the student to work on the academic activity.
3. Clarify with the student the expectations for the amount and quality of work to be completed during the time period. For example, tell the student that, during a 30 minute time period, you expect him/her to complete half the math problems on a worksheet with at least 80% correct.
4. Be sure the student basically understands how to perform the activity before timing begins.
5. Tell the student to start.
6. Begin timing.
7. When the period is over, tell the student to stop work and collect the academic product.
8. Evaluate the product using appropriate criteria such as number of problems attempted and/or correct.
9. Use this system for a minimum of three weeks. During the first week, use product inspection everyday (total of 5 observations). During the second and third weeks, use product inspection for a minimum of two days, if not more, per week. If the student's work improves at the end of the first week, use product inspection for the minimum of two days per week for the second and third weeks. If the student's work does not improve, use product inspection more than the minimum during the second and third weeks.

PRODUCT INSPECTION SHEET

Date: _____

Teacher Name: _____

Target Student: _____

Class Activity: _____

Product Inspected: _____

Beginning Time: _____

Ending Time: _____

Evaluation Criteria:

What is supposed to be completed? Example: One math worksheet with 20 items on it.

_____

What is the expected quality of the work to be completed? Example: At least 80%, or 16 of 20 items.

_____

Evaluation Results:

How much of the work was completed? Example: 15 items.

_____

What was the quality of work completed? Example: 10 out of 15 items correct or 67%.

_____

Did the target student meet the criterion:

(a) for the amount of the work completed? _____(Y/N)

(b) for the quality of the work completed? _____(Y/N)

* * PLEASE RETURN THIS SHEET TO THE CONSULTANT * *

Appendix

STUDENT MONITORING WITH AN INTERVAL RECORDING SYSTEM

INTERVAL SELF-MONITORING

A monitoring technique used to record whether a behavior occurs or does not occur during a predetermined period or interval.

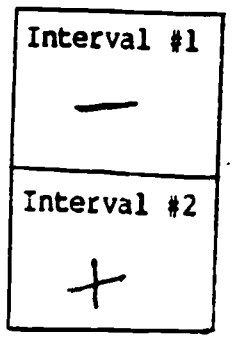
Phase I: The Teacher Monitors

1. Using interval recording, monitor the student's behavior on the first two days for week one. This insures that you can instruct the student how to self-monitor.
2. Use the "Teacher Monitoring Sheet" attached to this cover sheet.
3. Determine how long each recording interval will be. Use an interval of 3, 4, or 5 minutes in duration.
4. Determine how long the observation period will last. This period should be no less than 15 minutes and no more than 30 minutes.
5. Obtain an audiotape corresponding to the interval duration selected in Step 3.
6. Begin observing.
7. At the end of each interval, signaled by a beep, place a minus sign in the corresponding box if the target behavior occurred during that particular interval. Place a plus sign in the box if it did not occur. (The target behavior may occur more than once during an interval. Even if it does, place one and only one minus sign in the corresponding box for a given interval.)
8. Determine the frequency of the target behavior by following these four steps. First, at the end of the observation period, total the number of intervals in which the target behavior occurred (number of minus signs). Second, total the number of intervals during which the target behavior did not occur (total number of plus signs). Third, sum the number of minus signs and plus signs. This sum equals the total number of intervals recorded. Fourth, divide the number of minus signs by the sum of the minus and plus signs. This gives the frequency of the target behavior.
9. Use this system for the first two days of week one.

EXAMPLE:

If the target behavior occurred one or more times during an interval, place a minus sign in the corresponding space on the recording sheet.

If the target behavior did not occur at all during the interval, place a plus sign in the corresponding space.



Phase II: The Student Self-Monitors

1. After conducting the two observation periods, explain how the student will use the interval recording system.
2. Give the student a "Student Self-Monitoring Sheet". Be sure you know how long each interval and observation period will be.
3. Give the student the same audiotape used in Phase I.
4. Have the student begin recording.
5. At the end of each interval, signaled by a beep, the student should place a minus sign in the corresponding box if the target behavior occurred during that particular interval. The student should place a plus sign in the box if it did not occur. (The target behavior may occur more than once during an interval. Even if it does, the student should place one and only one minus sign in the corresponding box for a given interval.)
6. The student should determine the frequency of the target behavior by following these four steps. First, at the end of the observation period, total the number of intervals in which the target behavior occurred (number of minus signs). Second, total the number of intervals during which the target behavior did not occur (total number of plus signs). Third, sum the number of minus signs and plus signs. This sum equals the total number of intervals recorded. Fourth, divide the number of minus signs by the sum of the minus and plus signs. This gives the frequency of the target behavior. (If the student finds this calculation difficult, the teacher should assist the student.)
7. Check the student's monitoring after each of the first two recording periods. Make sure that the student is conducting the interval self-recording properly and answer any questions that the student has.
8. The student should self-monitor for the remaining three days of the first week. During the second and third weeks, the student should monitor a minimum of two days, if not more, per week. If the student's behavior improves at the end of the first week, interval recording can be used for the minimum of two days per week. If the behavior does not improve, have the student continue to use interval recording more than two days per week.

Appendix

THE PRODUCT INSPECTION APPROACH TO STUDENT MONITORING

PRODUCT INSPECTION

The evaluation of academic work at the end of a predetermined time period.

Phase I: The Teacher Monitors

1. Select an academic activity that results in an observable product such as a worksheet or essay.
2. Set a time limit for the student to work on the academic activity.
3. Clarify with the student the expectations for the amount and quality of work to be completed during the time period. For example, tell the student that, during a 30 minute time period, you expect him to complete half the math problems on a worksheet with at least 80% correct.
4. Be sure the student basically understands how to perform the activity before timing begins.
5. Tell the student to start.
6. Begin timing.
7. When the period is over, tell the student to stop work and collect the academic product.
8. Evaluate the product and record the results by using appropriate criteria such as number of problems attempted and/or correct.
9. Use product inspection for the first two days of week one.

Phase II: The Student Self-Monitors

1. After conducting the first two product inspections on your own, explain to the student how to self-monitor using product inspection.
2. The academic activity used in Phase I again should be used during this phase.
3. Tell the student what the time limit is for completing the assigned activity.
4. Be sure the student basically understands how to perform the activity before timing begins.
5. Tell the student to begin timing and to start the assignment.
6. When the time limit is reached, the student should stop working.
7. Have the student inspect the product and record the results by using appropriate criteria such as number of problems attempted and/or correct.
8. On the first few occasions when product inspection is used, check the student's self-monitoring to make sure that it is being conducted properly and answer any questions the student might have.
9. The student should use product inspection for the remaining three days of the first week. During the second and third weeks, the student should monitor a minimum of two days, if not more, per week. If the student's work improves at the end of the first week, product inspection can be used for the minimum of two days per week. If the student's work does not improve, have the student continue to use product inspection more than two days per week.