Preface

This is the first in a series of information papers that will describe procedures to be used in serving students under the Renewed Service Delivery System (RSDS). This paper will describe the basic principles of a problem-solving approach in very broad terms. The sequence of problem-solving steps will be outlined, as will some general procedures for completing these steps. This paper is meant to provide an overview of the entire system. More specific information regarding methods and procedures to be used in each of the problem-solving steps will be provided in each of the subsequent information papers.

INFORMATION PAPER 1
A PROBLEM-SOLVING APPROACH

BASIC PRINCIPLE 1: A systematic problem-solving procedure should be used to address student performance problems. This problem-solving procedure should involve the following seven steps:

1) development of a behavioral definition of the problem,
2) generation of hypotheses, predictions and assessment questions related to the identified problem,
3) functional and multi-dimensional assessment designed to test the hypotheses and respond to the assessment questions,
4) preparation of a goal statement,
5) development and implementation of an intervention,
6) progress monitoring to determine the effectiveness of the intervention,
7) decision-making about the outcome of the intervention.

BASIC PRINCIPLE 2: Collaborative consultation should provide the means by which problem-solving will be conducted. In contrast to an expert model in which one individual makes judgments and recommendations to be carried out by someone else, the collaborative approach emphasizes teamwork among two or more individuals who work through the problem-solving process together. Each member of the team brings to the process their own area of expertise, and team members work together in an egalitarian fashion.

BASIC PRINCIPLE 3: Hypotheses about factors related to the identified problem should be developed. These hypotheses should attempt to explain why the problem is occurring. Hypotheses and their resulting predictions about student behavior can be tested through the development of assessment questions and the resulting collection of data. Hypotheses should be developed collaboratively by the problem-solving team. They should be designed to lead to interventions.

BASIC PRINCIPLE 4: Functional assessment procedures should be used to collect student performance data. Traditional assessment frequently has as its focus the possible determination of a handicapping condition and consideration for special education eligibility. Functional assessment procedures collect information relevant to the behavior(s) of concern. This data collection answers questions about the behavior, confirms or disconfirms hypotheses, and provides information helpful in formulating an intervention. Data collection should provide a baseline against which subsequent student performance can be compared and may also provide information regarding peer functioning.

BASIC PRINCIPLE 5: Multi-dimensional assessment procedures should be used to collect data relevant to the problem. These procedures should be utilized in the recognition that performance problems may not be due solely to student characteristics. Aspects of the curriculum and environment have an impact on student performance also, and should be assessed as well.

BASIC PRINCIPLE 6: Goals should be written describing the desired change in student performance that should occur as a result of the intervention. These goals should clearly describe student performance in concrete, observable terms, and should also define a specific period of time during which the goal will be in effect. If the intervention requires placement in a special service or program, criteria should be written that will describe how student performance must improve in order to consider a service/program change.

BASIC PRINCIPLE 7: Interventions should be developed that are specifically designed to improve student performance. These interventions should make use of the data collected through functional assessment and should address modifiable variables related to the student, the curriculum and/or the environment. Intervention planning should focus first on identifying the most effective methods, procedures and materials to be used in solving the student performance problem. Planners must also identify a specific service or program that is best suited to provide the identified intervention, but placement issues should not be the initial focus of discussion. Intervention planning should not be synonymous with placement in a special program, although such a placement should certainly be one of a variety of available options.

Occasionally, an intervention may be carried out by one person alone, but more commonly, interventions should be implemented by a team of two or more persons. Some of these people may provide direct service to the student, while others may provide indirect service and support by engaging in on-going consultation with the direct service providers, collecting on-going performance data or providing other types of technical assistance. The intervention plan should clearly delineate the roles and responsibilities of all persons involved in the problem-solving process.

It is not currently possible to predict with certainty that any given intervention will be successful in improving a student's performance. Intervention design should be treated as a continuation of the hypothesis testing process. Interventions should be viewed as hypotheses about efforts that are likely to result in improved student performance. The relative effectiveness of an intervention should be tested by the on-going collection and analysis of student performance data. When necessary, interventions should be modified if they prove to be less effective than is desirable.

BASIC PRINCIPLE 8: Progress monitoring should be an essential aspect of the intervention phase of problem-solving. Student performance data should be collected on a regular and frequent basis, and this data should be graphed and analyzed in order to determine the relative effectiveness of the intervention. If the data indicates that a student is not making sufficient progress toward the goal, the intervention should be modified in some fashion.

BASIC PRINCIPLE 9: Decision-making about the outcome of an intervention should be based on a review of progress monitoring data in relation to the defined goal(s) of the intervention. When student performance reaches an acceptable level, the problem-solving team should decide whether or not further intervention efforts are necessary. If the intervention plan has involved placement in a special service or program, progress monitoring data should also be useful in making service/program modification or exit decisions.

INFORMATION PAPER 2
CONSULTATION

As part of the Renewed Service Delivery System, consultation should provide the means by which systematic problem-solving will be conducted. The purpose of this paper is to describe a general model for such consultation along with important characteristics and procedures. The current literature is replete with specific models of consultation. (See Idol, Paolucci-Whitcomb & Nevin, 1987; Kratochwill & Bergan, 1986; and Zins, Curtis, Graden & Ponti, 1988, for three notable examples). In this paper, "consultation" is intended to be a generic term which does not advocate the use of any specific model to the exclusion of others. Instead, it is intended to delineate a number of important characteristics and procedures that are believed to be essential to any model. In addition, "consultation" is described as a function that can be served by a number of educators with different job titles, not just by those whose job title is that of "consultant."

DEFINITION

Consultation is the process by which two or more persons work together as a team to solve a student's school performance problem. A consulting professional will be defined as the person who provides problem-solving support to another person, the consultee, who has primary responsibility for the student and who has requested the assistance. The student or other beneficiary of the consultative relationship is described as the client. Most commonly, the consultee will be responsible for providing direct services to the client, while the consulting professional should provide indirect service by engaging in the consultative process with the consultee. However, this does not preclude the possibility of the consulting professional providing direct service, such as individual counseling, to the client as well.

CHARACTERISTICS OF CONSULTATION

The general model proposed here emphasizes three specific facets of consultation:

1) Collaborative consultation. Consultation should be a voluntary process, initiated by the consultee. Each team member should be an active participant in the consultative process, with each member contributing a unique set of knowledge and expertise. Relationships among team members should be non-hierarchical and collegial. Intervention planning and its outcome for a particular client should be the shared responsibility of all team members, although the consultee should retain the right to make a final decision about the specific nature of an intervention.

2) Behavioral consultation. Consultation should be a process of data-based decision-making. A student's learning or adjustment problems should be defined behaviorally. Hypotheses about factors related to the problem should be generated and tested. Antecedent, situation or consequent conditions should be identified. Interventions should focus on altering environmental factors in such a way as to develop new behaviors or modify the frequency with which existing behaviors occur.

3) Problem-solving consultation. Consultation should involve the application of a systematic problem-solving procedure with the following steps:

1) development of a behavioral definition of the problem,
2) generation of hypotheses, predictions and assessment questions related to the identified problem,
3) functional and multi-dimensional assessment designed to test the hypotheses and respond to the assessment questions,
4) preparation of a goal statement,
5) development and implementation of an intervention,

6) progress monitoring to determine the effectiveness of the intervention,
7) decision-making about the outcome of the intervention.

INTENDED OUTCOMES OF CONSULTATION

The first outcome of successful consultation should be an improvement in student performance with regard to the behavior(s) of concern. A second outcome should be the enhancement of problem-solving skills on the part of the consultee. This outcome is preventive in nature, in that it is hoped that the consultee will apply these problem-solving skills to any similar situations which occur in the future.

