

FOCUS ON EXCEPTIONAL CHILDREN

INFORMAL ASSESSMENT FOR THE CLASSROOM

Nancy K. Jobs and Linda White Hawthorne¹

INFORMAL ASSESSMENT

In recent years attention has been shifting away from traditional psychometric evaluation of exceptional children, toward teacher evaluation. Concurrently, contemporary authors have stressed the need for a closer alignment between instructional goals and assessment procedures. Numerous movements within special education have precipitated these changes:

1. A decreased emphasis on the labeling and categorizing of exceptional children (Reynolds & Balow, 1972).
2. The need to hold teachers accountable for specifying instructional objectives and measuring pupil progress toward those objectives, as mandated by the Education for all Handicapped Children Act (P.L. 94-142).
3. The trend toward stating instructional objectives in precise, measurable terms—a trend that has lent itself to the use of criterion-referenced measures (Drew, Freston, & Logan, 1972).
4. An emphasis on assessing and serving the severely handicapped, regardless of the severity of the handicap or the availability of appropriate assessment instruments (Haring, 1975).
5. Lack of empirical support for instructional programs based upon process deficits identified by standardized diagnostic tests, such as the ITPA (Hammill & Larsen, 1974).
6. A recognized need to assess variables required for academic success; e.g., verbalization of a response, as opposed to supposed correlates of academic success; e.g., auditory perception (Keogh & Becker, 1973).
7. Dissatisfaction with pupil evaluations done without regard for critical environmental variables within the academic setting (Adelman, 1971).
8. A growing trend among special educators to assess environmental variables which precede and follow pupil performance (Lovitt, 1967).

These concerns suggest the need for a model of assessment which is broad enough to encompass assessment of relevant environmental characteristics, that can serve as a basis for effective instructional planning, and that can satisfy accountability demands

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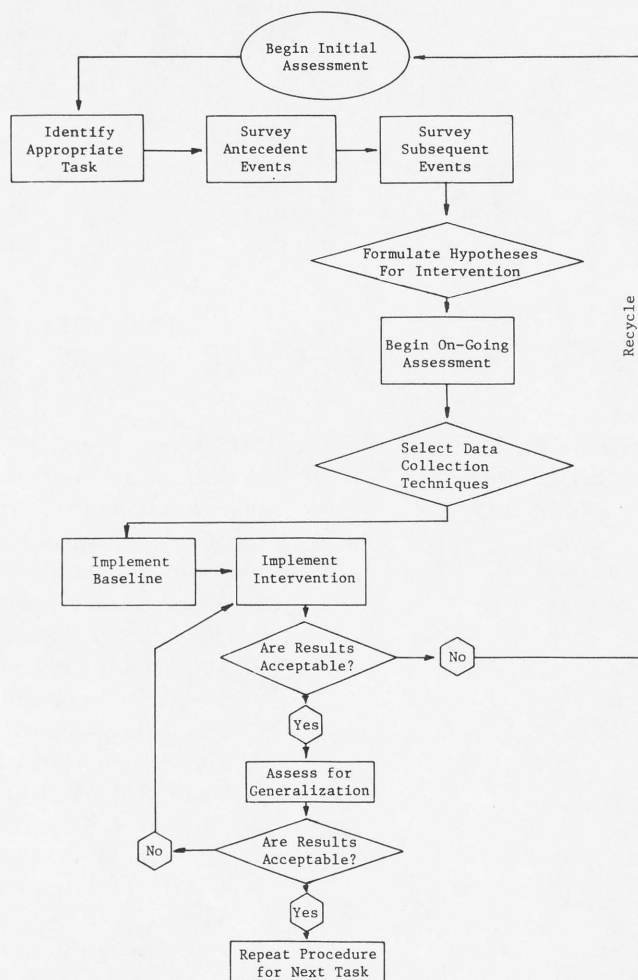
by measuring pupil progress toward instructional goals.

The behavioral assessment procedure proposed to meet these requirements (see Figure 1) is composed of two basic stages: Initial assessment of learner tasks and a survey of environmental components which may affect the performance of that task, and an on-going assessment which allows the teacher to alter learner tasks or environmental components to reach instructional objectives. Following such a two-stage procedure enables the teacher to identify a variety of variables within the environment which may affect learning, and then to validate the effects of selected variables during the teaching process. The on-going assessment that takes place during the teaching process will attest to both the accuracy of the initial assessment and the effectiveness of instruction. Since classroom behaviors and academic skills are considered to be learned and to be appropriate realms for teacher assessment and instruction, both will be considered.

INITIAL ASSESSMENT

Initial assessment involves identifying the following: Appropriate learner tasks; events in the environment which "set the stage" for learning to occur (i.e., antecedent or stimulus events); and the consequences available as contingencies for desired behavior (Lovitt, 1967). This initial assessment should be conducted prior to beginning formal instruction. Ideally, the assessment should be

FIGURE 1
Procedure for Informal Classroom Assessment



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done by the same person who will be responsible for instruction. Such an arrangement would provide for continuity between initial assessment and on-going assessment. If it is not possible for assessment and instruction to be done by someone else who is able to spend considerable time observing and assessing the student in his typical academic setting, such as an itinerant teacher or educational diagnostician.

Identifying Appropriate Tasks

The first step in the initial assessment is to identify tasks at the appropriate level of difficulty for the student. In fact, in education one of the most trite, but important comments often said and heard by teachers is, "Teach the

child at the appropriate level.” Several assumptions are implicit in that statement: Skills taught in schools are in levels (i.e., they are sequential); those skill sequences are identifiable; and to effectively teach a student, it is necessary to determine what skills in various skill sequences he or she has mastered and which skills are lacking.

If teachers had to determine a sequence of skills for each academic or behavioral area they teach, the task would be overwhelming. Fortunately, such information is provided for the teacher in thousands of curriculum guides, skills and behavior checklists, criterion-referenced measures, and standardized tests. The teacher’s task during this initial assessment phase is to utilize existing resources in either choosing or constructing a general task sequence that will closely approximate the sequence used for instruction in a particular area. During the on-going assessment phase, the teacher may have to do a detailed task analysis of a particular skill; e.g., determine prerequisite skills for adding one-digit numbers with sums less than 10. However, during this initial assessment the teacher should check to see if the student can perform the task without concern for assessing prerequisite skills. Such an in-depth analysis will be done during on-going assessment.

Numerous sources of information are available to the teacher who wants to identify task sequences. To select an appropriate one and make optimal use of it, the following procedures are suggested.

—When planning instruction in an academic or social area, review skill sequences developed in that area; e.g., scope and sequence charts accompanying basal series, criterion-referenced measures, standardized tests, or developmental sequences.

—Put the task sequence selected or developed into a simple, usable format. At this point, do not attempt to state the skills as complete behavioral objectives. State the task, but do not be concerned about specifying detailed conditions or standards. For instance, a task might be: “Orally count by twos to 50.” In such cases, conditions remain flexible. You can tell the child to count by twos to 50 or listen to the instructions on tape, etc. Likewise, standards are somewhat flexible in that no time limits are imposed and no references are made to such factors as fluency while counting.

—In specifying the task, approximate those responses required during instruction. For example, if, in the classroom, the student is required to count to 50 by twos aloud, he or she should not be required to write the response during assessment.

