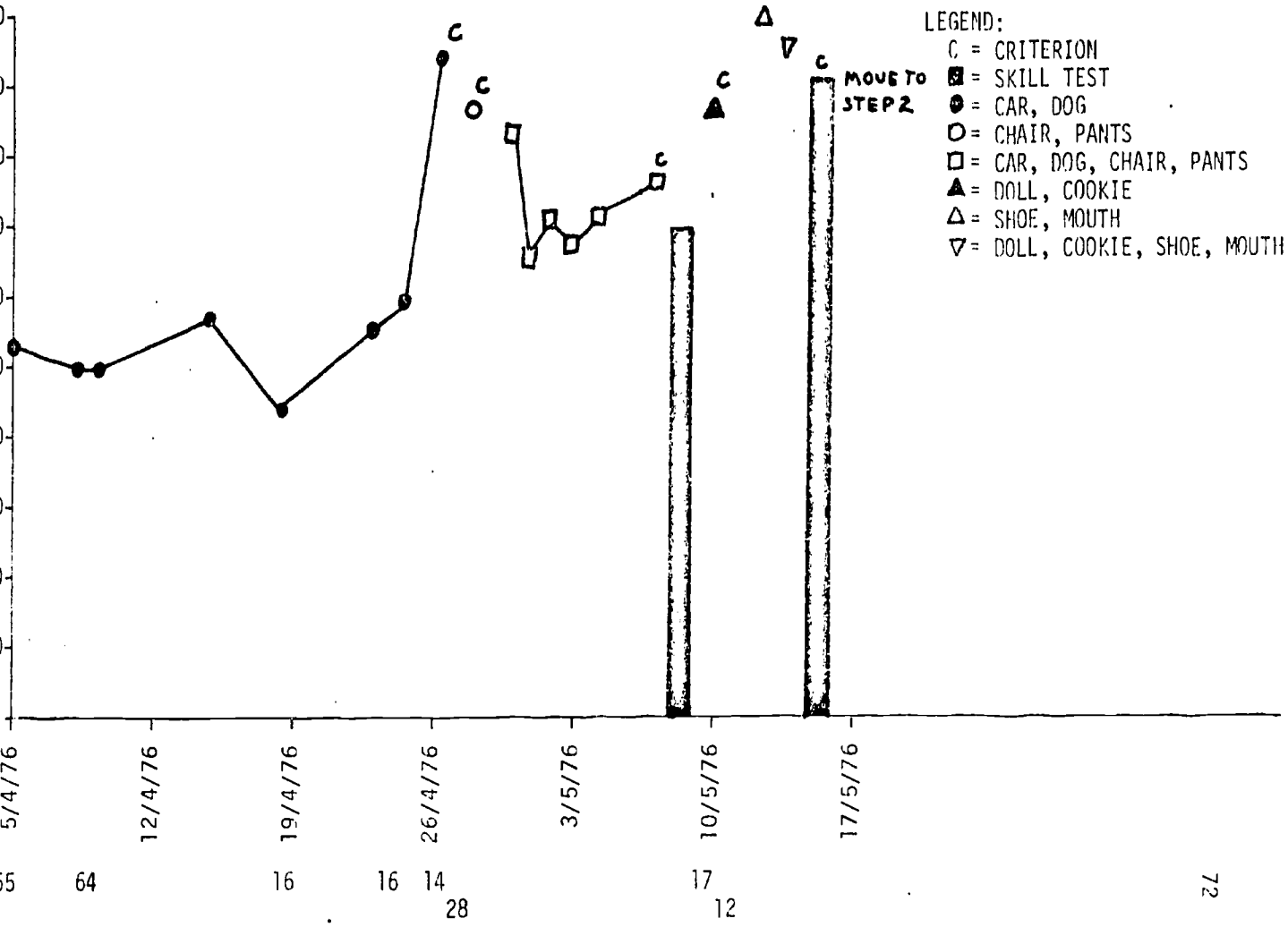
LANGUAGE: Kerri (b) Step 1



days along the horizontal axis. Two responses are worked on at a time and a skill test is given after four have been learned. The "C" represents criterion reached. Criterion on two words is reached after 12 correct in a row or 80% correct for the session. If over 80% is reached on the skill test, the child moves on to the next step. Kerri did not reach criterion, so she continued with another pair of words. On her third skill test, she reached over 80% correct and went on to step 2. Kerri has since moved on to step 3 of the program and her data represents the average child moving through the program.

The motor program

I would like to end my presentation with a brief description of the motor program. Please refer to the handout on the back of the daily schedule.

Along the vertical axis there is a series of developmentally sequenced groupings or strands of Gross Motor behavior from controlled eye movement to advanced locomotion. The individual behaviors within each strand (mostly taken from the Portage) were also developmentally sequenced, e.g., under motion "Walking". The numbers represent the number of the Portage card that corresponds to that activity. Where applicable, each strand was broken down into posture, assumption of posture, and motion, e.g., head control supine. Activities that did not apply to this breakdown appear under Skills. A physiotherapist assisted in the development of these motor strands and in the development of the motor programs.

The next series of slides will point out the need for postural components in the motor program. These children have learned to sit,

[Slides 47-50]

stand and walk, but their posture is unbelievably bad. Our motor programs are set up so that a child does not pass through a motor program (e.g., walking) without the appropriate posture. The appropriate posture is written right into the behavioral definition.

The next slide shows Robert progressing through our old motor

[Slide 51]

program without the posture component. He learns to pull to a stand, stand unsupported, and walk 10 steps unsupported in a very short time period. However, once the program with the postural component begins, he will probably begin at the appropriate point on the walking program.

The preschool children all walk; however, some of the children will enter the new walking program in an attempt to correct some posture problems. Currently they are working on advanced locomotion strands.

Data on all motor programs is recorded on the MIMR data sheet and graphed weekly. All of the behaviors in our motor program are Gross Motor behaviors since we have included all of the Fine Motor behaviors in the Cognitive area.

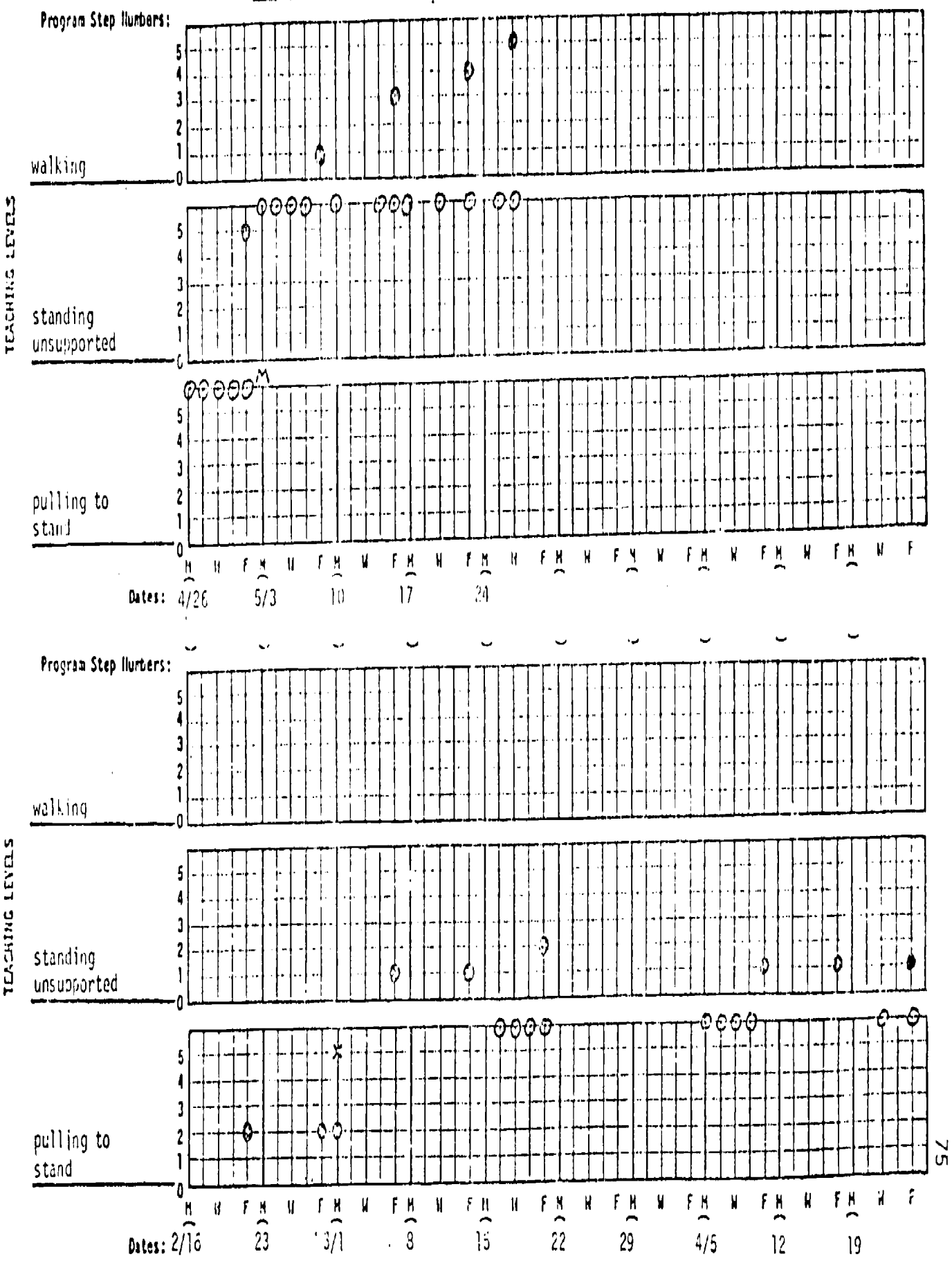
I would like to conclude my portion of the presentation by briefly mentioning our integration with the rest of Mayfield School. In general, our classrooms are very well received. Each Monday our children join a Grade 1 classroom for a half-hour session in the Music Room. Some of the preschoolers take their places with the Grade 1 students and join in all of the song and game activities. In addition to the music sessions, a group of Grade 6 girls have taken it upon themselves to meet the cabs morning and afternoon and help bring the children in. Next year we

TEACHING SESSION GRAPH

WALKING PROGRAM

Teacher(s) Toddler

Student Robert K.



would like to try increased integration with the kindergarten children across the hall, since many of our children are the same age as the kindergarten children.