STEPS IN THE CONSULTATION PROCESS

A systematic sequence of problem-solving steps has been identified in this paper. Corresponding to this problem-solving sequence is a specific set of tasks to be carried out as part of the consultation process. These tasks are described below:

Problem Identification: This task is the most critical phase of the consultation process. During the Problem Identification phase, a behavioral definition of the problem is developed, hypotheses and assessment questions are generated, and a functional assessment of the behavior and related factors is conducted. The role of the consulting professional in this phase should be to assist the consultee with all aspects of problem identification. The problem behavior should be defined in objective, observable terms. The consultee's expectations with regard to the problem behavior should be clarified. A tentative statement about the severity of the problem and the related environmental events/conditions should be developed.

This phase of consultation also involves the development of hypotheses and assessment questions. The hypotheses should describe possible reasons why the problem behavior is occurring. Relevant existing information about the hypotheses should be reviewed. When information is not available to either confirm or reject the hypotheses, assessment questions should be written. These assessment questions should allow the collection of meaningful information that is necessary in order to plan an effective intervention. Specific data collection procedures should be selected and the team members responsible for data collection should be identified.

Problem Analysis: In this phase, the consulting professional should provide assistance in analyzing the data collected during the Problem Identification phase. Efforts are focused upon intervention planning and goal-setting. The measured behavior itself should be analyzed in order to determine if it is severe enough to warrant an intervention. The environmental events/conditions surrounding the behavior should also be analyzed to determine if a functional relationship exists between these conditions and the problem behavior. In this manner, the hypotheses generated as part of problem identification can be either confirmed or rejected. Confirmed hypotheses can be used to suggest possible interventions.

Team members should brainstorm a variety of possible interventions and, from these interventions, the one judged most likely to be successful should be selected. The intervention plan should be specifically delineated along with roles and responsibilities for each participant. A goal should be written describing the desired change in student performance, and a plan should be established for on-going progress monitoring during implementation. The consulting professional should participate in all stages of this process, and should also assist by ensuring that the established goals are reasonable and that the necessary supports are available to ensure adequate implementation of the intervention plan.

Plan Implementation: During this phase, the role of the consulting professional should be to provide support to the consultee who is directly responsible for implementing the intervention. The consulting professional should make arrangements to meet with the consultee periodically throughout the implementation period and/or, with the permission of the consultee, should also observe the intervention plan in operation. The four primary responsibilities of the consulting professional in this phase should be: 1) to ensure that the intervention plan is being implemented as designed, 2) to serve as a resource to the consultee if any implementation problems are encountered, 3) to ensure that data collection continues so that there will be a way of measuring the effectiveness of the intervention, and 4) to assist the consultee in analyzing the data from progress monitoring efforts. Progress monitoring data should be examined in order to determine if the intervention is effective in improving the student's performance. If the data indicates that the intervention is not sufficiently effective, team members should work together to make a change in the original plan in order to increase the intervention's effectiveness.

Plan Evaluation: If the student has not met his/her goal at the end of the intervention period, the consulting professional should provide assistance with additional problem-solving and the possible formulation of a new plan. If the student has met his/her goal, a plan may be devised to ensure the maintenance and generalization of the improvement. Consideration may also be given to identifying a new problem behavior and recycling through the problem-solving/consultation sequence. When appropriate, the problem-solving team may also give consideration to making a change in service/program placement for the student.

SUMMARY

Under the Renewed Service Delivery System, consultation should provide the means by which systematic problem-solving will be conducted. Consultation is defined as the process by which two or more persons work together as a team to solve a student's school performance problem. Three specific traits characterize the general model of consultation presented in this paper: collaboration, a behavioral orientation and problem-solving. The intended outcomes of consultation include benefits for the client as well as for the consultee.

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INFORMATION PAPER 3
EVELOPING A BEHAVIORAL DEFINITION OF A PROBLEM

Developing a behavioral definition of a student's problem is an essential first step in a systematic approach to problem-solving. According to Bergan and Tombari (1976), when a problem is correctly identified and agreed upon by team members, a solution to the problem almost invariably results. Without such a definition, effective problem-solving is not likely to occur.

A behavioral definition of the problem allows the development of hypotheses and predictions about student behavior along with specific referral questions. These referral questions are used to develop a relevant meaningful assessment plan. In turn, the results of the assessment lead to the design of a relevant individually-tailored intervention.

The formulation of a behavioral definition of the problem should be the first step in every attempt to address the needs of an individual student. The behavioral definition should be developed through collaborative consultation among all members of the problem-solving team. The design and implementation of an assessment plan should stem from this behavioral definition and the resulting hypotheses and referral questions.

This paper will define what is meant by the "behavioral definition of a problem," will describe essential characteristics of the behavioral definition, and will identify basic procedures to be used in formulating such a definition.

DEFINITION

Developing a behavioral definition of a problem involves selecting specific problem behaviors, describing them precisely, and then using these descriptions to formulate hypotheses, predictions and referral questions that need to be answered in order to plan an intervention.

CHARACTERISTICS

A. A behavioral definition is stated in concrete, observable terms. In other words, the behavior itself, or the direct product of the behavior, is described in terms of actions that may be seen or heard. Non-observable behaviors (e.g., "understanding long division") should be translated into observable behaviors (e.g., "accurate completion of long division problems"). The problem behavior should be defined in such a way as to allow an observer who is unfamiliar with the student or the situation to easily recognize when the behavior has or has not occurred. It should also allow different observers to agree on whether or not the behavior has been demonstrated.

B. A behavioral definition is measurable. Occurrences of the behavior can be reliably counted or measured in some fashion. As in the example above, it would be very difficult to count the number of times that a student "understood" long division. It would be much easier to count the number of long division problems that the student completed correctly.

C. A behavioral definition is specific. The problem behavior is defined precisely so that it cannot be broken down into smaller components. For example, "appropriate classroom behavior" would not be sufficiently specific, since it might be broken down into any number of other behaviors such as hand-raising, attending to task or remaining in one's seat. A more specific definition might involve describing one of these behaviors (such as hand-raising) in precise terms.

D. A behavioral definition must lead to or have the potential to lead to interventions, not labels (Batsche, 1984). For example, defining a problem as "low cognitive ability" may lead to the application of a mental disability label for a student, but does not provide information on what or how to teach the student. On the other hand, defining the problem as "poor accuracy on long division problems" can lead to relevant assessment and intervention procedures.

PROCEDURES

The formulation of a behavioral definition of a problem should occur in the first stage of collaborative consultation, and should be one of the outcomes of a problem identification interview between the person requesting assistance (consultee) and one or more consulting professionals. There are four basic steps:

1) Select target behavior(s). Frequently, the person requesting assistance will have a number of concerns about student performance. If this is the case, it may be helpful to select a few specific target behaviors upon which to focus initially. Zins and Ponti (1990) suggest that target behaviors should be prioritized by selecting: a) behaviors that are physically dangerous to the student or others; b) positive low-frequency behaviors in need of strengthening; c) behaviors that can be naturally reinforced in the environment; d) behaviors that are considered essential for development; or e) behaviors that maximize functioning in a variety of settings.

2) Define the target behavior(s) in behavioral terms. Again, the definition should be written in concrete, measurable, and specific terms. Efforts should be made to ensure that the behavioral definition is agreed upon by the person requesting assistance (consultee) and other team members. The problem must be defined to everyone's mutual satisfaction so that an appropriate assessment plan can be developed.

Alessi and Kaye (1983) offer a number of suggestions for writing behavioral definitions. They suggest that such definitions should be written in complete sentences using action verbs. Verbs such as "to be" or "to have" should be avoided. They also suggest that objects should be used in the sentences (e.g., "John will complete problems on the worksheet"). Definitions that require inferences about student performance should be not be used (e.g., "Sue will develop an improved self-concept").

3) Use the behavioral definition to develop hypotheses and predictions about student behavior. The hypotheses will provide possible explanations about why the problem behavior is occurring. These explanations should be related to modifiable factors or causes for the problem (e.g., Bill is off-task because he is distracted by noises in the classroom). Hypotheses about inalterable factors or factors that only label the problem (e.g., Bill is off-task because he has a behavior disorder) should be avoided.