—If you have previously worked with the student

being assessed and have some knowledge of his or her performance, you should take advantage of it. There is no need to ask the child to count to 50 if it is already known that he or she can do it.

—If you think the student is reaching a frustration point during the assessment, but you still desire to assess more difficult tasks in the sequence, it is appropriate to take a break or switch to an easier level before proceeding to more difficult ones.

—No rules govern at what point in the sequence assessment should begin, nor how many steps in the sequence should be assessed. However, we suggest that you begin assessment at a point at which the student is likely to experience success, proceed to more difficult items, and discontinue testing at the point at which it appears unlikely that the student will be able to respond correctly to further items.

Identifying Antecedent or Stimulus Events

The second step in the initial assessment requires that you survey antecedent or stimulus events that appear to affect student behavior. Antecedent or stimulus events are those variables within the environment which occasion the behavior of students. They include the great number of stimulus materials, instructional methods, and classroom settings which “set the stage” for the child to respond to the task you have chosen. You select materials, arrange student seating, give instructions, group children, etc. It is vital, therefore, that you carefully survey the many antecedent events that may affect learning and performance if you hope to control such events to facilitate optimal student performance.

Research has been conducted to validate the efficiency of various stimulus materials, classroom settings; and instructional methods. Regrettably, the results of this research indicate trends for groups of students, but give teachers little or no information for teaching individual students. You must, therefore, identify within your own teaching environment the antecedent or stimulus events which allow for optimal performance of individual students.

Through observing and interacting with the student, you can begin to gather information concerning the child’s preferences for various stimulus events. For example, if given an opportunity, would the child select a programmed text over a traditional basal, an isolated quiet area over a group activity, a model over verbal direction? Under what conditions does he or she seem to

perform best? With information obtained by observation, you can formulate hypotheses regarding the stimulus events which may occasion the desired response from the child.

As an aid in determining which events facilitate students' learning and performance, a checklist, the Initial Assessment and Planning Form, has been provided as a guide (see Figure 2). The checklist enumerates stimulus events under the following headings: Mode of instruction, stimulus materials, type of instructor, rate of instruction, and setting for instruction. You may check the variables in each of the categories which seem to be most beneficial for a particular student. Obviously, the list is not inclusive, but only a beginning point in identifying stimulus events which should be considered in assessing the total instructional environment. Add to the list other variables you find to be important.

Identifying Subsequent or Contingent Events

Although you can facilitate student performance by presenting appropriate tasks and "setting the stage" in an optimal manner, you must go one step further if you expect to obtain desired performance from your students. To state it simply, you must arrange subsequent or contingent events *as a result of* student behavior. Therefore, part of your task during the initial assessment will be to identify those events following student behavior which seem to be effective in managing future behavior.

Principles of managing behavior have been derived from learning theory. When events that follow behavior are effective in increasing or maintaining that behavior, they are called *reinforcers*. They are called *positive reinforcers* when presentation of them maintains or increases behavior, and *negative reinforcers* when removal of them maintains or increases behavior. If presentation decreases behavior, the events are called *punishers*.

For instance, a student raises his hand before asking a question, and you praise him. In the future, the student continues to raise his hand before asking a question. Teacher praise is then considered a contingent positive reinforcer. If, after being praised, the student does not continue raising his hand, teacher praise would not be considered a reinforcer. Since it did not increase or maintain behavior but decreased it, praise served as a punisher. Likewise, if you had begun frowning whenever the student raised his hand, and the student had stopped raising his hand or raised it less often, frowning would be considered a punisher. As in the previous example, if

there had been no change in the amount of hand-raising behavior, your frowns would not have been considered a punisher. If, when the student raised his hand more often, you stopped frowning, frowning would be considered a negative reinforcer because it removed an aversive stimulus.

Two important points are illustrated in these simple examples: Events or stimuli cannot be designated as reinforcers or punishers until their effect upon behavior is evaluated; and, in order for the subsequent events or consequences, whether reinforcers or punishers, to have maximum effect upon student behavior, they must be arranged in a contingent manner. That is, the consequences received by the student must be made dependent upon the occurrences of the student responses.

As was the case with antecedent or stimulus events, an innumerable number of subsequent events exist or can be provided in a typical classroom setting. Generally, determining which of these many events will serve as potential reinforcers or punishers can best be done by observing the student in several settings or by asking his or her parents. By observing the child, you can easily note his or her free-time preferences for objects or activities and can later employ these events as contingent consequences when trying to obtain desired behavior.

Another procedure that can be employed to determine subsequent events which affect the behavior of individual students is reinforcer sampling (Ayllon & Azrin, 1968). This procedure allows the student to sample the object or event before it is used as a possible reinforcer. Using such a procedure, you can determine which events have potential reinforcing properties. After the sampling period, the child may not appear to desire the object or continue the activity. You can then assume that the event's lack of reinforcing power is not due to the child's lack of familiarity. Thus, observing the student and experimenting with several events which may increase or decrease behavior are probably the best ways to initially assess the effectiveness of subsequent events.

The lists of subsequent events provided in Figure 2 may be used as a starting point when attempting to identify events that may serve as reinforcers or punishers. During the initial assessment, check those positive and negative events you think are most likely to be so desirable or undesirable to the child that they may be effective in managing his or her behavior. Although the lists include numerous consequences that might serve as positive reinforcers, you should be highly selective, checking only those consequences you think will be most likely to increase or maintain behavior.

FIGURE 2

Complete Initial Assessment and Planning Form

1. LEARNER TASKS: 1. 92 sight words 2. Use of "k" in initial position
3. Use of "p" and "b" in final position 4. Use of short vowel
sounds 5. Use of blends and digraphs "th," "sp," "br," and "bl."

2. ANTECEDENT EVENTS:

<u>Mode of Instruction</u>	<u>Mode of Input</u>	<u>Rate of Instruction</u>
<input checked="" type="checkbox"/> directions	<input checked="" type="checkbox"/> visual	<input type="checkbox"/> fast
<input type="checkbox"/> questions	<input checked="" type="checkbox"/> auditory	<input type="checkbox"/> moderate
<input type="checkbox"/> cuing	<input type="checkbox"/> tactile(touch)	<input checked="" type="checkbox"/> slow
<input type="checkbox"/> prompting	<input type="checkbox"/> olfactory	
<input checked="" type="checkbox"/> modeling	<input type="checkbox"/> kinesthetic (movement)	