I mentioned previously that the parents of our children are involved in a parent training session in the classroom setting. Bill Butt will now describe the parent training program he is currently conducting in our classrooms.

CLASSROOM PARENT TRAINING PROGRAM

Bill Butt

RATIONALE

Parental involvement in an early intervention program is now seen to be a necessary and effective way of maintaining, and assisting with, their child's development. If developmental goals are to be obtained, research literature indicates (Bronfenbrenner, 1974) that parental involvement is vital for several reasons:

(a) Without family involvement, gains made along any dimension are quickly eroded. Parental involvement not only can implement and maintain school-based teaching and child behaviors, but can also sustain the effects of teaching once the child no longer participates in a program.

(b) As parents are already natural reinforcing agents, providing them with teaching skills would appear to be a feasible and economical method of teaching new behaviors to a child.

(c) Development can be accelerated. Previous research indicates that a conjoint, systematic intervention program by school and parent can almost double the rate of acquisition.

(d) Parent training during the preschool years may benefit not only the handicapped child, but siblings as well. Parents can thus generalize skills obtained in a parent program to teach and modify behaviors of other children.

(e) Parents often express a desire to participate in the teaching of

their child. The parent involvement program provides them with appropriate skills. Poor teaching skills implemented by well meaning, but untrained, parents may not only prove frustrating but can delay the child's development.

Parent Training Program - Aims and Format

The present training program is designed specifically to meet two objectives: (a) to provide parents with information relating to school based assessment and its implications for teaching, and (b) to train parents in the application of the direction instruction teaching model.

In determining the format of the present training program, it was decided to utilize techniques as validated by research literature. O'Dell (1974) has authored a rather comprehensive review of the literature, and based on results cited by O'Dell in his article, it was decided to use an individualized instruction format with didactic and behavioral rehearsal instructional methods. The content of the parent training program contains materials directly related to the goals stated previously and will be discussed in detail later.

Program Procedures

Each parent was assigned a specific day to visit the school and receive the instructional unit. Typically, a parent would arrive at the classroom by 9:00 a.m. with the child. As soon as regular activities began, the parent would take her child to the regular teaching area and conduct five minutes of videotaped instruction on a previously chosen task.

Following the teaching session, the child would be returned to regular

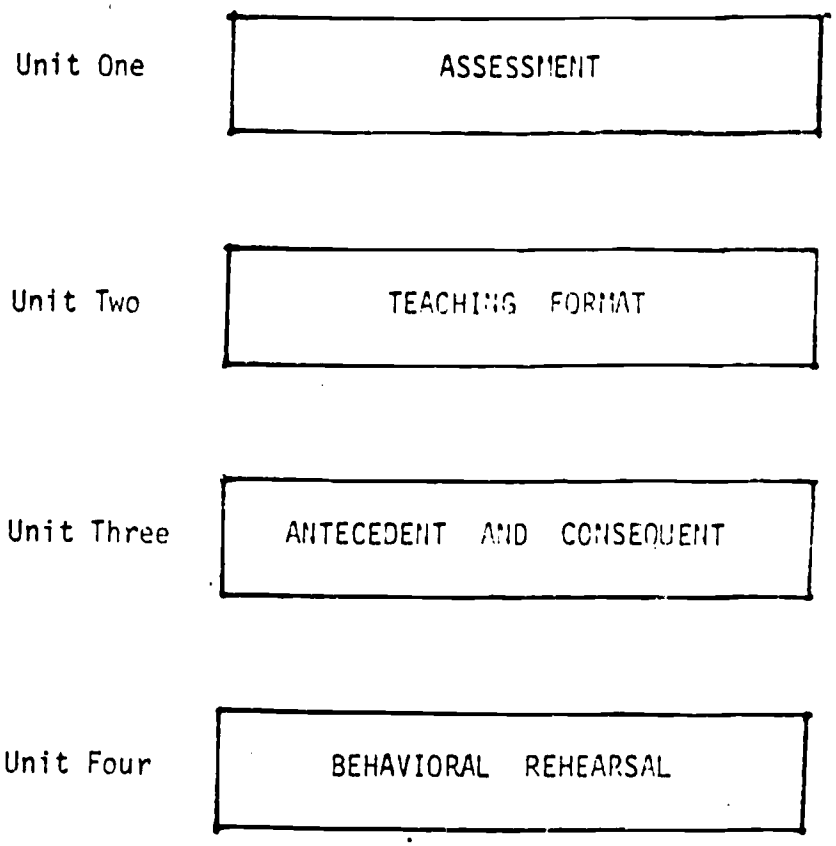
classroom teaching, while the mother would leave the room and receive a unit of instruction. After the instruction period, the mother would return to the classroom and assist with various activities until class ended at 11:30 a.m. On following weeks, the procedure would be repeated until parents had received all four units of instruction.

The Teaching Tasks

In choosing the type of task which the mother would teach to the child, three criteria were used: (1) Each task must be from the same developmental area and one which was initially assessed at a 1 or 0 level, i.e., the child was unable to do the task unless he was physically guided through; (2) The behavior must be in the teaching range of the child as determined by the assessment procedure; (3) The behavior should be part of a developmental sequence so that, if a child completely learned the task during the parent instruction, teaching could proceed logically to the next developmental step. For example, parents of children in the preschool program initially were told to teach their children on a match-to-sample task of two items. Once the child has mastered the task, the next developmental step can be implemented by increasing the number of items the child was required to match.

Program Content

The content of the parent training program is delivered in four instructional units. To ensure consistent content delivery to each parent, each unit was carefully summarized into point outline form. As each point in the unit was covered for all parents, it follows that the information imparted was constant throughout the whole program. During the instruction


Unit One
ASSESSMENT
Unit Two
TEACHING FORMAT
Unit Three
ANTECEDENT AND CONSEQUENT
Unit Four
BEHAVIORAL REHEARSAL

time, parents were encouraged to ask any questions about the content area which needed clarification or elaboration.

The following is a brief description of the program units.

Unit I - Assessment

Unit I was designed primarily to meet objective (a) mentioned previously, i.e., to provide parents with information about their child's assessment. The rationale and nature of the school based assessment procedures and its implications for teacning were explained in detail.

The unit contains such information as the difference between normative and criterion-referenced assessment procedures. It was emphasized that normative measures yield information that is valid only when scores on standardized tests are compared to the reference group. Normative procedures offer a score that has very little direct implication for teaching.

Criterion-referenced assessment, on the other hand, yields a performance measure on a specific task relative to an externally established standard. No comparisons to other individuals or groups need be made.

Once these points had been covered, it was then explained how a criterion-referenced assessment procedure utilizing various levels of prompting and guidance could be used to establish basal and ceiling levels and a teaching range in five developmental area. It was also pointed out that the information yielded by the assessment procedures had direct implications for teaching specific behaviors in developmental sequence.

Unit II - The Teaching Format

Unit II offered a detailed explanation of the teaching format. Definitions of each teaching level were covered and a modeled instructional sequence at each level was demonstrated to each parent.

In addition, points such as the cumulative nature of prompting, fading of prompts within and between levels, criterion for shifting and recording data were also explained in detail.

Unit III - Antecedent and Consequent Conditions

Unit III was formulated to assist parents in establishing appropriate antecedent and consequent conditions to facilitate an optimal learning situation.

Several points were emphasized. First, parents were instructed in the correct use of the attention signal and remedial procedures for directing the child's attention. Second, parents were directed in the correct method of offering an instruction. Consistency and simplicity of instructions were discussed as were the appropriate use of models during an instructional sequence.

Instruction on consequent conditions for correct responses included definitions and examples of primary and secondary reinforcement, continuous and intermittent reinforcement, and the contiguity factory. Appropriate implementation of each type of reinforcement was also covered.

Parents were simply told to ignore incorrect responses during a teaching session.

An explanation of the backward chaining concept completed Unit III. Parents were taught how behaviors can be broken down into component steps,

and each step taught in backward sequence from the terminal goal utilizing teaching levels with suitable antecedent and consequent conditions.

Unit IV - Behavioral Rehearsal

The final unit required actual practice by the parent in securing the child's attention and teaching at all levels of prompting. For this purpose the instructor served as a model for the child.

When a teaching or attending error was made, direct feedback was given to the parent as to the nature of the error. The correct procedure was then modeled for the parent and a correction trial followed. A criterion of three consecutive successful teaching trials at each level was employed before parents moved to the next teaching level.

An adequate analysis of this parent training program is presently being made and will be available upon request after September 30, 1976.

discriminative stimuli through the effects of the consequent stimuli. The discriminative stimulus exerts control over a response by signalling or cueing the probability of a reinforcing event following a response as well as conveying information regarding essential components of the teaching material and the type of response which is appropriate.

Components within Direct Teaching Model

The Direct Teaching Model employs the use of stimulus and response prompts (Becker, Engelman, & Thomas, 1975) in a shaping and fading procedure to assist the child attending to the cues and making the appropriate response demanded by the learning situation. These prompts consist of verbal and physical prompts and minimum to moderate levels of physical guidance to put the child through the desired response.