Once a set of hypotheses have been developed, they can be used to develop some predictions about student behavior under various circumstances. Predictions should be stated in terms of "If-then," or "When-then" statements. For example, one prediction about Bill's behavior might be that "if the classroom is very quiet, then Bill will not be distracted."

4) Write a set of assessment questions that need to be answered. The assessment questions developed by the problem-solving team should stem from the hypotheses and predictions generated in step 3. Appropriate measurement strategies should be selected to answer the assessment questions. The resulting data collection should provide the information necessary to either confirm or disconfirm the hypotheses. It should also provide information that will be helpful in understanding the student within the context of a specific setting. Such information might include a description of the student's current performance level in terms of the frequency, intensity and/or duration of the behavior. It might also include information regarding the desired acceptable level of performance, as well as information regarding antecedent and consequent events, and other relevant environmental factors.

SUMMARY

Developing a behavioral definition of a problem is a vital first step in effective problem solving, and should be a part of every problem-solving effort. If this first step is omitted, it will be difficult to develop an appropriate assessment plan to collect the information necessary to design an individualized intervention.

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INFORMATION PAPER 4
HYPOTHESIS GENERATION AND TESTING

When a concern about an individual student is expressed, school personnel want to know the answers to two questions: 1) Why is the student experiencing a problem?; and 2) What can be done about it? Traditionally, educators have attempted to answer these questions with assessment aimed at eligibility determinations. Although this approach has made possible the provision of special services to many students, it is also problematic. It does not provide much specific information to answer the questions listed above for two reasons.

First, traditional assessment's explanation for why a student has a problem is an example of circular reasoning: that is, the student has a performance problem because he/she has a disability; the student has a disability because he/she has a performance problem. This circular reasoning provides little meaningful information to explain exactly why a student has a problem.

A second difficulty with traditional assessment is that it is not very useful for planning interventions. Traditional assessment has its most direct link to labelling and placement issues, and is much more remotely linked to intervention design. In other words, traditional assessment is most useful for describing the student and his/her performance problem, but is much less useful in deciding how to intervene.

On the other hand, a systematic problem-solving approach is very valuable in answering the two questions listed above. This problem-solving approach emphasizes assessment for intervention rather than assessment for identification and placement. It makes use of procedures for generating and testing hypotheses about why students have performance problems.

Hypothesis generation and testing procedures and their relationship to other steps in the problem-solving approach are the subject of the remainder of this paper. The term "hypothesis" will be defined, and basic procedures in the process will be described.

DEFINITION

Procedures for hypothesis generation and testing are part of systematic problem-solving. These procedures form a direct link between the assessment of a problem and the development of potential solutions to the problem. The purpose of these procedures is to develop "high probability interventions" that are likely to be successful in improving student performance.

Hypotheses are possible reasons for why the student is experiencing a school problem. Hypotheses are used to formulate predictions about student behavior. From these predictions come assessment questions that need to be answered. Data is collected to answer the assessment questions, and to either confirm or reject the suggested hypotheses. The confirmed hypotheses are used to develop an intervention.

TYPES OF HYPOTHESES

Hypotheses may be generated about five different factors that may be related to the student's performance problem (Knoff, 1990). These factors, or types of hypotheses, are listed below. Regardless of the particular factor to be addressed, all hypotheses and the resulting predictions and assessment questions must be observable and measurable, as well as relevant to the behavior of concern and potential interventions.

The five types of hypotheses are:

A) Curricular hypotheses. Hypotheses about the curriculum in which the child is being instructed might have to do with the sequence of objectives, teaching methods or practice materials provided in the curriculum. Questions to be considered might have to do with whether or not the curriculum is appropriate for the child's instructional needs.

B) Teacher/instructional hypotheses. These hypotheses have to do with the manner in which the teacher is using the curriculum. Hypotheses might be generated about the teacher's instructional techniques and presentation style, questioning techniques, feedback and error correction procedures and so on.

C) Environmental hypotheses. These hypotheses have to do with the student's physical environment and how this environment affects learning. For example, hypotheses might be generated about the physical arrangement of the classroom, or about materials and media equipment used to teach lessons.

D) Student skills hypotheses. Hypotheses about student skills might address the issue of whether the student has the necessary prerequisite skills to perform a given academic or non-academic task.

E) Student process hypotheses. These hypotheses might address questions about the student's capacity to learn as well as the student's problem-solving strategies.

PROCEDURES

The first step in the problem-solving process is to define the behavior(s) of concern. Behavioral definitions are usually developed in the course of a consultative interview among problem-solving team members including the student's teacher. As part of the consultative interview, existing background information about the student is reviewed. A record review might include examination of the student's cumulative folder, health records, and/or standardized test results. It might also include interviews with the student's past teachers. The background information to be collected should have primary relevance to the student's problem, and should help clarify the conditions or situations under which the problem behavior might be occurring. Factors to be considered might include the student's prior exposure to the curriculum, attendance patterns, physical health, social history, and/or developmental history.

Once the target behavior(s) have been defined, the problem-solving team generates hypotheses about why the problem is occurring. The generation of hypotheses may be treated as a brain-storming session in which all team members take part. Hypotheses should be stated in the following manner: "[The behavior of concern] occurs because [possible reason]". For example, "Tom's out-of-seat behavior occurs because the independent seatwork assignment is too difficult."

After a list of hypotheses have been generated, the problem-solving team uses the list to develop predictions about the student's behavior. Predictions should be stated in the form of "If-then," or "When-then," statements such as "If Tom's seatwork assignment is easy, Tom will remain in his seat." In most cases, each prediction statement should be accompanied by a converse or opposite prediction. For example, if the above prediction were made, a converse prediction might be "If Tom's seatwork assignment is difficult, Tom will get out of his seat frequently." Prediction statements should fit three criteria: they should be measurable, observable, and should allow the collection of data in the naturally occurring environment.

When the prediction statements have been written, the next step is to use them to create assessment questions. These assessment questions should be data-based questions that will allow the team to either confirm or reject the hypotheses. The assessment questions must be clearly stated and must be directly related to the predictions. They should be measurable and should allow the collection of data through functional assessment techniques.

After the assessment questions have been written, appropriate data collection strategies are selected and implemented to provide the information necessary to confirm or reject the hypotheses. A variety of functional assessment techniques may be used including interviews, observations and individual testing. The most reliable data can be generated by using multiple methods of data collection across multiple settings using multiple sources of information.

Once the necessary data has been collected, it is reviewed in order to determine which hypotheses should be rejected, or proven untrue, and which hypotheses should be confirmed, or proven true. Confirmed hypotheses can be used to suggest interventions to change student behavior. Because these interventions are based on specific information and are directly related to proven reasons for the student's problem, they are likely to have a high probability of success. However, goals should be written, and progress monitoring procedures should be implemented to evaluate the actual effectiveness of the intervention strategies.

SUMMARY

Hypothesis generation and testing procedures are important parts of the systematic problem-solving process. In contrast to more traditional assessment, hypothesis generation and testing provides a direct link between assessment and intervention design. The resulting interventions are likely to have a high probability of success because they are based on proven reasons for the student's problem.

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INFORMATION PAPER 5
FUNCTIONAL ASSESSMENT

As part of the Renewed Service Delivery System (RSDS), a systematic approach to the solution of student performance problems is recommended. The purpose of assessment should be expanded beyond its traditional orientation toward classification and placement. A functional assessment approach should be adopted in which there is a more direct link between assessment and intervention. This paper will define functional assessment, identify important characteristics, and provide a general description of its purpose. The variables assessed and the procedures used as part of the approach will also be described.