<u>Stimulus Materials</u>	<u>Time of Instruction</u>	<u>Setting for Instruction</u>
<input checked="" type="checkbox"/> textbooks	<input checked="" type="checkbox"/> morning	<input type="checkbox"/> classroom
<input checked="" type="checkbox"/> worksheets	<input type="checkbox"/> afternoon	<input type="checkbox"/> play area
<input checked="" type="checkbox"/> pictures	<input type="checkbox"/> period: _____	<input type="checkbox"/> special rooms:
<input type="checkbox"/> chalkboard		<input type="checkbox"/> library
<input type="checkbox"/> graphs	<u>Attributes of Material</u>	<input type="checkbox"/> media center
<input type="checkbox"/> films	<input type="checkbox"/> small	<input type="checkbox"/> resource room
<input type="checkbox"/> filmstrips	<input type="checkbox"/> medium	<input type="checkbox"/> other: _____
<input checked="" type="checkbox"/> flashcards	<input type="checkbox"/> large	<input type="checkbox"/> cubicle
<input type="checkbox"/> manipulatives	<input checked="" type="checkbox"/> colored	<input type="checkbox"/> quiet area
<input type="checkbox"/> games <i>not group ones</i>	<input type="checkbox"/> black & white	<input type="checkbox"/> interest center
<input type="checkbox"/> tape recorder	<input type="checkbox"/> simple	<input checked="" type="checkbox"/> open area <i>carpeted area</i>
<input type="checkbox"/> other: _____	<input type="checkbox"/> complex	<input checked="" type="checkbox"/> desk
<u>Type of Instructor</u>	<input checked="" type="checkbox"/> many items <i>doesn't work</i>	<input type="checkbox"/> table
<input checked="" type="checkbox"/> male	<input type="checkbox"/> sequential	<input type="checkbox"/> other: _____
<input checked="" type="checkbox"/> female	<input type="checkbox"/> non-sequential	<input checked="" type="checkbox"/> one to one
<input type="checkbox"/> teacher	<input checked="" type="checkbox"/> other: <i>materials with picture</i>	<input checked="" type="checkbox"/> small group <i>maybe</i>
<input type="checkbox"/> aide		<input type="checkbox"/> large group
<input type="checkbox"/> peer		
<input type="checkbox"/> auxillary		
<input type="checkbox"/> personnal		
<input type="checkbox"/> other: <i>student teacher</i>		

3. SUBSEQUENT EVENTS:

<u>Verbalizations</u>	<u>Physical Demonstration of Approval</u>	<u>Token Rewards</u>
<input type="checkbox"/> Good!	<input type="checkbox"/> smile	<input checked="" type="checkbox"/> stars
<input type="checkbox"/> Great!	<input checked="" type="checkbox"/> pat <i>be careful about touching</i>	<input checked="" type="checkbox"/> checkmarks
<input type="checkbox"/> That's right!	<input type="checkbox"/> wink	<input type="checkbox"/> points
<input type="checkbox"/> Nice job!	<input type="checkbox"/> touch	<input type="checkbox"/> tokens
<input type="checkbox"/> You're doing fine!	<input type="checkbox"/> hug	<input type="checkbox"/> tickets
<input type="checkbox"/> Much better!	<input type="checkbox"/> thumbs up	<input type="checkbox"/> chips
<input type="checkbox"/> other: <i>way to go</i>	<input type="checkbox"/> nod	<input checked="" type="checkbox"/> grades
	<input type="checkbox"/> other: _____	<input type="checkbox"/> other: _____

<u>Food</u>	<u>Toys</u>	<u>Activities & Privileges</u>
<input type="checkbox"/> candy	<input type="checkbox"/> clay	<input type="checkbox"/> leading group
<input type="checkbox"/> fruit	<input type="checkbox"/> puzzles	<input type="checkbox"/> running errands
<input type="checkbox"/> raisins	<input type="checkbox"/> dolls	<input type="checkbox"/> exempting a test
<input type="checkbox"/> cheese	<input checked="" type="checkbox"/> balls	<input type="checkbox"/> caring for class
<input type="checkbox"/> cereal	<input type="checkbox"/> games	<input type="checkbox"/> pets, flowers
<input type="checkbox"/> soft drinks	<input checked="" type="checkbox"/> books	<input type="checkbox"/> representing group
<input type="checkbox"/> ice cream	<input type="checkbox"/> models	<input type="checkbox"/> free-time
<input type="checkbox"/> other: _____	<input checked="" type="checkbox"/> other: <i>Car magazines</i>	<input type="checkbox"/> listening to records
<u>Awards</u>		<input type="checkbox"/> pass to library, gym, snack bar
<input type="checkbox"/> citations		<input type="checkbox"/> omitting an assignment
<input type="checkbox"/> plaques		<input type="checkbox"/> smoking
<input type="checkbox"/> report cards		<input type="checkbox"/> field trip
<input type="checkbox"/> "Good Deed" charts		<input checked="" type="checkbox"/> visit with desired person <i>student teacher</i>
<input type="checkbox"/> letters		<input type="checkbox"/> other: <i>time for drawing</i>
<input type="checkbox"/> recommendations		
<input type="checkbox"/> other: _____		

<u>Verbalizations</u>	<u>Physical Demonstrations of Disapproval (not recommended)</u>
<input checked="" type="checkbox"/> corrective feedback	<input type="checkbox"/> curl of lip
<input type="checkbox"/> Stop talking.	<input type="checkbox"/> shaking fist
<input type="checkbox"/> Pay attention.	<input type="checkbox"/> gritting of teeth
<input type="checkbox"/> Be quiet and sit down	<input type="checkbox"/> spanking
<input type="checkbox"/> Turn your desk around and face.....	
<input type="checkbox"/> other: _____	

Negative

Verbalizations (not recommended)

Think for a change!
 You don't understand because you don't listen!
 Act your age!
 Can't you do anything right?
 You should be ashamed.
 Who do you think you are?
 You're making me a nervous wreck!

Keep in mind that the verbalizations and physical demonstrations of approval have the strongest reinforcing properties when they are given by people important to the student. Also note that although many of the negative consequences listed may serve as either negative reinforcers (if removed) or punishers (if presented), many of them are not recommended for use because of their possible negative effects upon the child, such as escape, avoidance, and aggression. Those consequences *not* recommended are listed so that you may check to make sure you are not unwittingly using them. If you are using them, you might consider modifying your own behavior.

It is recommended that when negative verbalizations are used, they relate to specific behaviors and, when necessary, indicate exactly what is expected of the student. Sometimes it is important to give corrective feedback. The child must be told what the correct response is; e.g., "No, you spell cat c-a-t." Physical demonstrations of disapproval should be used only when the student understands what behavior is an acceptable substitute for the one he or she is using.

ON-GOING ASSESSMENT

After completing the initial assessment, you are ready to begin the second stage in the process—on-going assessment. Assessment is considered to be an integral part of instruction. Many educators (Gronlund, 1971; Wallace & Kauffman, 1973) view it as a dynamic, on-going, even cyclical process. When viewed in such a manner, it is obvious that although the initial assessment of learner tasks, antecedent events, and subsequent events provide valuable information, it is inadequate to insure optimal learner performance across time and tasks. Only through a process of on-going assessment can you validate the hypotheses derived during initial assessment or systematically manipulate environmental variables until student objectives are achieved.

The on-going assessment process is comprised of three basic phases: Assessment during baseline, assessment during intervention, and assessment of generalization (Lovitt, 1967). Accurate baseline data provide you with a clear picture of the student's skills, knowledge, or behavior in a particular area prior to the initiation of an intervention program; it defines a starting point. Data acquired during intervention will provide the information necessary to assess the effectiveness of the instruction or intervention program. Finally, generalization data, acquired after the completion of intervention, will allow you

to assess the extent to which the student's learning is transferred from one setting to another, and from one behavior to another.