Definition of the teaching components:

Antecedent Conditions or Teaching Behaviors

1. Instruction: Any verbal cue given to the student directing him/her to engage in a specified behavior; for example, "Show nose" or "Tap the table."
2. Model: Any verbal or nonverbal demonstration of a specified behavior. An example of a verbal model would be the teacher emitting a sound she wants the child to imitate. An example of a nonverbal model would be the teacher placing a block in a cup.
3. Verbal Prompt: Any verbal directive, following an instruction, which provides further cues directing the child to attend to particular cues and/or engage in a specified behavior. The verbal prompt may be an expanded or shortened instruction. For example,

if the initial instruction is "Put the block in the cup," a verbal prompt might be "You do it Ryan. Put the block in the cup" (expanded instruction); or "You do it" (shortened instruction).

4. Physical Prompt: Any gesture to provide further cues directing the child to attend to particular cues and/or engage in a specified behavior; for example, gesturing to put the block in the cup or pointing at a block.
5. Physical Guidance - Level 2: Directed physical contact initiated by the teacher which facilitates the student's perception of material or performance of a specified behavior. Level 2 includes teacher one-finger guidance for a maximum of 30 seconds. An example would be a teacher placing one finger on the back of a student's hand to guide a circular motion to complete a circular drawing.
6. Physical Guidance - Level 1: Directed physical contact by the teacher which facilitates the student's performance of a specified behavior. Level 1 includes teacher guidance greater than level 2 for a maximum of 30 seconds. This may include one or both of teacher's hands to direct the child's attention or "put the student through" the desired response. An example would be teacher holding the student's hand while guiding a circular motion to complete a circular drawing.

Combining Response Prompts into Teaching Levels

Response prompts are combined into levels of teaching or instruction. The combination of prompts within levels is as follows:

SLIDE PRESENTATION

	Screen 1		Screen 2
	COMPONENTS	TEACHER BEHAVIOR	EXAMPLES
TEACHING LEVEL 1	(a) Instruction (b) Verbal Prompt (c) Physical Prompt (d) Physical Guidance 1	(a) Say "Put the block in." (b) Say "You do it." (c) Point to block and slot. (d) Guide child's hand with full-hand support.	Slide 1 - Shows setting event - Instruction. Slide 2 - Shows setting event - Verbal prompt - and physical prompt. Slide 3 - Shows mother using full-hand guidance and task completion by child. Slide 4 - Mother recording child's performance.
	COMPONENTS	TEACHER BEHAVIOR	EXAMPLES
TEACHING LEVEL 2	(a) Instruction (b) Verbal Prompt (c) Physical Prompt (d) Physical Guidance 2	(a) Say "Put the block in." (b) Say "You do it." (c) Point to block and slot. (d) Guide child's hand with one-finger support.	Slide 1 - repeat Slide 2 - repeat Slide 3 - Shows mother using one-finger guidance and task completion by child. Slide 4 - repeat
	COMPONENTS	TEACHER BEHAVIOR	EXAMPLES
TEACHING LEVEL 3	(a) Instruction (b) Verbal Prompt (c) Physical Prompt	(a) Say "Put the block in." (b) Say "You do it." (c) Point to block and slot.	Slide 1 - repeat Slide 2 - repeat Slide 4 - repeat
	COMPONENTS	TEACHER BEHAVIOR	EXAMPLES
TEACHING LEVEL 4	(a) Instruction (b) Verbal Prompt	(a) Say "Put the block in." (b) Say "You do it."	Slide 1 - repeat Slide 4 - repeat
	COMPONENTS	TEACHER BEHAVIOR	EXAMPLES
TEACHING LEVEL 5	(a) Instruction	(a) Say "Put the block in."	Slide 1 - repeat Slide 4 - repeat

Insert Slide Presentation

Slide presentation illustrates the components within each teaching level with an accompanying verbal and visual example of each.

Emphasis on Fading of Prompts between Levels

Level 1 includes initial instruction, verbal and physical prompts, and hands on guidance. Introduction of additional levels (2-5) indicates the cumulated removal of the last level of prompting or guidance until the child is responding spontaneously at a level 5.

Emphasis on Fading of Last Prompt within Each Level

Each level of instruction is presented five times. The teacher gradually, over the five trials, fades the last level of assistance or prompt included in the level. Hence, the last trial of any one level is almost identical to the first trial of the next level. An example is the fading over five trials of physical guidance (1) within level 1. Initially at level 1 the teacher is using hands-on guidance to put the child through the response. Gradually, guidance is reduced until the fifth trial when physical guidance level 2, or one-finger guidance begins.

It is difficult to portray a sequence of teaching trials showing fading of a prompt or guidance. Because of this we have staged a short sequence showing the fading of a physical prompt during five trials in an attending instruction. The purpose of this videotape segment is to illustrate the fading of the right hand attending prompt. The hand signal is initially used to draw the child's attention to the teacher's face. Once the child is attending consistently, the hand signal is gradually faded out. In addition, you will notice the use of different verbal

Slide A_3

	COMPONENTS	TEACHER BEHAVIOR
TEACHING LEVEL 1	(a) Instruction	(a) Say "Put the block in."
	(b) Verbal Prompt	(b) Say "You do it."
	(c) Physical Prompt	(c) Point to block and slot.
	(d) Physical Guidance 1	(d) Guide child's hand with full-hand support.

Slide A_4

	COMPONENTS	TEACHER BEHAVIOR
TEACHING LEVEL 2	(a) Instruction	(a) Say "Put the block in."
	(b) Verbal Prompt	(b) Say "You do it."
	(c) Physical Prompt	(c) Point to block and slot.
	(d) Physical Guidance 2	(d) Guide child's hand with one-finger support.

Slide A_5

	COMPONENTS	TEACHER BEHAVIOR
TEACHING LEVEL 3	(a) Instruction	(a) Say "Put the block in."
	(b) Verbal Prompt	(b) Say "You do it."
	(c) Physical Prompt	(c) Point to block and slot.

Slide A_6

	COMPONENTS	TEACHER BEHAVIOR
TEACHING LEVEL 4	(a) Instruction	(a) Say "Put the block in."
	(b) Verbal Prompt	(b) Say "You do it."

Slide A_7

	COMPONENTS	TEACHER BEHAVIOR
TEACHING LEVEL 5	(a) Instruction	(a) Say "Put the block in."

instructions to signal a locking response by the child. All the verbal attending instructions are of the same general class and are designed to have the child attend on instruction. Varying the set of instructions is done for purposes of generalization to other teacher and caretakers.

- *insert V.T.R. segments of teacher (Linda)*
- *direct attention to gradual fading of hand signal*
- *use in teaching other skills*

Emphasis on Cumulative Nature of Prompts

The prompts within the Direct Teaching Model are presented cumulatively. This means the prompts are presented as closely as possible after each other or, when appropriate, together. For example, it is not possible to present an instruction and verbal prompt in any other manner than one following the other. However, physical prompts can be provided at the same time as verbal prompts. Also, physical prompts and physical guidance can be presented together, where one hand guides and one hand prompts.

The cumulative nature of prompts at a verbal and physical (perceptual) level and guidance (motor cue) act as mediators for the desired response. Presently, we are planning research to investigate the effectiveness of verbal, perceptual and motor cues as mediators within the Direct Teaching Model when presented in isolation or cumulatively. Within the Direct Teaching Model, prompts are always presented following a discriminative signal (either attention or task instruction) and faded out in a gradual sequential manner as soon as possible.

We have seen the individual components of each teaching level on slides and how they are grouped within each teaching level. Now to give a better representation of the cumulative nature of the Direct Teaching Model for both a sequential and temporal relationship, we will show some videotape segments of actual teaching at each level.

Order of Introduction of Teaching Levels

The Direct Teaching Model begins with level 1 instruction and the order is sequential to level 5. The reason for this is to optimize the learning conditions for greatest success through reward of correct student responses.

The one exception to this order is when a student exhibits the desired behavior at a five level of prompting although the instructional sequence suggests teaching at a lower level. Here, for example, when teaching at level 1, the student exhibits the desired response following the initial instruction before additional prompts were given. This indicates performance of the behavior at a five level. When this occurs seven consecutive times for one behavior, it is assumed to be stable at a five level instruction and is placed on review.

Teaching Procedure

The criterion for shifting from one level to another is five consecutive correct responses. If the student displays an incorrect response at any level, the instructor immediately drops back to the previous level of instruction and continues to instruct there until five consecutive correct responses are obtained.

Teachers and parents record student performance following each instructional trial. Recording is done on the MIMR Training Session Data Sheet developed by Dr. G. Martin from the University of Manitoba.

Show Slide of MIMR Training Session Data Sheet

Recording Correct Child Responses

Child correct responses are recorded by indicating the number of the teaching level used. For example, if the child responds correctly at level 1 instruction, a number 1 is recorded in the appropriate box on the data sheet. A similar recording procedure is used for all teaching levels.

Recording Incorrect Child Responses

Child incorrect responses are recorded by an X or O in the appropriate column for individual trial.