DEFINITION

Functional assessment is a process for collecting meaningful, relevant information about student problems. These problems may have to do with skills deficits or performance deficits. They may be related to academic and/or non-academic behaviors. The purpose of data collection is to answer specific questions about student functioning in a particular setting. This information is used to plan effective individualized interventions, to make specific educational decisions, and to write appropriate goals.

CHARACTERISTICS OF FUNCTIONAL ASSESSMENT

Functional assessment is characterized by the following factors:

1) Relevant assessment. Functional assessment procedures collect data specific to the identified behaviors of concern and to the hypotheses and assessment questions generated as a result of problem-solving collaborative consultation. Assessment should move away from an approach in which a standard, comprehensive test battery is administered to every referred student regardless of the presenting problem.

2) Direct assessment. Academic skills are assessed with measures sampled directly from specific curriculum materials or skills sequences. Student behaviors and related environmental factors are assessed through direct observation in defined settings.

3) Multi-dimensional assessment. In an ecological approach to assessment, learning is viewed as the result of an interaction between the student and a specific environment. Data is collected about environmental, curricular and instructional variables as well as student variables, since all of these factors affect student performance. The most reliable data is generated by using multiple methods of data collection across multiple settings using multiple sources of information (Knoff, 1990).

4) Formative assessment. Assessment procedures are used to "form" (e.g., plan and monitor) interventions. Assessment procedures should be useful in identifying specific curriculm-related academic skill deficiencies, and/or specific social or adaptive skill deficits. Assessment should also help to identify variables affecting the student's learning situation that may be modified in order to produce improvements in performance. Assessment data should be consistent across decision-making stages, so that the same type of data is collected from the time of initial problem identification through the outcome evaluation stage. This ongoing assessment can be used to evaluate the effectiveness of interventions.

5) Frequent, repeated assessment. Assessment procedures allow for the regular and frequent collection of student performance data during the progress monitoring phase of problem-solving. Data should be collected one to three times per week. Data analysis should examine not only levels of performance, but performance trends over time, in order to evaluate progress toward goals.

6) Individually-focused assessment. Assessment procedures place primary emphasis on individually-referenced comparisons. In other words, assessments focus on identifying an individual's strengths and weaknesses and on monitoring any changes in a student's performance relative to his/her own previous performance. There will continue to be times when peer/norm-referenced comparisons are useful, such as when decisions are made about entry into or exit from programs. However, individually-focused assessment has the most direct relationship to intervention planning.

7) Technically adequate assessment. A functional assessment approach makes use of procedures that have proven technical adequacy. In other words, these procedures should be reliable and valid with respect to their intended purpose, and should have adequate normative data if they are to be used in a norm-referenced manner.

THE PURPOSE OF FUNCTIONAL ASSESSMENT

The specific purpose for which functional assessment procedures are used should depend on the nature of the questions to be answered or the decisions to be made at a particular point in the problem-solving process. Assessment procedures should be selected based on their ability to provide the information necessary to make a specific decision. Some of the specific decisions for which functional assessment procedures may be used include goal setting, intervention planning, progress monitoring, screening and eligibility determinations, and outcome evaluation.

A functional assessment approach can also be described in terms of purposes which should be de-emphasized. For example, assessment should not have as its primary focus the prediction of student learning potential. Traditional assessment practices have placed a great deal of emphasis on defining a student's cognitive ability, so as to make predictions about learning rate or relative success in school. However, quantifying a student's "potential" does not provide useful information about how to teach that student. In some cases, it may serve only to lower expectations about what an individual student may achieve. Therefore, cognitive ability measures should be used only in instances where the resulting information is necessary to make a particular kind of educational decision, and should not be a routine assessment tool used with all children.

Another purpose that should be de-emphasized is the a priori prediction or assumption of an intervention's effectiveness. Diagnostic-prescriptive methodologies assume that student aptitudes interact with specific treatments to produce differential instructional outcomes for students (Ysseldyke & Christenson, 1988). However, there is little research evidence to support the notion of aptitude-treatment interactions. As an example, for a student with good visual memory skills, a sight word instructional approach might be expected to prove effective in improving reading skills. This approach may or may not be successful in improving the student's skills. Progress monitoring procedures must be implemented, and additional performance data must be collected in order to evaluate the actual effectiveness of the sight word approach.

Functional assessment procedures should take a "hypothesis testing" approach in which interventions are viewed as hypotheses about procedures that are likely to improve student performance. These hypotheses are then tested by implementing the intervention and monitoring its effectiveness.

VARIABLES ASSESSED AS PART OF FUNCTIONAL ASSESSMENT

As previously noted, functional assessment takes an ecological approach to evaluation and assume that learning is a function of the interaction between the student and a particular learning environment. Four broad categories of variables should be assessed:

1) Student variables. Functional assessment procedures assess pertinent academic and behavioral performance levels. Information should be collected about a student's repertoire of skills, in terms of specific objectives that have been mastered, as well as those which have not yet been acquired. In addition, a student's task-related learning behaviors should be assessed. Such learning behaviors might include academic engagement or on-task behavior, study skills, use of learning strategies, or

motivation. The information collected about the student may assist in determining whether the student's problem is primarily a) a skills deficit in which the student lacks the specific skills necessary to complete a task, or b) a performance deficit in which the student possesses the skills to perform a task, but does not apply those skills in a given setting.

2) Curricular variables. Functional assessment procedures take into account relevant information regarding the curriculum materials in which a student is receiving instruction. Such information might include the scope and sequence of objectives, teaching examples and techniques used to introduce new material, the relative rapidity with which new concepts or objectives are introduced and/or opportunities to respond and practice new skills in workbooks or other materials. Consideration should be given to the relationship between the student's skills and his/her placement in curriculum materials, since placement in materials that are too difficult or too easy may result in problems.

3) Instructional variables. Functional assessment procedures examine variables related to behaviors and techniques that the teacher uses to support the student's engagement in learning. Such instructional variables might include the use of prompts to gain student attention or to produce accurate responses, questioning techniques, contingencies for student behaviors, feedback procedures, error correction techniques, and teacher management of student behaviors that interfere with learning.

4) Environmental variables. Functional assessment procedures examine other relevant aspects of the learning environment such as class size, physical arrangement of the classroom, available equipment and materials, and other such variables.

FUNCTIONAL ASSESSMENT PROCEDURES

A wide variety of assessment procedures may be used as part of a functional assessment approach. Specific information about these techniques is beyond the scope of this paper. The reader is referred to the references at the end of this paper as well as to other sources for additional information.

In general, four broad categories of procedures may be used as part of functional assessment. These include: interviews, examination of permanent products, direct observation, and direct assessment of skills. Interviews should be used to establish a problem-solving collaborative relationship among members of the problem-solving team. Interviews should also aid in the behavioral definition of the problem and the identification of hypotheses and assessment questions. Depending on the nature of the concern, interviews may be conducted with the student's teacher(s), parents and/or the student him/herself. The examination of permanent products might include a review of cumulative records, data from a teacher's grade book, or written assignments and work samples produced by the student. The direct observation of behavior should be systematic and should take place in settings relevant to the behavior(s) of concern. The direct assessment of academic skills should include the use of curriculum-based measures.

In addition to these four basic procedures, a functional assessment approach may also make use of other procedures such as task analysis (Howell, 1986), process assessment (Meyers & Kundert, 1988), or error pattern analysis (Gerken, 1985). Again, the key to selecting a given set of functional assessment procedures is to identify specific questions to be answered, as well as procedures appropriate to answer those questions.

In most cases, functional assessment should proceed from a general to a more specific level of data collection. In the initial stage of assessment, global procedures may be used to develop a broad background of information regarding the student and the environment. This global assessment may be used to screen students, make normative comparisons, and identify more specific assessment questions. Global assessment might examine behavior across a variety of settings, may involve general screenings of factors such as vision, health, hearing or motor functioning, and may identify pertinent environmental factors that need to be examined in more detail.