In order to assess behavior during each of the described phases, you must select and use some form of systematic data collection. If data are not collected systematically, the effectiveness of instruction cannot be assessed. There are numerous procedures which can be employed to measure behavior. In deciding which of these to use, take into account the frequency, nature, and topography of the behavior, and the amount of time available to the observer (see Figure 3). Various measurement techniques will be described briefly. For a further description and instructions on implementing these procedures, see Axelrod (1977), and Cooper (1974).

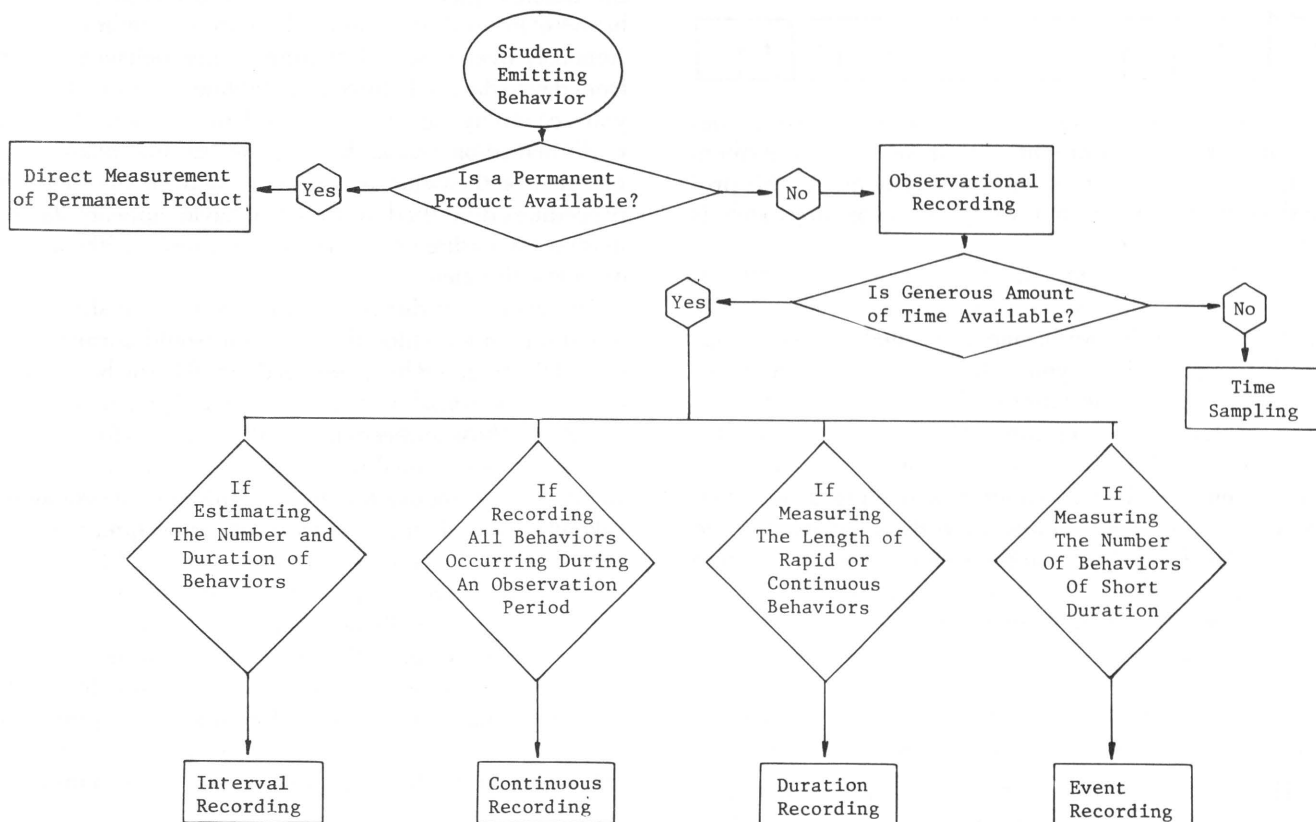
Data Collection Techniques

Direct measurement of permanent products. This is measuring products which are the direct result of a student's performance. With such a procedure, you can measure the tangible results of a student's behavior, either as it occurs or at a later time. This procedure is used continuously in the classroom. Examples include counting the number of correctly written arithmetic problems, spelling words, or sentences; the number of beads on a string, completed pegboard puzzles, sharpened pencils, or stacked blocks. Direct measurement of permanent products is an important measurement procedure because it is convenient and gives accurate data of a child's performance which can be evaluated and reevaluated at will.

Observational recording. Some behaviors do not result in a product which is left in the environment. These behaviors occur, but are transitory, and leave no physical evidence of their occurrence. Examples of these behaviors are shouting, fighting, thumbsucking, orally reciting number facts, and talking out. Since no product results from these behaviors, they are measured by observational recording techniques. Several of these observational procedures are discussed.

When an attempt is made to record in detailed behavioral terms the behaviors of a person, it is called *continuous recording*. Those recordings are sometimes called anecdotal records. When appropriate, they include actual dialogue and descriptions of settings. If done properly, the anecdotal record will provide a "verbal picture" of a student and his or her behavior in a particular setting. Obviously, this technique is extremely time-consuming. It should be used prior to determining or

FIGURE 3
Selection of Data Collection Techniques



targeting a specific behavior to be measured, or used to observe the effects of antecedent and subsequent events.

The observational measurement technique most frequently used by teachers is *event recording*. This procedure requires that you make a tally each time a targeted behavior occurs across a period of time. The technique is particularly applicable in measuring discrete behaviors of short duration. Sometimes paper and pencil are used, and the behavior occurrence is noted by a hash mark. Creative teachers have employed tape on the wrist and colored pencils, or the transference of paper clips. Teachers also have reported the convenience of wrist counters in recording behavior while they were teaching.

When a behavior continues for a period of time (e.g., attending, out-of-seat), or is composed of actions which are difficult to separate into discrete behaviors (e.g., head-banging, tantruming), an observational recording technique known as *duration recording* is appropriate to measure the behavior. This technique measures the occurrence of behavior across time (i.e., seconds, minutes,

hours). It allows you to record how long a student engaged in a specific behavior. Thus, if you want to know how long Sue remained in her seat, you would check the clock and record the time she began sitting and the time she got out of her seat. Subtracting the times would give you the number of minutes of "sitting behavior." Since this procedure measures time, a clock or stopwatch is a necessity.

If you wish to have some indication of both the frequency of a behavior (as in event recording) and its duration, the appropriate measurement technique is *interval recording*. During interval recording, you observe the student during a time interval, usually 10 to 30 seconds, and record the presence (+) or absence (-) of the targeted behavior during that interval. If the targeted behavior occurs once or several times during the interval, it is usually recorded by one notation (+). Although interval recording typically samples behavior during intervals of seconds, consecutive intervals are sampled to gather data across minutes. A typical raw data sheet for an interval

record of studying behavior is as follows:

10"	20"	30"	40"	50"	60"	10"	20"	30"	40"	50"	60"
+	-	-	+	+	+	-	+	+	-	+	-

Since interval recording requires you to observe the behavior during the entire interval, its use in the classroom is frequently impractical and inconvenient. As this procedure also deals with time, a clock or stopwatch is needed.