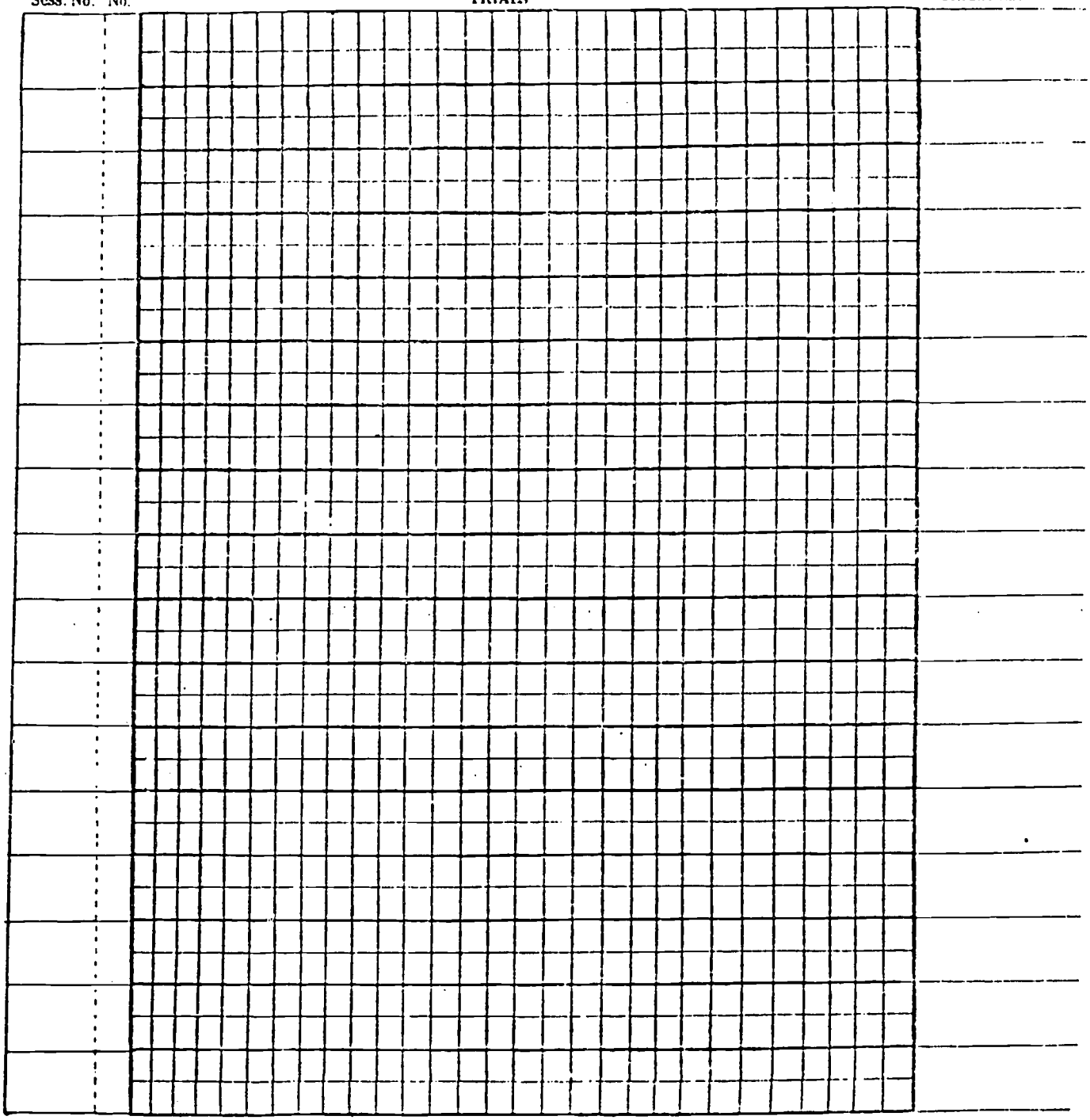
This recording system allows for ease of recording and an ongoing record of child progress through the levels of teaching. Using the criterion for shifting up and down within the five levels when recording, the teacher knows exactly where she has been and what to do next.

Slide Insert

MIMR TRAINING SESSION DATA SHEET

Date & Sess. No. | Step No. | STUDENT: _____ | TRAINING ITEM: _____ | Teacher Comments:

TRIALS



Peculiarities of Prompts/Comments: _____

Slide A_9

Slide example of MIMR Data Sheet with examples of shift up and shift down:

1	1	1	1	1	2	2	2	2	2	3	X	2	2	2	2	2	3	3

/ / Five consecutive correct responses at level 1, shift up to level 2.

/ / Five consecutive correct responses at level 2, shift up to level 3.

/ / One incorrect response at level 3, shift down to level 2.

/ / Five consecutive correct responses at level 2, shift up to level 3.

PROGRAM CONSTRUCTION AND IMPLEMENTATION

Kathy Daly

At this point I will explain how the teaching techniques just described by Alex are developed into specific programs. Parents use these programs in teaching their children at home.

For every program to be taught a behavior target is defined. The rest of the program describes to the parents the how and where of teaching the task to their child. To do this each program is divided into several distinct sections. I will briefly describe each of these sections which combined provide the parents with a complete program.

1. Behavior Target

This is a description of the behavior or skill the child will be able to do after completing all the steps in a program. There are behavior targets in each of the five developmental areas: cognition, self-help, motor, language, and socialization. *(Slide 5)*

Examples:

COGNITION: The child will place one object in a four-inch diameter container within five seconds of the verbal command "Put in."

SELF-HELP: The child will raise a glass to the mouth and drink

unassisted from it using two hands following the verbal command "Drink . . ."

MOTOR: The child will crawl ten feet with a reciprocal pattern (maintaining target behavior posture) within ten seconds of being offered a toy and given the command "Come here."

LANGUAGE: Imitation of gross motor behavior. The child will imitate your model within five seconds for the following actions: arms up, tap table, wave, clap hands.

SOCIALIZATION: The child will respond to his own name by stopping an activity and turning his head in the direction of the person saying his name within five seconds.

2. Baseline

Immediately before implementing a teaching program, the child's ability to complete the target behavior is assessed. The target behavior is assessed at teaching level 5 for five trials. If the child completes it 80% of the time at a level 5, that program would not be implemented and baseline for the next target behavior in the developmental sequence would be taken. If the child does the target behavior correctly less than 80% of the time, the program would be implemented.

3. Setting

The setting is a suggested location and time that creates the

most optimal learning situation in teaching a child a particular skill. Two types of settings are most commonly used for teaching.

a. Natural settings - These are chosen for behaviors which occur in specific locations and times (e.g., toileting, dressing, eating). Natural settings give rise to appropriate practice and a daily routine of skills taught. Here the child's learning occurs in normal situations throughout the day rather than in places and at times unfamiliar to the child. *(Slide 6)*

b. Instructional settings - These are periods of time set aside during the day to teach specific skills that have programs (e.g., language and cognition tasks). It is usually recommended that these teaching times occur in an area as free of distractions as possible, with the teacher sitting facing the child in a position where eye contact is easily maintained. *(Slide 7)*

4. Steps

Steps are a finer breakdown of the behavior target. Many of the behavior targets are too large to be taught all at once and are, therefore, analyzed and broken down into several smaller steps which are taught consecutively and individually. Each step that is taught incorporates what was learned in the previous ones. Together, all of the steps will form the whole target behavior. *(Slide 8)*
Here is an example of a behavior target that has been analyzed and broken down into steps for teaching.

PROGRAM STEPS

Behavior Target - Child will place two hands on glass, raise it to mouth and drink unassisted following the verbal command "Drink - - -."

Step 1 - Child will tilt glass and drink from it once it is touching his lips.

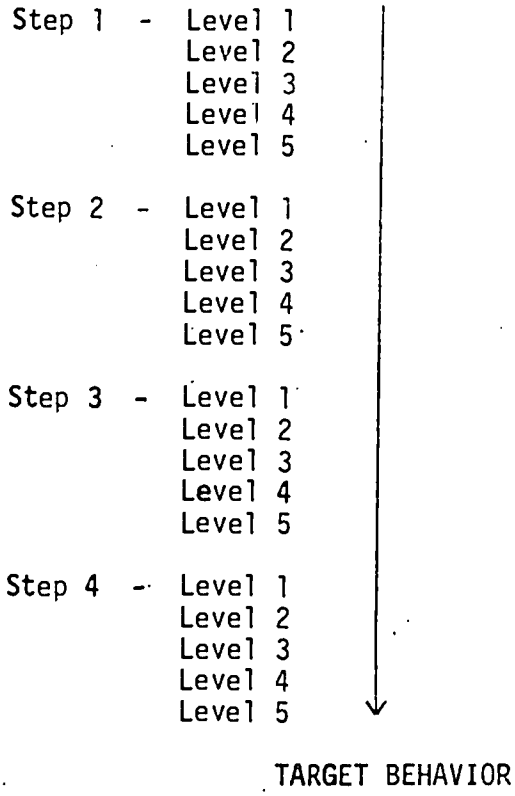
Step 2 - Child will bring glass to mouth from two inches away, tilt glass and drink from it.

Step 3 - Child will raise glass to his mouth from the table and drink from it.

Step 4 - Repeat behavior target.

5. Procedure

This is the part of the program where teaching is outlined in accordance with the five levels just described by Alex. For each step in a program, the teacher works through the five levels of prompting and guidance until criterion is reached before continuing to the next step. Criterion is five consecutive trials at a level 5. Sometimes the parent is teaching below a level 5, and the child is responding at a level 5 before additional prompting can be given. If this happens seven times in a row criterion is considered reached. (slide 9)



6. Scheduling

We ask our parents as teachers to do three sessions a day, if possible. To prevent teaching situations from becoming aversive,

we have established a guideline for when sessions should be stopped. If the child completes two level changes either up or down, parents are asked to stop the session. Other than this, parents may stop the session whenever they wish.

7. Review

Once the child completes the target behavior five consecutive times at a level 5, it goes on review. The target behavior is assessed once a day at a level 5 for five days. This is to be sure the child has learned the behavior to stability. Over the five days, the child must get 80% correct or the behavior will be retrained -- starting at a level 5.

8. Maintenance

Behaviors that have been taught and reviewed then go on maintenance. They are tested once a week for ten weeks. Again 80% correct is required or the behavior returns to review.

I will now show you 3 illustrative examples of different children's progress through programs that are designed and implemented as I have just described. The parents are responsible for teaching the children and recording their progress in all of these programs. They were visited by a home teacher on a weekly basis. The home teacher assists the parents in improving their teaching technique and overcoming any problems that arise. As with any program that involves individuals,

many ups and downs are encountered in its implementation. These can be due to internal causes, problems with the program that were unforeseen, or external causes such as illness.