Following this global phase of data collection, the next phase involves more focused and specific data collection aimed at answering the identified assessment questions. This phase of data collection provides information regarding specific strengths and weaknesses in a student's repertoire of skills. It also provides information regarding specific curricular, instructional or environmental factors that appear to be affecting student performance. This information is used to formulate an individualized intervention and specific goals for the student.

The global and specific phases of functional assessment correspond with the problem identification and problem analysis phases of consultation. Team members work together collaboratively to formulate hypotheses and assessment questions. They should also collaborate to collect and analyze data, and to develop an intervention and goals. Once an intervention has been selected and implemented, team members should continue to collaborate as on-going performance data is collected during the plan implementation and evaluation phases of consultation. Assessment data collected during these phases can be used to evaluate and refine intervention plans, and to make decisions about outcomes.

SUMMARY

Functional assessment procedures collect relevant, meaningful information about student performance in a specific setting. The purpose of such assessment is to collect the data necessary to write goals and plan an individualized intervention.

ADDITIONAL RESOURCES

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INFORMATION PAPER 6
GOAL STATEMENTS

The preparation of a specific goal statement is an essential step in a problem-solving approach to improving student performance. Without a precise definition of the goal, it is impossible to make judgments about the amount of progress that a student may be making, or the relative effectiveness of interventions.

In the past, goal-setting has been somewhat problematic. Goal statements were not always based on assessment data and did not always directly relate to specific performance concerns. Some goal statements were written too broadly or vaguely, and, therefore, were unmeasurable. Other goal statements were too specific, and, thus, were too time consuming for frequent, repeated progress monitoring (Shinn, Nolet & Knutson, 1990).

As part of a systematic problem-solving approach, goal statements should be developed from functional assessment data, and should be directly related to the identified areas of concern. Goal statements should be written in specific measurable terms that can be evaluated frequently and efficiently. The remainder of this information paper will provide a definition for goal statements, and a description of the procedures used to develop them.

DEFINITION

A goal statement is a specific description of the desired change in student performance that should occur as the result of an intervention. The goal statement should describe three components: 1) a specific behavior to be measured, 2) the conditions under which that behavior will be exhibited, and 3) a criterion or level of behavior that is to be achieved.

Two types of goal statements exist. Program modification or exit goal statements should be written for students who receive special services or are placed in special programs. These goal statements should describe the behaviors and criterion levels that a student must achieve in order to be considered for a change in services or exit from a specific instructional program such as the resource room. Long-term or annual goals describe the amount of progress a student is expected to make over the course of an academic year. Finally, short-term objectives are derived from long-term goals. Short-term objectives are based on the conditions, behaviors and criteria defined in long-term goals, but they describe only a portion of the progress that a student is expected to make over a much shorter period of time.

PROCEDURES FOR WRITING GOAL STATEMENTS

Goal statements should be written by defining the following components:

1) the behavior. The target behavior selected for the goal statement should be observable, measurable and specific. Whenever possible, the behavior should be a positive one that is to be learned or increased in frequency, rather than a negative or inappropriate behavior for which the goal would be elimination or a decrease in frequency. An example of an academic target behavior might be "will read aloud." An example of a non-academic target behavior might be "will complete daily written assignments."

2) the conditions under which the behavior is to be exhibited. For an academic goal, the conditions include the timeline for completion of the goal (e.g., "in 30 weeks"), the measurement situation in which the behavior is to be exhibited (e.g., "when presented with random reading passages), and the measurement materials to be used (e.g., "from Scott Foresman, 1987, Level 10").

For most academic behaviors, a long-term approach to measurement should be used. With a long-term approach, the timeline for completion of a goal might span an entire school year. The measurement situation should provide specific information about the manner in which the academic behavior is to be elicited. The measurement materials to be used should represent the level of the curriculum in which the student might be expected to perform in one year. A complete statement of conditions for an academic behavior might read as follows: "In 30 weeks, when presented with random reading passages from Scott Foresman, 1987, Level10,. . ."

For non-academic behaviors, the conditions under which the behavior is to be exhibited should include the timeline for completion (e.g., "In nine weeks"), the setting(s) in which the behavior is to be exhibited (e.g., "during math class"), and the environmental stimuli that will elicit the behavior (e.g., "by the end of the math period"). The timeline for completion of most non-academic goals is likely to be relatively short, especially for more disruptive or aggressive behaviors. Goal writers should be specific about the settings and environmental stimuli pertinent to the goal. A complete statement of conditions for a non-academic goal might read: "In nine weeks during math class, [Jean will complete daily written assignments] by the end of the math period."

3) <u>the criterion or level of behavior expected of the student</u>. There are a number of performance standards that may be used to establish an appropriate criterion. One very useful standard is that of peer performance or local norms. Other useful standards might include performance guidelines for instructional placement, school policy with regard to such behaviors as attendance or tardiness, or teacher expectations and expert judgment.

The "ambitiousness" of the goal is an important issue in selecting an appropriate criterion level. The criterion should be set high enough so that the goal reflects a worthy improvement in student performance. Fuchs and Shinn (1989) cite research which found that more ambitious goals were associated with better growth in skills. On the other hand, criterion levels should be realistic, in that they describe an achievable outcome for a particular student within a given time period. Goal writers should keep both factors in mind when establishing criterion levels. They should take into account the student's current performance level and the discrepancy between expected and actual performance. For most students, the ultimate goal of an intervention is to reduce or eliminate this performance discrepancy. If a goal statement is not sufficiently ambitious, students are less likely to succeed in reducing the gap between their actual and expected levels of performance.

A criterion level for an academic behavior might be "50 words correct per minute." A criterion level for a non-academic behavior might be "four out of five assignments."

<u>EXAMPLES OF GOAL STATEMENTS</u>

Based on the component examples described above, the following are examples of complete goal statements:

Academic Long-Term Goal Statement:
"In 30 weeks, when presented with random reading passages from Scott Foresman, 1987, Level 10, Sam will read aloud at a rate of 50 words correct per minute."

Academic Short-Term Objective:
"Each week, when presented with random reading passages from Scott Foresman, 1987, Level 10, Sam will increase his oral reading rate by two words correct per minute."

Non-Academic Goal Statement:
"In nine weeks during math class, Jean will complete all daily written assignments by the end of each math period."

<u>SUMMARY</u>

Specific goal statements are essential to a clear understanding of the desired outcomes of an intervention. Without such goal statements, it is impossible to make judgments about student progress or to evaluate interventions. Goal statements should be measurable, and should allow for frequent and efficient progress monitoring. Goals should be ambitious in that they define a level of improvement which will help to reduce or eliminate the discrepancy between the student's expected and actual performance levels. Goals should also be realistic in that they take into account current performance levels and describe achievable outcomes.

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INFORMATION PAPER 7
INTERVENTIONS

The design and monitoring of individualized interventions is an important task in a systematic approach to problem-solving. Functional assessment techniques should be used to collect the information necessary to design such interventions. Under the Renewed Service Delivery System (RSDS), the selection of an intervention is not synonymous with placement in a special program. The problem-solving team should focus first on identifying the methods, procedures, and materials likely to improve student performance. Only after the intervention has been designed, should the team focus on identifying the specific program that is best suited to provide the intervention.

This paper will define what is meant by an intervention, will identify essential characteristics, and will describe basic procedures to be used in developing an intervention.

DEFINITION

An intervention should describes the individualized plan of action for addressing a student's specific performance problem. It stems from data collected as part of functional assessment, and addresses modifiable variables related to the student's environment. The intervention plan includes specific goals to be achieved, as well as efforts to monitor student progress throughout the intervention period.

CHARACTERISTICS

A) The intervention should focus on modifying aspects of the student's environment so as to improve performance. The data generated by functional assessment procedures serves to confirm or reject assessment hypotheses about factors affecting the student's performance. It also serves to identify relevant antecedent and consequent events related to the problem. This information is then used to select the environmental variables to be manipulated. Shapiro and Lentz (1985) describe research regarding a number of environmental variables that have been found to be related to academic achievement. Among these variables are time allotted for instruction, time engaged in academic work, content covered, task-related contingencies, and instructional procedures such as questioning techniques, and immediate feedback.