An observational measurement procedure which is convenient and practical for teachers and which provides a record of student performance is called *time sampling*. With this procedure, you note only the occurrence or nonoccurrence of the targeted behavior at the end of a time interval, usually minutes. For example, if you want to determine how frequently Bill worked on his seat assignments while you conduct a reading group, you could teach for five minutes, note Bill's behavior, teach for another five minutes and observe again, etc. A time sampling record of such behavior would be as follows:

Minutes	5	10	15	20	25
Behavior	+	-	+	+	-

This record indicated that at the end of 5, 15, and 20 minutes, Bill was working. At the end of 10 and 25 minutes, he was not. Using time sampling, it does not matter what the child was doing immediately before or after the specific time of measurement. If the student has no knowledge of the length of the interval, a more accurate sample of behavior can be obtained across time. Since an interval of time is used in time sampling, a clock, a watch, or a timer is needed for data collection.

The recording methods discussed are appropriate for use in each phase of on-going assessment—assessment of baseline, intervention, and generalization. Proper collection of data using the appropriate procedure is crucial during on-going assessment.

Assessment During Baseline

Assessing behavior prior to intervention involves collecting baseline data. These data will provide information about the student's starting point; that is, his or her level of performing the targeted behavior before you attempt to change it. At this point, you must operationally define the

behavior of interest and write a behavioral objective encompassing conditions, behavior, and criteria. During the baseline phase of assessment, you measure the behavior of interest under normal classroom conditions continuously over a period of time. Since behavior varies from day to day, only through assessment across time can you accurately determine a student's present level of performance on a task. During the baseline phase, you take data on the behavior, using one of the data collection procedures described, until the behavior appears stable, neither increasing nor decreasing as much as 50% above or below the mean.

The conditions during baseline assessment should be like those under which the behavior would normally occur. If the targeted behavior, as defined in the behavioral objective, is an academic one, you should present the task using only those antecedent events necessary for its presentation. Instructional techniques, praise for correct responses, or corrective feedback should not be provided. Likewise, you should not use other subsequent events considered to be reinforcers or punishers. If the target behavior is a social one, you should take data on the behavior as it normally occurs in the classroom, without giving any special attention or treatment to the student. The purpose of baseline assessment is to provide a basis for comparing a student's performance as it presently exists with his or her performance in a setting where antecedent and subsequent events are being controlled.

Assessment During Intervention

Following the baseline phase, conduct assessment while you intervene on the behavior. During this intervention phase, program the behavior, using the antecedent and subsequent events which you decide during the initial assessment procedure would obtain the desired behavior. If the targeted behavior is an academic task, you may choose as the antecedent events a worksheet, teacher instructions, and demonstrations of the desired response. When student responses occur, you may choose praise and corrective feedback as contingent subsequent events. If the desired behavior is social in nature (e.g., hand-raising), you may choose verbal questions as the antecedent event and calling on the child when appropriate hand-raising occurs and ignoring talking out when appropriate hand-raising does not occur as the contingent subsequent events.

Employing the antecedent and subsequent events identified in initial assessment, continue to collect data on the targeted behavior identified as the learner task. If

the behavior of interest increases or decreases in the desired manner in comparison to its occurrence under baseline conditions, the change in student performance will be observed in the data generated. If the behavior is changing at the rate and in the manner you desire, you may continue employing the antecedent and subsequent events selected until the desired criterion is met. If the behavior is not changing as it should, you must reevaluate the hypotheses generated during initial assessment and decide what changes are needed.

Changing intervention techniques is common in teaching. Frequently, strategies based upon developed hypotheses do not have the expected effect on a student's behavior. As a rule of thumb, if a behavior has not begun to change in the desired direction after three to five days of intervention, a change in intervention tactics is needed. The question that arises is, "What components of the intervention phase need to be changed?" There are no easy answers to such a question. Basically, you must recycle through the procedures of the initial assessment process.

The first step would be to check the learner task to determine its appropriateness. For instance, a previous skill may need to be mastered before the targeted behavior will be acquired. If this is the case, you may need to conduct a formal task analysis (Thiagarajan, 1971). If you determine that the learner task is indeed appropriate, the next step is to review the antecedent events. Changing the mode of instruction, stimulus materials, mode of input, or rate of instruction may be necessary. Deciding on a variation of the same antecedent events or on others is a decision you can best make by observing the child during the intervention phase. The child's responses during that phase are usually cues that a change is needed. After reviewing the antecedent events, you should evaluate your selection of subsequent events. Perhaps the subsequent events you have chosen, although assumed to be positive, are not reinforcing to the child. Other events should be chosen. Based on a reevaluation of the components of initial assessment, you should develop new hypotheses to be employed in another intervention phase. Sometimes multiple intervention phases are needed before the criterion of student performance desired is met.

When the desired criterion is met, you may wonder whether the components you selected actually caused the behavioral change, or whether other variables within the environment produced the desired behavior. To empirically validate the effects of the intervention strategy, one of two experimental designs usually is employed—the

reversal design, or the multiple baseline design (Axelrod, 1977; Baer, Wolf, & Risley, 1968; Cooper, 1974). The reversal design is one in which baseline conditions are reinstated after the desired change has occurred during intervention. If the behavior returns to the levels emitted during baseline conditions, evidence (although insufficient) is provided that the tactics employed during intervention caused the change in behavior. Following reinstatement of baseline conditions, the previous intervention strategy is again instituted. If improvement again occurs, additional evidence is provided, and you have demonstrated that the intervention strategy you employed caused the change in the student's behavior.

If reversing a desired behavior is dangerous, or the behavior is unlikely to reverse, or reversing it is otherwise undesirable, a multiple baseline design can be used. A multiple baseline design may be employed across students, across behaviors, or across settings. This design requires behavioral measurements to be taken on one behavior of two or more students, on two or more similar behaviors of the same student, or on one behavior of a given student in two or more different environmental settings. In using this design, baseline is first taken on all students, on all behaviors, or in all settings. Then, intervention is implemented on only one of the students, behaviors, or settings while baseline is continued for the remaining ones. When a behavioral change occurs by the first intervention, the same tactic is applied to the second student, behavior, or setting. Following the change generated by the second intervention, the same tactic is applied to the third, and so on. As was the case with the reversal design, the multiple baseline design allows the teacher to validate the effectiveness of her intervention strategy. In the multiple baseline design, the second and third student, behavior, or setting serve as controls to attest to the effect produced by the intervention strategy. If behavioral change occurs when and only when intervention has been implemented, you have increased your confidence that the tactics employed produced the behavioral change, rather than resulting from coincidence or other uncontrollable factors.

Assessment of Generalization

After a student has acquired a desired behavior in one situation or setting, it is frequently important that the behavior occur in other situations. In addition, it may be desirable for the child to exhibit other responses similar to the one just acquired, without needing additional instruction. In both cases, generalization is needed. Two basic

types of generalization are expected by teachers—stimulus generalization and response generalization (Axelrod, 1977; Baer et al., 1968; Kazdin, 1975; Lovitt, 1967).