Example 1 (slide 10)

Explanation of the graphic layout

(a) steps

(b) levels of performance

(c) time

(d) review

Gross Motor Imitation Program - Nathan

With the younger children, both in the home program and at the school, who have shown no ability to imitate sounds, we have implemented a series of 5 programs to facilitate imitation of sound and words leading eventually to labelling. This program and the next I will be discussing are the second and third in the sequence.

Behavior Target - The child will imitate the mother's model within 5 seconds for the following actions: (1) arms up, (2) tap table, (3) wave, (4) clap hands.

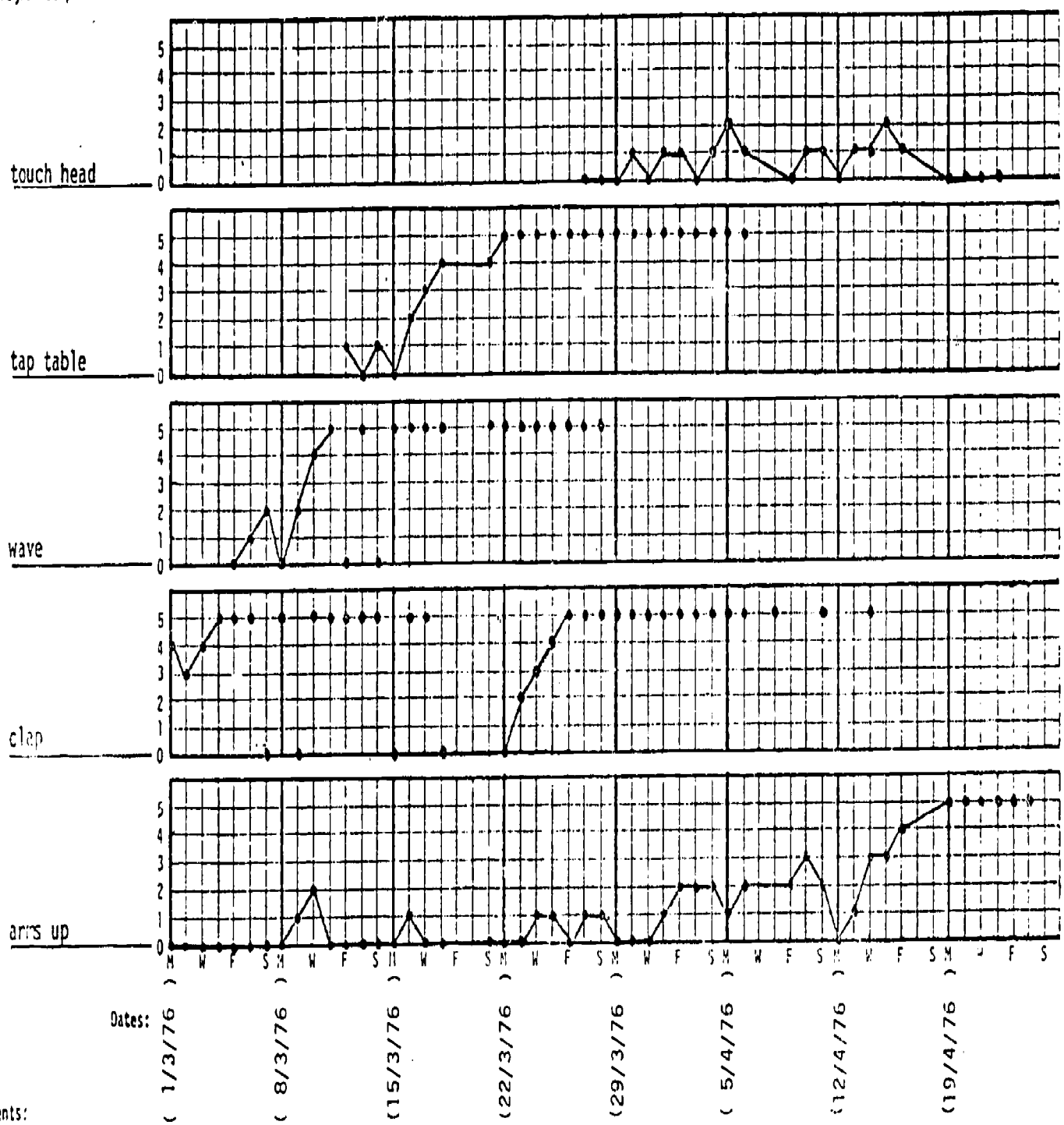
There are no steps in this program. Two actions are taught at once and presented to the child randomly. This is to prevent perseverance of the child on one activity and facilitate the child's learning to discriminate.

Nathan advanced steadily and quickly on this program, maintaining what he learned over a long period of time. This is indicated by the review period for each behavior following the reaching of criterion. One item had to be retrained but was maintained following this. Nathan

TEACHING SESSION GRAPH

Teacher(s) Mother GROSS MOTOR IMITATION-PROGRAM Student Nathan

Program Step Numbers:



Comments:

Starting date: March 1, 1976

42

has now advanced to the next program in the developmental language sequence, fine motor imitation, and is making good progress there.

Example 2 (slide 11)

Fine Motor Imitation Program - Randy

Behavior Target - The child will imitate the mother's model within 5 seconds for the following actions: (1) stick out tongue, (2) point to nose, (3) open mouth, (4) touch tongue.

Again, there are no steps to this program and two behaviors are taught together being presented in a random sequence.

Randy was progressing slowly but steadily up until the week of May 24, 1976. His performance then began to decline. This is thought to be due to the similarity of the physical prompts used in open mouth and touch tongue. Randy was unable to discriminate the two actions and quit doing both. His attending during this program also declined. The action, touch tongue, was stopped and replaced by blow. Randy's decline in performance on this program was not seen in other programs he was working through (slide 12).

Example 3 (slide 12)

Put in Program - Randy

Behavior Target - The child will place one object in a 4-inch diameter container within 5 seconds of the verbal command 'Put it in' following a model.

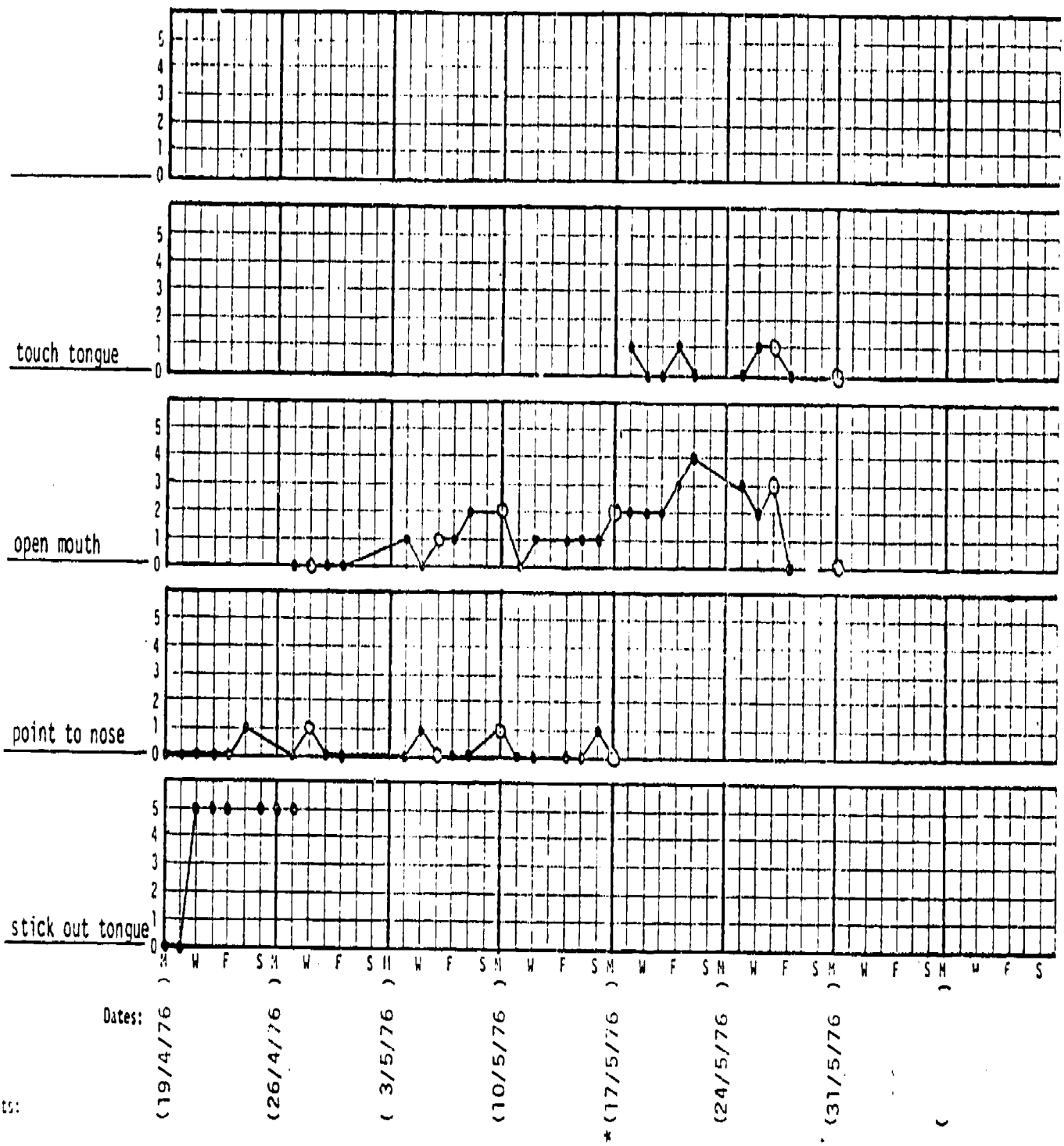
This program had 3 steps to reaching the behavior target. They are as follows:

Step 1 - The child will place one object in an 8-inch diameter

TEACHING SESSION GRAPH

Teacher(s) Mother FINE MOTOR IMITATION PROGRAM Student Randy

Program Step Numbers:



Comments:

Starting Date: April 19, 1976

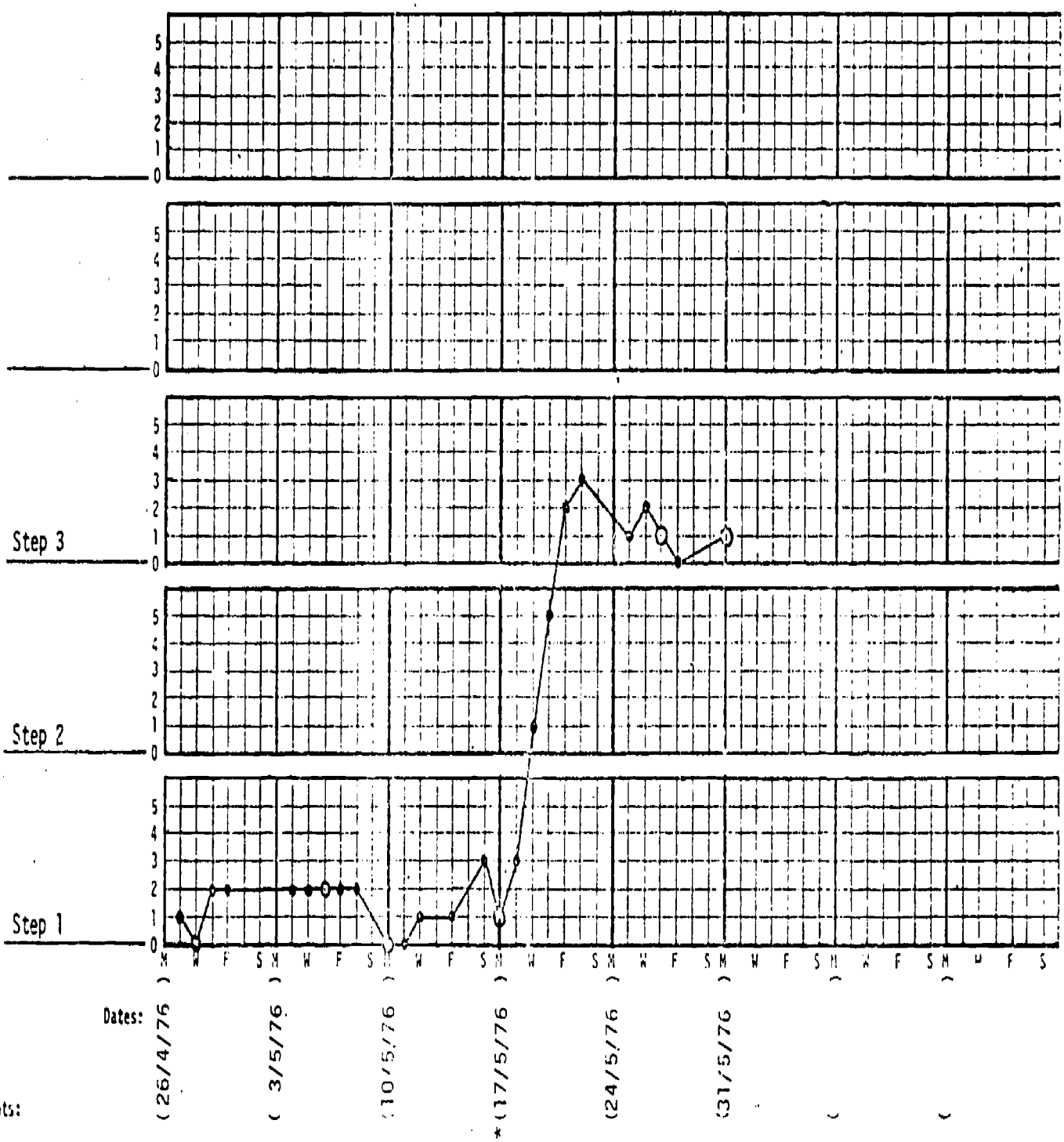
°Taping days

*Inservice date: May 17, 1976

TEACHING SESSION GRAPH

Teacher(s) Mother PUT IN PROGRAM Student Randy

Program Step Numbers:



Comments:

Starting date: May 27, 1976

°Taping days

*Inservice date: May 17, 1976

in' following a model.

Step 2 - The child will place one object in a 6-inch diameter container within 5 seconds of the verbal command 'Put it in' following a model.

Step 3 - The child will place one object in a 4-inch diameter container within 5 seconds of the verbal command 'Put it in' following a model.

These 3 steps allowed Randy to develop an understanding of the concept 'put in' before working on the fine motor accuracy needed to accomplish it in this and other situations (eg. put in peg).

Randy did very well in attaining the behavior target especially following an inservice with his mother using video tape feedback. We spent most of this inservice trying to improve her presentation of instructions and prompts to Randy.

As well as programming in the area of language and cognition, examples of which you have just seen, parents are working on programs in the motor, self-help and socialization areas.

Each parent in the home program has participated in a parent training program immediately following the original assessment. It instructs them in using the progressive levels of prompting and guidance to teach behaviors to their children.

As they teach their children, parents continue to participate in an ongoing training program aimed at increasing their teaching effectiveness. To assist us in this ongoing training program, A Behavior Assessment Scale is being developed. It allows us to assess parental effectiveness in the use of the developmental teaching model and give them specific feedback on their teaching skills.

PARENTAL TEACHING EFFECTIVENESS

Alex Hillyard

Parental training is a major component of the home program to ensure the most effective use of the Direct Teaching Model and developmental programs. Our present home training program, especially in monitoring parent teaching, is at an observational and formative stage. We learn a considerable amount from the parents not only from observing their ability to carry out programs but also from general feedback about the model and teaching programs. Through such feedback and data collection we are proposing several investigations of parent teaching in the areas of parent education and instruction while also gathering research information in the area of child development and effective teaching models. We are assuming at this time that correct implementation of the behavioral teaching model, developmental teaching programs, and data recording will assist parents in creating the most optimal learning environment for their children.

To ensure this Kathy visits the parents each week and discusses their teaching and child's development through each program. Kathy observes parent teaching and gives feedback to the parents concerning their use of the Direct Teaching Mode. and program implementation.

In addition to verbal feedback, modeling, and behavioral rehearsal the use of videotape replays are employed. Frequently, each parent is videotaped while teaching their child one or two programs.

This videotape is analyzed using the Behavioral Analysis System (BAS) for a Direct Instruction Teaching Model.

Behavioral Analysis System

The BAS is an observational instrument devised by the Early Education Project to observe teaching/student behaviors during direct teaching sessions. Analysis of videotaped sessions using this observational system allows one to compare teaching against the desired implementation of the Direct Teaching Model and teaching programs.

This analysis is used for feedback to the parents on the nature of their teaching, use of setting, and data recording. Kathy uses the actual videotaped segments and data obtained from the Behavioral Analysis System to emphasize correct and incorrect implementation of the teaching model, teaching programs, recording procedures, and teaching settings.

An example of this process and the data obtained from the Behavioral Analysis System to be used for parent feedback will be shown for one family.

Family Inservice Using the Behavioral Analysis System and Videotape Feedback

Weekly videotaped teaching sessions were obtained for one family. Kathy has discussed and shown graphic representation of the child's progress through two programs.

Weekly videotape recording was done for six weeks with the use of the Behavioral Analysis System and videotape feedback following the third week. During the first three weeks parents received verbal feedback

concerning the nature of their teaching and program implementation. Behavioral rehearsal and modeling were used during this period. However, videotape feedback and Behavioral Analysis System data were not employed until after the third week.

Our primary purpose in using such a procedure was to see if there was consistency or stability of parent teaching patterns during the first three weeks. Then on the basis of parent teaching it would be decided which aspect or component of the teaching situation to change in an attempt to bring about the most effective change, namely correct implementation of the model and increased child learning.

The Behavioral Analysis System results of parent teaching show parental effectiveness in implementing the attention and instructional components of the teaching model. The results of the Behavioral Analysis System for Family 1 indicated the following general results about parent teaching (a) high frequency of attending cues were presented incorrectly, and (b) high frequency of instructional presentations at levels 1 and 2 were procedurally incorrect.

Following the third week an inservice using verbal feedback, modeling, behavioral rehearsal and videotape feedback emphasizing these two points was done by the home teacher.

To initially observe and illustrate changes in parent teaching over the five weeks, we have broken the attending and instructional components of the teaching chain into the following three dependent measures.

(1) Percent Correct Procedural Implementation by the parent for antecedent and consequent conditions. Correct presentations are attending and instructional levels where there are no deletion or addition component errors and no time errors of allowing more than a one-second interval between introduction of components or not allowing the desired five seconds for the child to respond.

Correct procedural implementation for consequence conditions is presentation of the appropriate teacher response following either a child correct or incorrect response to the task instruction.

Child incorrect responses are followed by a parent no consequence condition and a presentation of a new trial.

Child correct response is followed by positive feedback (both positive nondescriptive and descriptive and a social and/or consumable reinforcer).

(2) Percent child correct responses to total number of parent teaching levels implemented correctly.

Here we are concerned with how many of teaching levels procedurally correct were followed by child correct responses.

(3) Percent child correct responses to total number of presentations by the parent. How many of the parent presented trials were responded to by the child with the correct response.