B) Intervention planning, implementation and monitoring should be viewed as a continuation of hypothesis-testing procedures. At the current time, there is little evidence to support the notion of aptitude-treatment interactions (Ysseldyke & Christenson, 1988). In other words, a particular pattern of student characteristics cannot be used to identify a particular intervention that will be guaranteed to succeed . At best, problem-solving teams can design interventions that are what Zins and Ponti (1990) describe as "high-probability hypotheses." In other words, teams can use functional assessment data and their knowledge of environmental variables such as the ones described above to design a reasonable intervention for a student. However, they cannot predict with certainty that the intervention will succeed. The effectiveness of the intervention must be evaluated by on-going progress monitoring. If the intervention proves to be less effective than is desirable, it should be altered in some fashion.

C) Interventions should be feasible for the person(s) responsible for implementing them. Implementors should willingly agree to carry out the intervention. They must have a clear understanding of and commitment to the plan. The plan must be reasonable in terms of other demands placed upon the implementor(s). Finally, implementors must have the skills and materials necessary to carry out the plan.

D) Problem-solving team members should share the responsibility and accountability for intervention outcomes. In other words, even if some team members do not provide direct service to the student as part of the intervention, they should still have some responsibility for supporting the intervention through follow-up contacts with the implementor(s). This responsibility should also include an expectation of additional problem-solving assistance if the intervention must be modified in some fashion.

PROCEDURES

The development of an intervention plan is the third stage in collaborative problem-solving consultation. It makes use of information collected during the problem identification and problem analysis stages. Prior to the consideration of intervention options, team members should discuss the "organizational level" at which an intervention should occur. Some interventions are best directed toward the individual student. Other interventions should be directed toward an entire classroom, or even toward a particular building or system.

Once the appropriate organizational level has been determined, intervention planning and implementation should follow the following six steps:

1) Brainstorm solutions. Team members should attempt to identify as many solutions as possible. The team should consider a broad range of options in terms of people, materials, methods and sites for the intervention. Efforts should be made to defer judgment on the solutions while the team is brainstorming.

2) Evaluate solutions. Possible solutions may be judged according to a number of factors such as acceptability, potential effectiveness, ease of use, intrusiveness, compatibility with existing resources, and/or time and cost efficiency.

3) Select an intervention. Zins and Ponti (1990) suggest a number of guidelines for selecting an intervention from the available options. They suggest that positive intervention approaches should be implemented before behavior suppression or reduction techniques, and that the least complex and intrusive approach should be selected first. The final decision about which intervention to attempt should be made by the person(s) responsible for implementing the intervention.

4) Write an action plan. The action plan should promote treatment integrity and the accountability of team members by clarifying the specific aspects of the intervention. It should clearly delineate the roles and responsibilities of everyone involved in the intervention. It should also describe how the intervention will be carried out (in terms of methods and materials), when the intervention will occur, and where it will take place. If the team feels that it is necessary, it is at this point in time that a discussion of alternate program options should occur. Finally, the action plan should define specific goals to be accomplished by the student as a result of the intervention, and should also describe a plan for on-going progress monitoring.

5) Implement the intervention. While the intervention plan is being implemented, a number of other activities should also occur. Regular follow-up support should be provided to the intervention implementor(s). The intervention plan should be monitored with regard to its effect on student performance, but also with regard to the integrity of its implementation. If necessary, team members should engage in further problem-solving and revise the plan if it proves to be ineffective or unfeasible.

6) Evaluate the outcome. At the end of the designated intervention period, the final outcome of the intervention should be evaluated. The desired student outcomes should be compared to actual achievement. If performance levels are not yet satisfactory, the problem-solving team may decide to continue the intervention for another period of time in the same or modified form. If student performance is at a satisfactory level, the problem-solving team may decide to end the intervention. Prior to the discontinuation of an intervention, provisions should be made to ensure the generalization and maintenance of the desired behavior.

SUMMARY

The development of an intervention should be the outcome of the functional assessment of a student performance problem. It should be completed as part of a collaborative effort among all members of the problem-solving team. Interventions should be viewed as "high-probability hypotheses" about what is likely to improve student functioning. Interventions must be evaluated by on-going progress monitoring during their implementation. The responsibility and accountability for intervention outcomes should be shared by all team members.

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INFORMATION PAPER 8
PROGRESS MONITORING

Progress monitoring is an essential aspect of any systematic approach to solving student problems. Whenever an intervention is implemented, student performance data should be collected on a regular and frequent basis. This on-going progress monitoring will yield objective data describing the student's progress toward goals. The data can be used to make decisions about the relative effectiveness of interventions.

Progress monitoring is essential for a number of reasons. First, research fails to support the notion of aptitude-treatment interactions. The technology does not currently exist to match a particular set of student abilities with a particular form of treatment that is certain to be successful. Problem-solving teams must use what they know about effective interventions to select one for an individual student, but must also plan to test the intervention through on-going data collection and analysis in order to evaluate its effectiveness.

A second reason that progress monitoring is essential to problem-solving has to do with an increased emphasis on the demonstration of specific outcomes for students. Mere compliance with a required set of procedures for serving students (e.g., following state and federal guidelines and correctly documenting efforts) is not sufficient. An objective data base regarding student performance must be generated, and this data base must be used to guide intervention decision-making.

A third reason for making use of progress monitoring procedures relates to dissatisfaction with pre-post testing. A pre-post testing approach to the evaluation of student outcomes has been criticized as being unreliable, and as providing too little information for decision-making. (See Marston, 1989, for a more detailed discussion of this topic). Pre-post testing is based on the comparison of isolated data points reflecting static levels of performance. Progress monitoring, on the other hand, is based on the time series analysis of related data points reflecting changing performance. Thus, progress monitoring can be used to evaluate a student's slope of performance (e.g., rate and direction of behavior change) as well as level of performance.

A final reason for making use of progress monitoring procedures is that research supports their application. Fuchs (1989) cites studies which have demonstrated that ongoing systematic progress monitoring is associated with effective special education practices and improved educational outcomes.

The remainder of this paper will define progress monitoring and describe essential components and procedures.

<u>DEFINITION</u>

The monitoring of student progress is one of the steps in systematic problem-solving. Progress monitoring involves the frequent and repeated collection and analysis of student performance data. Such data is collected on a regular basis during the course of an intervention. Progress monitoring provides a standardized and empirical method for evaluating the effectiveness of interventions.

<u>ESSENTIAL COMPONENTS</u>

In order to begin on-going data collection and analysis, the following essential components must be in place:

1) <u>a well-defined behavior</u>. A target behavior must be identified which will be the focus of ongoing measurement. The behavior must be defined in terms that are concrete, observable, specific and measurable. In most cases, the target behavior should be a positive one which is to be learned or increased in frequency.

2) <u>a measurement strategy</u>. The selected strategy must allow the frequent and repeated collection of student performance data. It should be time and cost efficient, and should be sensitive to small changes in student performance over relatively short periods of time. Standardized measurement procedures should be used.

3) a description of the student's current level of functioning. Information regarding a student's current level of functioning is helpful in setting an appropriate performance goal. Also, it provides a baseline against which subsequent performance can be compared.

4) an intervention. No intervention works all of the time or with every student. Intervention plans should be developed with an expectation that they will be altered in some fashion if progress monitoring data indicates a need to do so. Intervention plans should clearly delineate materials and procedures to be used, as well as roles and responsibilities for problem-solving team members.

5) a goal. It is impossible to evaluate progress without a standard against which to compare it. A goal statement provides such a standard by clearly describing the expected outcome of an intervention in terms of improved student performance. This goal statement should specify the behavior, the conditions under which this behavior will be exhibited, and the criterion for satisfactory performance.