Stimulus generalization refers to the occurrence of a behavior in a different setting or situation than the one in which it was learned. For example, when a student learns to add and subtract number facts in school and later computes the amount of additional allowance needed to acquire a new baseball, stimulus generalization from a school experience has occurred. Stimulus generalization is an important part of learning, but since it may occur automatically, it should be assessed across a variety of situations and settings. Stimulus generalization may be assessed in numerous ways. For example, you may check the use of words learned during spelling as the student writes a language arts composition, or you may check the use of subtraction facts during multiplication computation. It is important that generalization be assessed so that program modifications can be made as needed. Research has indicated that stimulus generalization is more likely to occur if the new situation or setting is similar to the one in which the desired behavior was first learned (Kennedy & Thompson, 1967; Patterson, 1965; Walker & Buckley, 1968). Therefore, if generalization has not occurred, you need only restructure the situation to reinforce the new behavior in the present situation.

Response generalization refers to the occurrence of responses not previously acquired but similar to the one previously learned (Kazdin, 1975). For example, you may teach regrouping of two-digit addition problems and hope that the acquisition of this behavior will generate to three-digit numbers. Teachers depend more heavily on response generalization than upon stimulus generalization. Without response generalization, instruction would be a tremendously tedious and overwhelming task requiring teachers to teach all instances of a response. Although response generalization does occur, exceptional children experience more problems in this area than do other children (Lovitt, 1967).

You must assess the occurrence of response generalization and systematically program instruction to insure its occurrence. Research has indicated that the reinforcement of a response will increase the probability of other responses which are similar (Skinner, 1953; Buell, Stoddard, Harris, & Baer, 1968; Lovaas & Simmons, 1969). Therefore, when response generalization does not occur, you should point out similarities between the learned response and the new response and reinforce the occurrence of the new behavior. If response generalization does

occur across response classes, you then know that the child has acquired a similar behavior, and you may begin teaching the next behavioral sequence.

Assessment of generalization is an integral part of instruction. Without it, you may needlessly teach a learned behavior, or you may fail to teach a skill which has not generalized. Through assessment of generalization, you can obtain the data needed to increase the efficiency and effectiveness of instruction. As has been aptly stated, "Generalization should be programmed, rather than expected or lamented" (Bauer, et al., 1967, p. 97).

APPLIED EXAMPLE

The following example illustrates the assessment procedure we have described. Ms. Edwards, a resource teacher in an elementary school, received a new referral, Charles. Charles is a nine-year-old third grader, referred by his regular teacher, Ms. Horton, because of his academic difficulties, particularly in reading. He also exhibited occasional behavior problems.

After discussing Charles' problems with his regular teacher, Ms. Edwards decided to observe Charles in his room for several days and to allow him to come to her resource room one hour each day. During the hour he was with her, she began informally assessing his reading skills, using a combination of several skill sequences which accompanied the basal readers used in her school.

In the regular classroom, Ms. Edwards observed Charles during the morning for several days. She paid particular attention to his reactions to the many antecedent and subsequent events which occurred in his classroom. She noticed that when directions were given by Ms. Horton, Charles appeared to pay attention for a brief period, but began work prematurely before the instructions were completed. When working, he responded in spurts, and stopped working completely before the period was over. On observation, Ms. Edwards also noted the following:

1. Frequently, Ms. Horton came to Charles' desk and showed him what to do.
2. He worked longer on assignments in his workbook than those presented on the chalkboard.
3. Charles appeared to be interested in the colored pictures in his textbook, and often took out paper and drew figures similar to those in his book.
4. He scribbled on the margins of his language worksheets, and often failed to complete them.
5. He had difficulty following directions given to the entire class. He followed Ms. Horton's instructions

when they were given directly to him, and usually responded to her in a positive manner. It was noted that when talking to Charles directly, Ms. Horton spoke slower than when talking to the class.

6. Several times he asked if he could work with a male college student who was doing his student-teaching in the class.
7. No differences were noted in his responses to auditory and visual stimuli.
8. On rare occasions when he finished his work, he would select a magazine about cars from the bookshelf and take it to a small carpet in the back of the room, where he would sit and look at the picture in the magazine.
9. Occasionally, his teacher patted him on the back while praising him. He withdrew from her touch.
10. When she responded to him by saying, "Way to go," he smiled and continued his work.
11. When Ms. Horton was busy with other students, Charles went to the student teacher to show him a paper on which he had received a check (✓), an indication of acceptable work.
12. During reading group, Charles had great difficulty with word attack skills, and appeared to use contextual clues and pictures to guess at the words, frequently calling them incorrectly. He was reading in a second grade basal, which seemed too difficult for him.

On several afternoons, Ms. Edwards again visited Charles' class. She noticed he appeared to be cross and irritable. She further noted that he used abusive language with the other students five times, and each time it was soon after lunch. During the afternoon recess, Charles played alone, refusing to participate in a game of kickball. Instead, he bounced a basketball on a concrete area nearby. On two occasions during inclement weather, Charles played a lotto game with other students. Both times, he had a disruptive argument with one of the other students, and Ms. Horton removed him from the game. When he was removed, he frowned, walked to a bookcase, got a deck of multiplication flashcards, went to his desk, and began reciting them to himself.

During the time Charles spent with Ms. Edwards in her resource room, she began assessing his reading skills. He responded in a positive manner to her direction and praise but had great difficulty reading sample first-grade paragraphs. However, he was able to answer many comprehension questions asked about what he read. Ms. Edwards decided to limit her assessment to word recognition skills, since Charles' comprehension skills were far

superior to his skills in word recognition. She began by showing him sight words on flashcards and asking him to say the words. The words consisted of those given for grades one and two in her curriculum guides. Charles responded correctly to 108 of the 200 words presented. A segment of the sight word checklist follows (✓ = correct; × = incorrect):

✓	after	✓	were	✓	once
✓	has	✓	over	×	pretty
×	let	×	put	×	yes
×	know	✓	keep	✓	now
✓	may	✓	round	×	thank

Then Ms. Edwards checked Charles' use of consonants in the initial position by having him read words and nonsense words formed by adding the consonants to the letters *ad*. (She knew that Charles could pronounce *ad*.) A segment of this checklist follows:

✓	cad	✓	jad	✓	gad	✓	yad
✓	dad	×	kad	✓	had		

Ms. Edwards continued through the checklist, assessing Charles' knowledge of other first and second grade skills, such as final consonants, use of the silent *e*, use of *y* as a vowel, knowledge of syllabication, digraphs and diphthongs, phonograms, etc. Upon completion of the checklist, she noted that he had mastered some skills taken from the first grade curriculum and a few second grade skills. She then noted on the Initial Assessment and Planning Form those skills which she felt would be high priority for instruction. These she listed as learner tasks in Figure 2.