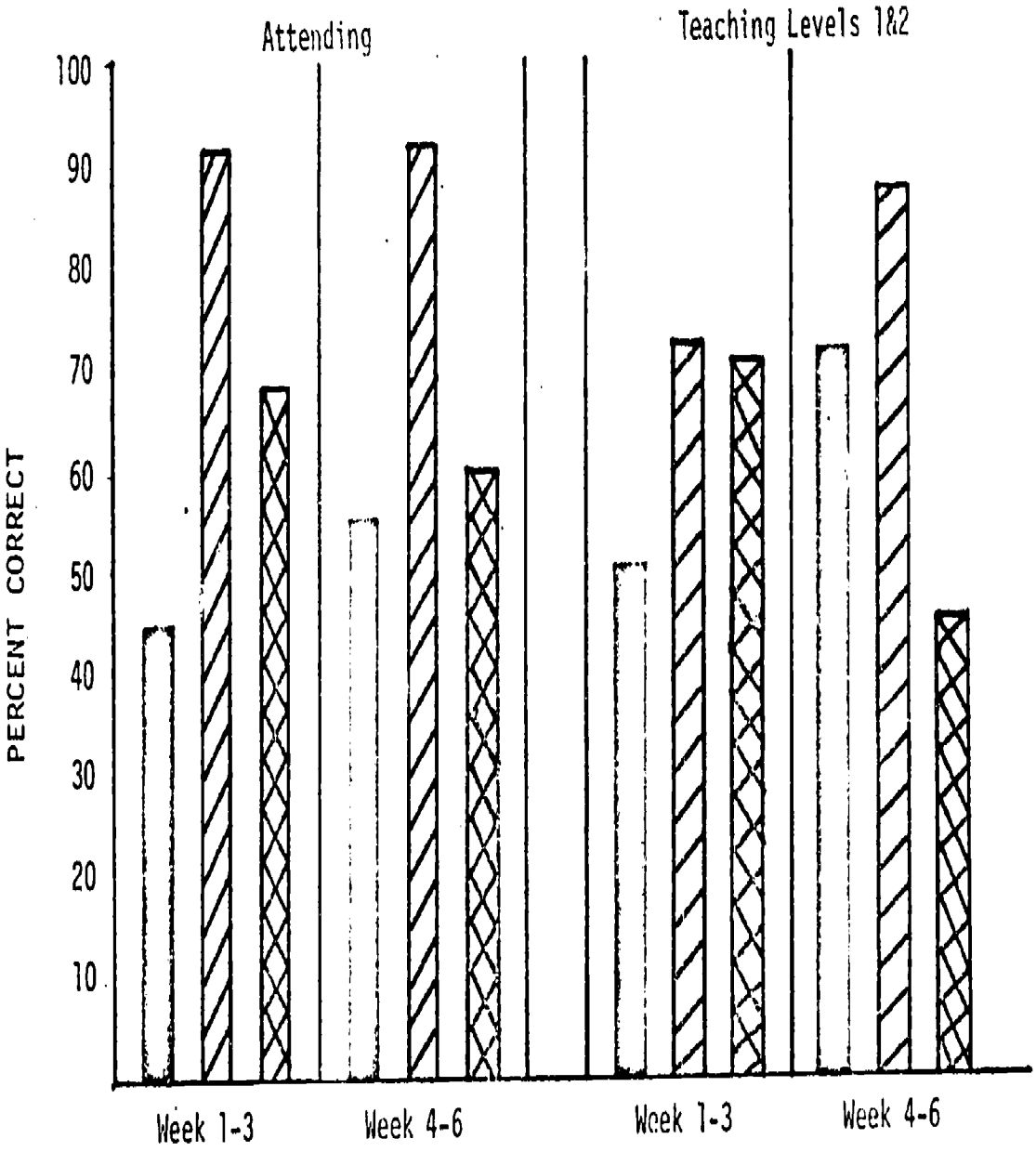
These dependent measures are obtained from a two-step progress. Initially, parent teaching is observed by raters trained in the use of the Behavioral Analysis System. Parent and child behaviors are coded for their frequency and order under the general categories Antecedent Conditions, Student Response, Consequence Conditions.

To initially observe and illustrate changes in parent teaching over the six weeks we have broken the attending and instructional components of the teaching chain into three dependent measures.

Slide insert

PARENT-TEACHING SESSION

FAMILY 1



% Presented Procedurally Correct

% Child Correct to Total Procedurally Correct

% Child Correct to Total Presentations

Secondly, the parent teaching behavior as coded on the Behavioral Analysis System is compared to both the teaching program and MIMR Data Recording Sheet. The program sheet indicates the correct use of instructions, verbal prompts, etc. while the recording sheet indicates at what levels of instruction each observed trial was instructed.

In addition, the nature of implementing the teaching levels both sequentially and temporally are observed and coded for possible errors.

As each parent teaching session is approximately three minutes long, we only observe a few teaching trials each week. This observation process is a micro look at parent teaching for two sessions a week when the parent may have up to 20 sessions per week. Thus, our observation may not truly reflect parent teaching, and we caution against over generalizations to all their teaching sessions. This does, however, provide us with an instructional and feedback tool for inservice on the procedural nature of the components and teaching levels observed.

Family 1

Our six observations with Family 1 did not yield teaching at each of the five levels of instruction. The teaching observed was, except for a few presentations, at levels 1 and 2. These teaching trials at level 1 and level 2 as well as for the attending component have been grouped together to represent one general measure for the weeks prior to and a second general measure for the weeks following the inservice.

Attending Component

During weeks one to three we observed approximately 50% of the attending signals were procedurally correct. Parent errors increasing the attending signal were evident in the inappropriate use of the hand signal to draw the child's attention to the teacher or task material and inappropriate use of the remedial procedure to facilitate the child's attention when not attending.

The child responded to approximately 95% of the attending signals initiated correctly by the parent. Child correct responses to incorrect and correct presentation was approximately 68%. This indicates that a percentage of correct child responses were made to incorrect presentations by the parents.

The inservice for Family 1 consisted of parent instruction on the use of (a) attending signals, and (b) use of a remedial procedure when child fails to attend. Following the inservice during weeks four to six we observed an increase over weeks one to three in the percent of procedurally correct attending signals by the parent (.55). Child responses to correct parent presentation of the attending signal remained the same (.92), while total correct responses to the total parent use of the attending signal dropped (.60).

Following the inservice we observed an increase in the amount of correct presentations by the parent when using the attending signal with no noticeable decrease in the percentage of child responses to correct presentation by the parent.

Teaching Levels 1 and 2

Instructional levels 1 and 2 during weeks one to three were observed to be procedurally correct approximately 50% of the time. The child responded with a correct response to approximately 73% of parent correct presentations. Child correct responses to total presentation of teaching levels 1 and 2 were approximately 76%.

The Behavioral Analysis System analysis of teaching during weeks one to three revealed the following errors. (1) Absence of verbal and physical prompts. Here the parents were giving the initial instruction and going directly to guidance without including additional prompts at level 1 and 2. The concern here is, although such teaching at level 1 and 2 may not reflect lowered child performance, it may hinder the upshift to the next teaching levels. Hence, the child would be exposed to new mediators previously not exposed to and this may create a slower rate of progress through the levels (1-5) or not facilitating the movement from one level to another. (2) Time errors, where the parent was allowing too much time to elapse between components at levels 1 and 2. The suggested rate is to have no more than a one-second time interval between components presented.

Following the inservice during weeks four to six we observed parent instruction at levels 1 and 2 to be procedurally correct approximately 72% of the time and child correct responses to this to be approximately 87%. Overall child correct response to total presentations was approximately 45%. There is a noticeable increase during weeks four to six of parent instructional procedures and child correct responses to correct procedures.

The most noticeable and exciting change we observed was in the child's performance in the "put in" program following the inservice. Prior to the inservice he was having difficulty moving beyond a level 2 instruction. Following the inservice he quickly moved through levels 3-5. One of the possible reasons for this, we suggest, is the increased parent use of verbal and physical prompts at level 1 and level 2. There are mediators used at level 3, while verbal prompts are used at level 4. This introduction may have facilitated the increased rate and transition from level 1 and 2 to levels 3, 4, and 5.

We are planning additional research and observation of parent teaching for purposes of inservice feedback to the parents and general research in the area of paraprofessional training. Once the parents feel comfortable with the model and procedures and are implementing them with a high degree of accuracy, additional investigation of the teaching relationship is planned to see if there is a general optimal teaching relationship between levels of procedural efficiency, number of trials per session, and correct responses. Possibly a relationship may emerge where some degree of procedural efficiency is sacrificed in favor of increased trial presentations or number of trials per session is decreased in favor of fewer, but a higher, percentage of procedurally correct teaching levels.

CLASSROOM PROJECT

Linda McDonald

Introduction

The classroom program is located in Mayfield School, an elementary school in the city of Edmonton. Our project occupies two of the classrooms on the ground floor. This slide shows the back half of

[Slide 1. Classroom]

one of the classrooms. Both classrooms are fairly standard, although one has a small washroom at one end. We supply all of our own toddler-size furniter plus humidifiers. Each classroom has a capacity for two groups of eight children (one in the morning, 9:00-11:45; one in the afternoon, 1:00-3:00). Currently there are two groups of eight children in the morning and a third group of three in the afternoon. Two teachers are assigned to each morning classroom and the four teachers share the afternoon program with two teachers teaching while the other two write programs, do graphing, etc. Morning classrooms run five days a week and afternoon classes four. By the fall we anticipate two afternoon programs (one toddler, one preschool), bringing the total number of children worked with at one time to 32.

The children are placed in one classroom or the other according to their functioning level as assessed by the Portage Assessment previously described by Kathy. The toddler classroom is comprised of children

[Slide 2. Toddler juice]

between the ages of 2 1/2 and 5 (average age 3).