6) a graph. Progress monitoring procedures generate a large quantity of data that must be systematically recorded and analyzed. A graph or chart is much more useful for this purpose than a mere tabular recording of data. A graph provides a visual depiction of expected and actual student performance, and facilitates the analysis of performance trends.

7) a decision-making plan. This plan should allow for the systematic interpretation of performance trends with regard to progress toward the identified goal. The decision-making plan should include a rule for raising the performance goal if student progress exceeds expectations. There should also be a rule which prompts the alteration of the intervention plan if insufficient progress is demonstrated. The decision-making plan should be established prior to the implementation of an intervention.

PROGRESS MONITORING PROCEDURES

Progress monitoring begins with planning and data collection relative to the components described above. A target behavior and measurement strategy are selected. The student's current level of functioning is described and an intervention plan is developed. A goal statement is written and a progress monitoring graph is developed. Finally, a decision-making plan is selected.

Once these problem-solving steps have been completed, the intervention plan is implemented, and on-going progress monitoring begins. Data should be collected two to three times per week, if possible. At an absolute minimum, data must be collected at least once per week in order to provide sufficient information for trend analysis.

Each time data is collected, it should be recorded on a graph. Periodically, performance trends should be analyzed using established procedures. (See Schendel & Ulman, 1990, for a description of such procedures). In general, these procedures involve the comparison of actual student performance to the expected level of performance described on the graph by the goal line. The appropriate decision-making rule should be applied based on the results of this comparison.

Effective progress monitoring and decision-making is does not involve the mere collection and analysis of data, however. The use of decision rules is pointless unless the problem-solving team follows through with the appropriate action. Thus, when trend analysis indicates a need to raise the performance goal, or to alter the intervention plan, the appropriate action should be taken.

If the intervention plan for a specific goal must be modified, only one instructional factor at a time should be altered. If more than one factor at a time is modified, and if student performance subsequently changes, the problem-solving team will not be able to determine which factor was responsible for the change in student performance. Small changes or refinements in intervention plans should usually be attempted before major alterations in the plan are made. At the same time, however, the modifications must be ones that are judged to be sufficiently substantial to result in improved student performance.

Whenever a modification in the intervention plan is made, this modification should be noted on the graph. A vertical line should be drawn on the graph at the point in time when the plan was changed. The different phases of an intervention should be clearly labelled on the graph. Records should be kept on the back of the graph or elsewhere about the specific procedures and materials used in each phase of an intervention. Progress monitoring should continue throughout an intervention.

As a student's performance approaches the criterion level established by the goal, the problem-solving team must engage in additional decision-making. If the student has met his/her goal, the team may decide to raise the goal and continue with the intervention. They may decide to select a different target behavior and begin the problem-solving process again, or they may decide to discontinue the problem-solving and intervention process altogether.

In addition to these decisions, the problem-solving team may also need to address the issue of a change in services or program placement for the student. For example, the team may feel that the student has acquired sufficient skills to warrant discontinuation of resource room assistance and reintegration into regular education instruction. Regardless of the decision to be made, progress monitoring provides an objective data base for doing so as well as the means to evaluate the appropriateness of the decision once it has been made.

SUMMARY

Progress monitoring is not an optional luxury to be used only when time permits. Instead, it is a necessary part of every effort to change student performance. If problem-solving for students is to be truly effective, progress monitoring procedures must be used.

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INFORMATION PAPER 9
PROGRESS MONITORING GRAPHS

The use of charts or graphs to record and analyze student performance data is an essential aspect of any systematic approach to monitoring student progress. Progress monitoring, in turn, is an essential step in problem-solving for students, because it provides the means to examine student performance across time and to evaluate the effectiveness of interventions.

Progress monitoring requires the frequent and repeated collection of student performance data with measurement usually occurring one to three times per week. Because of the large volume of data generated by progress monitoring procedures, there is a need for an efficient means of handling this information. Data must not only be recorded, but must also be analyzed in order to relate actual performance trends to the desired performance as defined by the goal statement. When data is recorded in a tabular fashion alone, it is much more difficult to analyze performance across time. The recording of data on a graph makes such time series analysis much easier. In fact, Fuchs (1989) cites research which indicates that the use of graphing procedures as part of ongoing monitoring results in more positive student outcomes than the use of tabular recording procedures alone.

The remainder of this information paper will define what is meant by a progress monitoring graph and will describe procedures for making use of such a graph.

DEFINITION

A progress monitoring graph provides a visual depiction of student performance data relevant to a specific behavior and goal. It can be used to display current level of functioning, expected performance at the end of the goal period, and actual performance as it is measured by progress monitoring procedures over the course of an intervention.

PROCEDURES

The first step in implementing a graphing procedure for progress monitoring is to set up the graph. Standard progress monitoring graphs or graph paper may be used. The horizontal axis of the graph should be labelled to represent some measure of time, such as calendar days, school days, weeks, or instructional sessions. The vertical axis of the graph should be labelled to represent some performance measure appropriate to the behavior being monitored (e.g., frequency, percentage, rate, duration, or latency of the behavior). The scale of the graph should be sufficient to accommodate variations in performance data and should allow for the recording of data over the entire goal period.

After the vertical and horizontal axes have been labelled, and the scale of the graph has been established, four essential components should be depicted on the graph. First, a clear written statement of the performance goal should be represented somewhere on the graph (usually at the top of the page). Second, the graph should chart the student's current level of functioning or baseline data. A third piece of data to be represented on the graph is the criterion level to be achieved at the end of the goal period. Finally, a line should be drawn between the median baseline data point and the data point representing the criterion level for the goal. This line is called a goal line or aim line. It depicts the expected rate of progress that a student will need to make in order to accomplish the designated goal.

Once these essential components have been recorded, the graph may be used to chart performance data as it is generated by progress monitoring procedures. Periodically, performance trends should be analyzed. Actual student progress should be compared to expected student progress in order to evaluate the effectiveness of the intervention. Formal rules should be used to guide decision-making. For example, if the trend of actual student performance is above the goal line, then the goal should be raised to reflect higher expectations for student performance. On the other hand, if the performance trend indicates a slower rate of progress than that designated by the goal line, then the intervention should be modified in some manner in order to make it more effective.

When changes in the intervention plan are made, they should be noted on the graph by drawing a vertical line at the point in time when the change occurs. The different phases of an intervention should be clearly labelled, and the different components of each phase should be described on the back of the graph or elsewhere. Data points should not be connected across the different phases of an intervention.

SUMMARY

A graph provides a very effective tool for progress monitoring. It allows the visual representation of student performance data such as current level of functioning, expected criterion levels, and actual student performance across time. Charted data should be used to evaluate student outcomes and the effectiveness of interventions. Progress monitoring graphs facilitate the analysis of student performance across time, and also provide an effective means of communicating about intervention outcomes with teachers, parents, students and other educators.

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INFORMATION PAPER 10
SERVICE/PROGRAM MODIFICATION AND EXIT DECISIONS

A systematic approach to solving student performance problems involves a number of steps. The performance problem is described in behavioral terms. Hypotheses about factors affecting the problem are generated along with assessment questions to test these hypotheses. Assessment data is used to make decisions about goals and interventions.

For students with mild to moderate handicaps, placement in a special service or program (e.g., speech and language services or resource room programs) may be required in order to provide a site for an appropriate intervention. In the past, a great deal of time and effort was devoted to collecting the data necessary to make such a placement decision. Once the placement was made, however, very few guidelines existed for making decisions about any subsequent change in placement or exit from a service or program. However, this type of outcome decisionmaking is an important part of the problem-solving process and should not be overlooked.