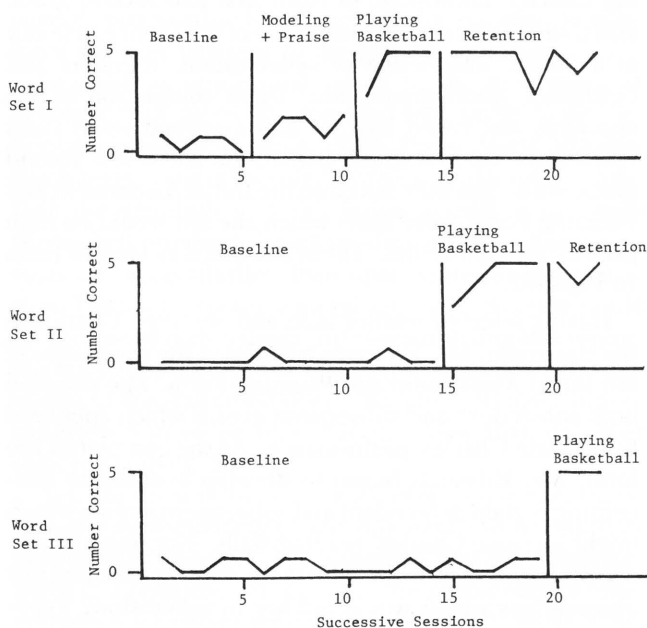
Having selected learner tasks and observed Charles in the classroom, Ms. Edwards completed the remainder of the Initial Assessment and Planning Form. She checked both antecedent and subsequent events which appeared to facilitate Charles' performance. As she completed the form, Ms. Edwards began to develop hypotheses concerning certain antecedent and subsequent events which might increase Charles' reading skills. Not only did she check specific events, but also made notes concerning her observations which would aid her in establishing hypotheses.

Having completed the initial assessment form, Ms. Edwards began planning for instruction and the on-going assessment process. First, she selected increasing Charles' sight vocabulary as the learner task. She defined

the target behavior as a correct vocal response or pronunciation of each sight word presented on flashcards. She selected 15 of the words Charles was unable to read during initial assessment. Next, she wrote the following behavioral objective: Given three sets of five sight words, Charles will pronounce each word correctly (100% accuracy) within five seconds of initial presentation for three successive days.

Reviewing the data collection procedures and the experimental designs, Ms. Edwards chose to collect data using event recording, and to test the effectiveness of her hypotheses through a multiple baseline design. Making these decisions, Ms. Edwards began taking data on Charles' pronunciation of the three sets of sight words. During baseline, she presented each word of each set in random order to Charles for five seconds without providing praise or correction feedback. She recorded the number of correct responses Charles emitted and graphed the results (see Figure 4). After five days, Charles' reading skills were neither increasing nor decreasing. He read only one or two words correctly each day.

FIGURE 4
Charles' Sight Word Acquisition



When a stable state was obtained, Ms. Edwards began her intervention strategy. Based on her observations, she decided to use a modeling procedure to teach Charles the words and verbal praise as a contingent subsequent

event. That is, when she presented each flashcard to Charles, she told him the word and asked him to repeat it. When he repeated it correctly, she provided verbal praise. When he responded incorrectly, she told him the word again. At the end of each 20-minute teaching session, Ms. Edwards again probed Charles' reading of each word in each set and tallied the correct responses (see Figure 4).

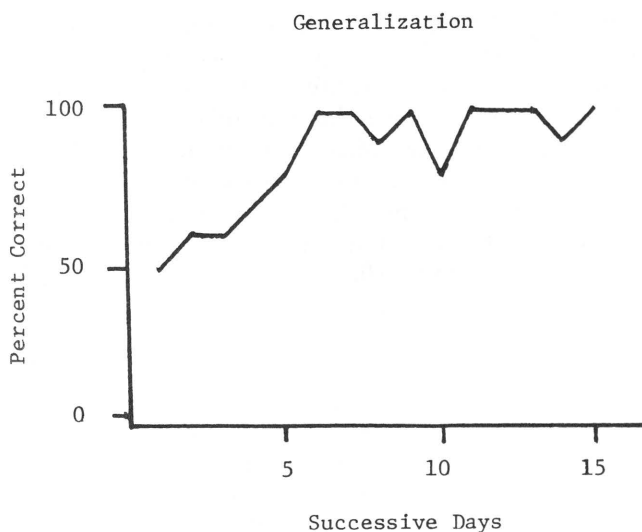
After five days, Ms. Edwards decided that Charles' progress was not satisfactory. Therefore, she again reviewed the appropriateness of the task, the antecedent events, and the subsequent events. Based on her observations of Charles in his classroom, she hypothesized that his correct responses might be increased by changing the subsequent events. As a result, she implemented a new intervention strategy. She informed Charles that from now on he would receive a checkmark for each correct response during the probe session. As a backup reinforcer, Ms. Edwards arranged with Ms. Horton to allow Charles to play basketball with the student teacher at the rate of two minutes per checkmark. Using this formula, if Charles read each word of the teaching set correctly, he would earn five checkmarks redeemable for 10 minutes of basketball. Following implementation of the new intervention tactic, Charles reached criterion on the first set of words in only four days (see Figure 4).

When criterion was reached on the first set, Ms. Edwards intervened with the same antecedent and subsequent events on the second set of words. When criterion was met on the second set, she intervened in a like manner on the third set. By the seventeenth day of instruction, Charles had reached criterion on all three sets of words, and Ms. Edwards had demonstrated that the antecedent and subsequent events employed were effective in teaching Charles to read the sight words. Having taught the 15 words to Charles, she proceeded to the next task identified during initial assessment.

Like most resource teachers, Ms. Edwards was concerned about generalization. She wanted to know whether Charles would read the learned words when he returned to Ms. Horton's classroom. Therefore, she gave Ms. Horton a list of the 15 words Charles had learned to read and asked her to take data on the number of learned words he read correctly in the basal reader used in her class. Before taking generalization data, however, Ms. Edwards and Ms. Horton agreed that the basal reader in which Charles was presently reading was too difficult for him and an easier one would be more appropriate. After placing Charles in a first grade basal, Ms. Horton began to take generalization data. She reported that Charles

generalized the words he had learned in Ms. Edwards' room (see Figure 5).

FIGURE 5
Charles' Sight Word Generalization



SUMMARY

If the proposed assessment procedure is followed, it will satisfy the requirements previously set forth for a viable informal assessment procedure for the classroom. It will allow you to assess relevant environmental characteristics by examining and evaluating effects of antecedent and subsequent events during both initial and on-going assessment. It will serve as a basis for effective instructional planning. Pre-instructional planning will be based upon on-going assessment data. Finally, the assessment procedure will satisfy accountability demands by providing clear statements of instructional objectives and precise data documenting progress toward those objectives.

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ALERT

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Canadian Speech and Hearing Association
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CLASSROOM FORUM

*Edited by Melinda Young
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Teachers are often complaining to me about the bickering and teasing that goes on in their classrooms. New children are often teased and are forced to "prove themselves" in order to gain acceptance within their peer group. Others who may never make it within that group are habitually harrassed because of their size, dress, intellect, etc. I realize that this is common among all children to a degree; however, the children being victimized often have a difficult time coping with even the mildest of teasing. What could I as a resource teacher do or suggest to the regular classroom teacher that might facilitate children's acceptance of others?

Lecturing, moralizing, etc., most often does not work in teaching children values such as the acceptance of others who are different from themselves. Many other techniques are more subtle and more effective in dealing with such a problem.

Class role playing and discussions specifically designed by the teacher to be subtle enough so as not to "point a finger," yet concrete enough to make your point, are often quite effective. For example, have one student dress up as a Martian or some other outer space individual who has many human-like characteristics. Allow several students to role play what they would do upon meeting this individual. Afterward, hold a class discussion during which each member is given the opportunity to express how he or she felt upon meeting and seeing this unique individual. Ask questions such as:

- How would your parents react?
- How would your younger or older sister or brother feel?
- What do you think other nations would do when they learned this individual was in the United States?
- How do you think our President would react?
- How do you think this outer space person would feel with all these people questioning him and looking strangely at him?
- How would you feel if you were in his shoes?