There are a number of possible reasons for the lack of guidelines or research about outcome decision-making. Allen (1989) suggested that one possible reason has to do with the lack of appropriate data with which to make such decisions. In most cases, educators have attempted to make outcome decisions on the basis of pre-post test comparisons of student performance scores. These comparisons have been criticized for a number of reasons (Deno, 1986; Marston, 1989). They have been criticized as being unreliable and as providing too little information for decision-making. Because of the inadequacy of this data, decision-making about program change has been problematic.

Allen also suggested that another reason for the lack of guidelines for outcome decision-making had to do with the relative infrequency with which such decisions are made. Although placements are common occurrences in school, program changes or exits are fairly uncommon.

Schendel and Ulman (1990) suggested that service/program change is a relatively rare event because even the most mild student problems have been viewed as permanent within-child disabilities. Given the assumed inalterable nature of the student's disability, often the conclusion was that placement in a special program was likely to be a long-term, if not permanent, need. Thus, there was little reason to be concerned about outcome decision-making.

In a systematic problem-solving approach, most mild to moderate student performance problems are considered to be situation-specific, modifiable handicaps, rather than permanent disabilities. The student's problem is operationally defined as a discrepancy between his/her performance and that of peers. Placement in a special service or program is intended to be part of an intervention aimed at reducing or eliminating the performance discrepancy. Once this discrepancy has been reduced or eliminated, a service/program change should be considered.

The remainder of this paper will define service/program modification and exit decision-making for students with mild to moderate handicaps and will describe essential components and procedures in the process.

DEFINITION

Service/program modification or exit decision-making may involve a change in placement from a more restrictive special education program to a less restrictive program (e.g., from a special class with integration to a resource room). It may also involve a complete exit from a special education service/program with a full-time return to the regular classroom.

Service/program modification and exit decision-making is based on the development of specific criteria that the student must meet in order to be considered for a change in placement. These criteria should be established at the time that a placement is made, and should be described in terms of specific measurable goals. On-going progress monitoring and data collection is required in order to make service/program modification and exit decisions.

COMPONENTS OF THE DECISION-MAKING PROCESS

Service/program modification and exit decisions are part of a systematic approach to problem-solving. In order to make effective outcome decisions, the other steps in the problem-solving process must be implemented. In other words, outcome decision-making is based on the definition of target behaviors, the functional assessment of the problem, the establishment of measurable goals and well-designed interventions, and the on-going monitoring of student progress. The implementation of these problem-solving steps provides a useful data-base for making service/program modification and exit decisions.

More specifically, the data-base from which to make service/program modification and exit decisions should have three types of information. First, exit criteria must be established. These criteria should define specific behaviors and levels of performance that a student must demonstrate in order to be considered for a change in placement. Exit criteria should be based on the type and level of functioning that is judged to be necessary for a student to be successful in an alternate setting. Criteria should be stated in terms of observable, measurable goals.

A second type of information necessary for making outcome decisions has to do with student variables. Objective information should be available regarding a student's progress toward goals. Information should also be available regarding a student's level of functioning in comparison to peers. Finally, information should exist regarding a student's "classroom survival skills." These skills consist of behaviors such as attention to task, work completion or appropriate social interactions. Along with academic skills, these behaviors are necessary for successful functioning in a given setting.

Information regarding environmental variables is a third type of data necessary for making outcome decisions. The environmental variables assessed should include information about the curriculum used in a given setting, as well as instructional methods and materials. Information about the environment aids in defining the demands that a new setting will place on a student. It should describe specific classroom expectations in terms of the skills and behaviors that a student must demonstrate in order to be successful there.

PROCEDURES

Consideration for a possible service/program change or exit should be based on an analysis of the data generated by on-going progress monitoring. When the data indicates that student performance is beginning to approach pre-established criterion levels, the problem-solving team should convene to discuss the possibility of a service/program change. Since progress monitoring data is collected regularly, consideration for a placement change may occur at any time. Whereas previously, the annual review staffing offered one of the few yearly opportunities to discuss service/program options, the data generated by progress monitoring allows consideration of these options whenever it is appropriate.

As the problem-solving team considers a change in placement, the following procedures should be used:

1) Review existing information and collection additional information as necessary. The data to be reviewed and/or collected should include information about the student as well as about the current and potential new environment. The team should begin by reviewing the information that is already available from previous problem-solving efforts. They should also identify any additional information that is necessary to make a service/program change decision and should formulate a plan for further assessment.

The data collected about the student should answer the following three questions: a) Has the student met his/her IEP goal(s)?; b) Is student performance sufficient to meet the expectations of the alternate setting or, in other words, is the student functioning at a level similar to that of peers in the new setting?; and c) What classroom survival skills does the student possess and demonstrate on a regular basis?

The environmental data to be reviewed and/or collected should include information about the curriculum in the new setting. For example, it may be useful to know about the sequence of skills in the curriculum, the manner in which new skills are introduced, and opportunities for drill and practice. The instructional methods and materials used in the classroom should be examined, as well as the teacher's behavioral expectations, classroom rules, evaluation procedures, and performance contingencies. The setting demands of the new environment should be examined in relation to the type of curricular/instructional/behavioral support(s) that the student is currently receiving. Consideration should be given to the student's continuing need for such supports as well as their potential availability in the new setting.

Once the team is satisfied that sufficient data exists regarding the student and environment, they may then move on to the next step.

3) Make a decision about the appropriateness of a service/program change or exit recommendation. This decision is made by comparing what is known about student performance to the pre-established exit criteria as well as to the setting demands of the new environment. As a result of this comparison, the team may make a number of different decisions. If the student has met the established criterion standards and appears to possess the skills and behaviors judged to be necessary in the new environment, then the team may recommend an immediate change in placement. On the other hand, if the student has not met the exit criterion standards and/or appears to have significant deficits in certain skills or behaviors, the team may elect to discontinue any further discussion of a placement change for the time being. As a third alternative, the team may conclude that the student continues to have some skill or behavior deficits, but may still decide to recommend a change in placement. They may then formulate a plan for providing support to the student and teacher in order to make the service/program change successful, despite an imperfect match between the student and the environment.

There are two cautions regarding comparisons between student skills and environmental demands. The first has to do with the peer comparison standard used to evaluate an individual student's readiness for a service/program change. Expecting an individual student to perform at the level of average peers before being considered for a service/program change may be too high a performance standard, since many students already placed in that setting do not perform at that level. A more appropriate standard may be an expectation based on the performance of low functioning students in a given setting (e.g., expecting a resource student to read like peers in the low reading group before recommending a service/program change).

A second caution regarding student/environment comparisons has to do with the balance between expectations that the student meet the demands of the environment vs. expectations that the environment meet the needs of the student. While it is true that the student should posses the skills necessary to perform in a given setting, it is also true that adjustments must be made in the new environment in order to help the student succeed there. The problem-solving team should consider both factors when making service/program change decisions.

If the team recommends a placement change, the efforts described in the next step can be undertaken.

4) Formulate a transition plan. Once the team has made a recommendation for a change in placement, an action plan should be developed. This plan should describe how the transition from one program to another will occur. Timelines for making the transition should be established. On-going efforts to improve student skills and/or to make classroom modifications should be described, as well as roles and responsibilities for all team members involved in the transition. Measurable goals that can be used to judge the success of the change should be established.

5) Make the service/program change. Once the transition activities have been completed, the service/program change should be made. Since it is not possible to predict with certainty that such a change will be successful, plans should be made for the continued monitoring of student performance. Efforts should also be made to provide continued support for the student and teacher in the new environment. A follow-up meeting should be planned at which the problem-solving team can make a decision about the relative success of the service/program change. If necessary, the team may also use this follow-up meeting to do any additional problem-solving. The success of the service/program

change should be judged on the basis of objective data relative to the goals and criteria established as part of the transition plan.

SUMMARY

Service/program modification and exit decisions are important parts of the problem-solving process. They should be made on the basis of objective data collected during functional assessment and progress monitoring efforts. The data used to make such decisions should focus on environmental variables as well as on student variables, and should be compared to specific pre-established exit criteria.

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