When holding class discussions such as this, certain ground rules must be laid. The option to pass is always available to the children. They must all be aware that opinions vary and that their opinions will be accepted by the group. The classroom atmosphere has to be non-judgmental and accepting. The teacher or leader should frequently participate in these discussions, with emphasis placed on sharing rather than imposing his/her beliefs.

These ground rules are among those listed in *Values Clarification* (Simon, Howe, & Kirschenbaum, 1972). This book provides over a hundred different strategies for use in group settings. Many of the strategies included in this text would be excellent for use with children such as you described. Teachers do not need extensive training in values clarification. Experience in the process itself builds further skills. Minimal teacher preparation is required, and the strategies are so global in nature that they can be adapted to almost any classroom problem. Additionally, the process of values clarification links together cognitive thinking and affective-feeling behaviors for each person and provides a way for young people (and old) to confront and be confronted by values they hold in a non-threatening atmosphere. Because the emphasis of this approach is on process—on the personal process by which an individual defines his own value system and by which he makes constructive decisions—many teachers incorporate values exercises into their daily curricula in an attempt to foster decision making in their students.

One technique from *Values Clarification* that could be used for the problem you've presented is "values voting." In this strategy, the children simply vote yes or no to questions presented by the teacher. The option to pass is always available to the voters. An exercise like this might take 5 to 10 minutes per day and may be followed by another values activity, role playing situation, etc. This strategy develops the realization that others often see issues quite differently than we ourselves do and legitimizes that important fact. It also is an excellent way to introduce into the classroom specific issues, such as the problem of accepting others. Questions from the book can be used by the teacher, interspersed with original questions centered on the problem of people being different. For example, a sample day's activity might include the following questions:

How many of you

- . . . enjoy watching movies on TV?
- . . . like chocolate ice cream?
- . . . enjoy spinach?
- . . . play a musical instrument?
- . . . have ever had a scary dream?
- . . . are an only child?

- . . . think that most students feel free to talk with their teachers?
- . . . have ever been hurt by a friend?
- . . . enjoy going on a picnic?
- . . . think all people have brown hair?
- . . . wear seat belts when riding in a car?
- . . . think the world would be better if all people looked alike?

Each day's activity could include more questions based on the issue of people being different, and at some point a more intense discussion could be held on that issue. Hopefully, the children will gain insight into their own values by the activities and will realize what they are doing to their peers without having to be told by the teacher, their parents, etc.

The solutions offered here are by no means exhaustive, but perhaps they will entice teachers to include a program of values clarification or some other type of socialization skill building in the classroom on an ongoing basis.

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We thank Rhonda L. Gottlieb, Coordinator of the Special Help Tutorial Program, DeKalb County Schools, Georgia, for the above "Classroom Forum Contribution."

The Communication Disorders Program in the DeKalb County School System has focused its attention on two problems concerning language impaired children enrolled in elementary classrooms. The first of these problems concerns language impaired children in our schools who have not been identified. The second problem involves severely language impaired children whose language needs have not been sufficiently met. During the 1976-77 school year the Impaired Speech and Language Program is seeking solutions to these two problems.

Typically, the child referred for speech and language evaluation is the one who mispronounces words or the child who stutters. While these are valid referrals, the child who does not talk, the one who omits basic grammatic structures from his oral language, or the child whose vocabulary is so limited that he cannot respond appro-

priately to questions or describe a picture, is the child who desperately needs help from the speech and language pathologists. Often these children are not referred for a speech and language evaluation.

To remedy the problem of identifying these children, speech and language diagnostic teams requested that teachers look carefully at children who performed poorly on readiness testing in kindergartens and first grades. Those children who, in the teachers' judgments, appeared to be experiencing difficulty in oral communication skills were referred for language evaluation.

Additional referrals were accepted from parents and other teachers. Specific learning disabilities teachers cooperated by referring children from their classes who were experiencing difficulty in oral language and auditory areas. Finally, a cooperative referral system was initiated in which names of children who demonstrated a 20 point or greater gap between verbal and performance scores on psychological testing (with verbal the lower score) were forwarded to the Impaired Speech and Language Program. The names of these children were given to the speech and language pathologists who completed the necessary evaluations. Thus, through the cooperation of classroom teachers, parents, staff services, and special education staff, DeKalb County began to compile a list of language impaired children based on the evaluations of the speech pathologist.

Several alternate approaches to the second problem of meeting the needs of severely language impaired children currently are being studied. One approach involves a language pathologist and a specific learning disabilities teacher team teaching a class of language impaired-learning disabled children. The effectiveness of daily intensive individual and group therapy also is being investigated. In still another approach the language therapist is coordinating all special services a child may be receiving in order to focus all instruction on strengthening language skills. Language impaired children enrolled in regular classes may have their classroom activities and language therapy coordinated in a similar manner. For others, prescription planning is the model in which the language therapist, the teacher, or parent work together to identify the child's needs, then mutually develop an instructional program to meet these needs.

To broaden the scope of language instruction, a speech pathologist has developed specific language activities for those who instruct language impaired children. Self-instructional language activities have been designed to help teachers of young children learn new techniques for eliciting oral language in the classroom. Workshops have

been arranged for learning disability teachers who wish to place more emphasis on oral language skills in their classroom activities. Speech pathologists who wish to acquire additional techniques for helping the language impaired child are also attending workshops.

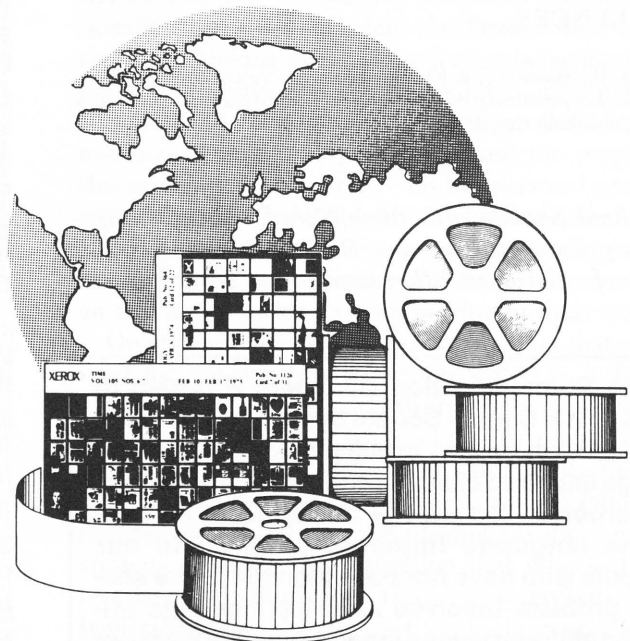
Identifying the elementary age language impaired population is only a first step in solving the problems of this group. After identification, the speech and language pathologist, the teacher, and the parent are faced with the question, "How can we best help this child?" Through the

investigation of various delivery models, our school system hopes to find one or more clues that will help unravel the mystery of language impairment. Perhaps through our search we will learn new ways to change communication deficits into communication skills.

Thanks to Jane Howe, Speech Pathologist, DeKalb County Schools, Georgia, for sharing this information with us.

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