In general, these children do not consistently mimic sounds, are not toilet trained and do not walk without support. The preschool

[Slide 3. Preschool coats on]

classroom is comprised of children between the ages of 3 and 5 (average age 4). Approximately half of the preschool children are toilet trained, they all walk unassisted, and they all use sounds and some words expressively.

The teaching duties in the classroom are shared by the children's parents. The parents spend one day a week at the school assisting the teachers. Initially, the parents go through a parent training program to be described later by Bill. Upon completion of training, they are allowed to assist the teachers in conducting the daily sessions. In addition to the parents, we have volunteers, practicum students, and institutional staff helping out (four of our children are from a residential institution). You may have noticed the "institutional" slide in the collage.

All children entering the classroom project were tested on the Portage Assessment immediately upon entering the program. Sessions in the areas of Language, Cognition and Gross Motor have been set up based on the results of the Portage Assessment and we are in the process of programming in the areas of Self-Help and Socialization. We use the same program-writing format as Kathy previously described.

I am going to discuss the classroom program in two sections. In the first section I will go through a typical day, outlining the various activities that we usually engage in. In the second section, I will

describe the Language Program and Motor Program in some detail, with relevant data included.

Please refer to your handout entitled "Classroom Schedule". This schedule will give you some idea of how much time is allotted to the various activities. Most sessions last no more than 10 minutes due to the age of the children and their limited attention span at this time. In addition, given the data system used, if the child becomes satiated or bored and begins to make wrong responses or fails to respond, he may go from a 5 level of guidance down to a 1 in five trials and then must go at least seven trials and probably 25 before reaching criterion at the 5 level.

[Slide 4. Cab arrives]

The children arrive by cab between 9:00 and 9:10 each morning. Each child is working on a number of undressing behaviors (e.g., hat off, zipper down, etc.) and performs each behavior at the level of guidance he/she is currently working on. Data is recorded daily on MIMR sheets and graphed on a weekly basis.

As you can see in your handout, there are three session times. During each of the session times, both rooms conduct individual language sessions on a 1:1 basis. While one teacher does language sessions, the

[Slide 5. Toddler; Slide 6. Preschool language]

other teacher conducts group motor and group cognitive activities with the remainder of the children, so there is usually about a 1:7 ratio (teacher to students) if there are no parents or volunteers.

This next series of slides shows an example of two group cognitive activities that are done in the session time slots. The first slide

[Slide 7. Toddler cognition]

shows the toddler group working on a "putting in" activity (put in peg). It is not clear in this slide, but the teacher moves from child to child, giving trials to only one child at a time. The teacher must move very quickly to keep the attention of the group. The next set

[Slides 8-11. Preschool cognition]

of slides shows a printing sequence from the preschool class. Please note the gradual fading out of the hand prompt until the child draws a line between two dots unassisted.

Cognitive activities include Taking Out, Stacking and Straining activities in the toddler class and Color Identification, Matching, Shapes and Sorting activities in the preschool classroom.

On the handout you will notice that there are two 15-minute toileting sessions in the morning. During this time, those children who can stand also work on pants up and pants down. Peter is pulling up his pants on

[Slides 12-14]

command at a 5 level of prompting and is then reinforced. These children also work on stand up and sit down from the potty or toilet. Data is recorded daily on the MIMR and each day the child picks up where he left off on the previous day.

There is a juice and snack time for a 15 minute period after the first toileting. During this period the children from both classrooms

[Slides 15-17]

have a small snack (which the parents supply) and juice. Those children with imitative sounds and/or words are expected to ask for more juice and say "please" and "thank you". If all the children are finished

[Slides 18-19]

their juice and snack before 10:30, the two classrooms have a brief structured play period on the rug. At 10:30 the preschool classroom departs to their own classroom and sessions begin again. The children get ready to leave for home at about 11:30 each day. In the preschool class, the children have an informal session on yes/no. The teacher

[Slide 20]

holds up a coat, asking each child, "Is this your coat?" Children are reinforced for answering "yes" if the coat is theirs and "no" if it is not. All children work on dressing items at this time (put on coat, zipper up, etc.) and the data is recorded on an MMR sheet.

At about 11:45 the cab drivers arrive and the children depart.

[Slide 21]

Specific programs

I would now like to discuss first the Language and then the Motor programs in some detail.

The Language program* for the toddler group has five major components: Attending, Gross Motor Imitation, Fine Motor Imitation, Sound Imitation, and Word Imitation. The Gross Motor behaviors chosen are all functional (e.g., roll car, brush hair), and the Fine Motor behaviors all involve mouth movement related to speech.

A baseline is taken on each component until one is reached at which the child does not attain 80% or more correct responses. Programming begins at that point for that particular child. The children are taken on a randomly alternating schedule to a cubicle enclosed on three sides for a 10 minute period each day. Each correct response is socially

*New changes have been made in the Language series. Please write if this information is required.

reinforced and a primary reinforcer is delivered on a VR3 schedule (this is the only time during the day that primary reinforcers are used and we are constantly in the process of fading them out). The next segment of slides shows a training sequence for Fine Motor Imitation.

[Slides 22-28]

Prompting is being done at level 1 guidance. After five months of the toddler language program, one child has moved through Gross Motor, Fine Motor, and Sound Imitation into words; two have moved through Gross and Fine Motor Imitation into sounds; and four have moved from Gross Motor into Fine Motor Imitation.

We began our program with Gross and Fine Motor Imitation rather than sounds and words because as a group the toddlers were imitating some motor responses on the Portage, but no language responses. We wanted to give them as many successful trials as possible at the beginning of the program. Until recently, four responses at criterion were necessary before moving on to the next stage of the program. At present, we have lowered the requirement to two to see if we still get the easy transition from motor responses to words that we have been getting previously, hopefully in half the time.

[Slide 29]

Shannon's data shows an orderly progression through all phases of the program into words. In two months she learned to imitate four Gross Motor responses and moved on to Fine Motor. After learning the Gross

[Slide 30]

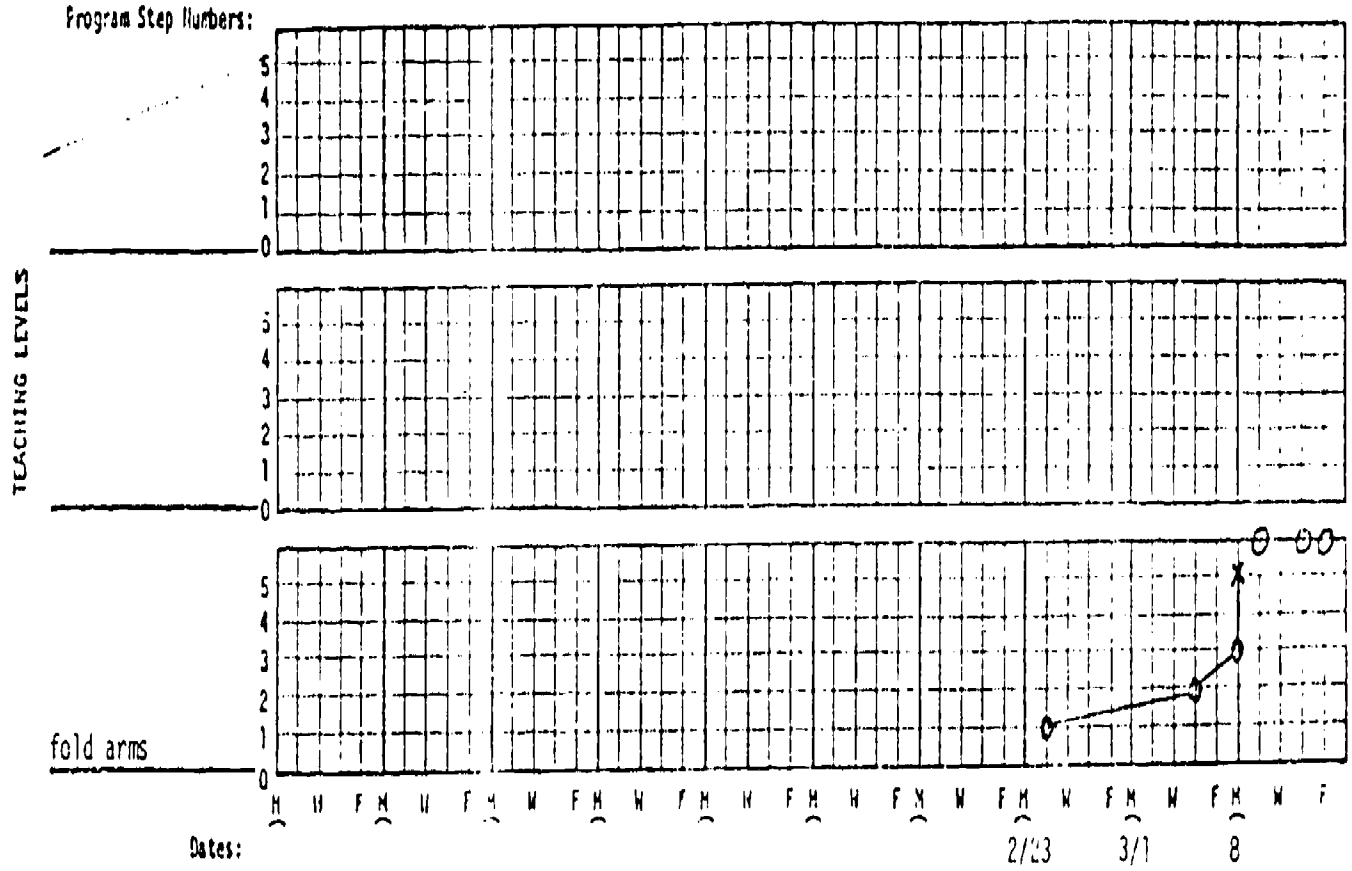
Motor responses, Shannon quickly learned four Fine Motor responses over a period of five teaching days.

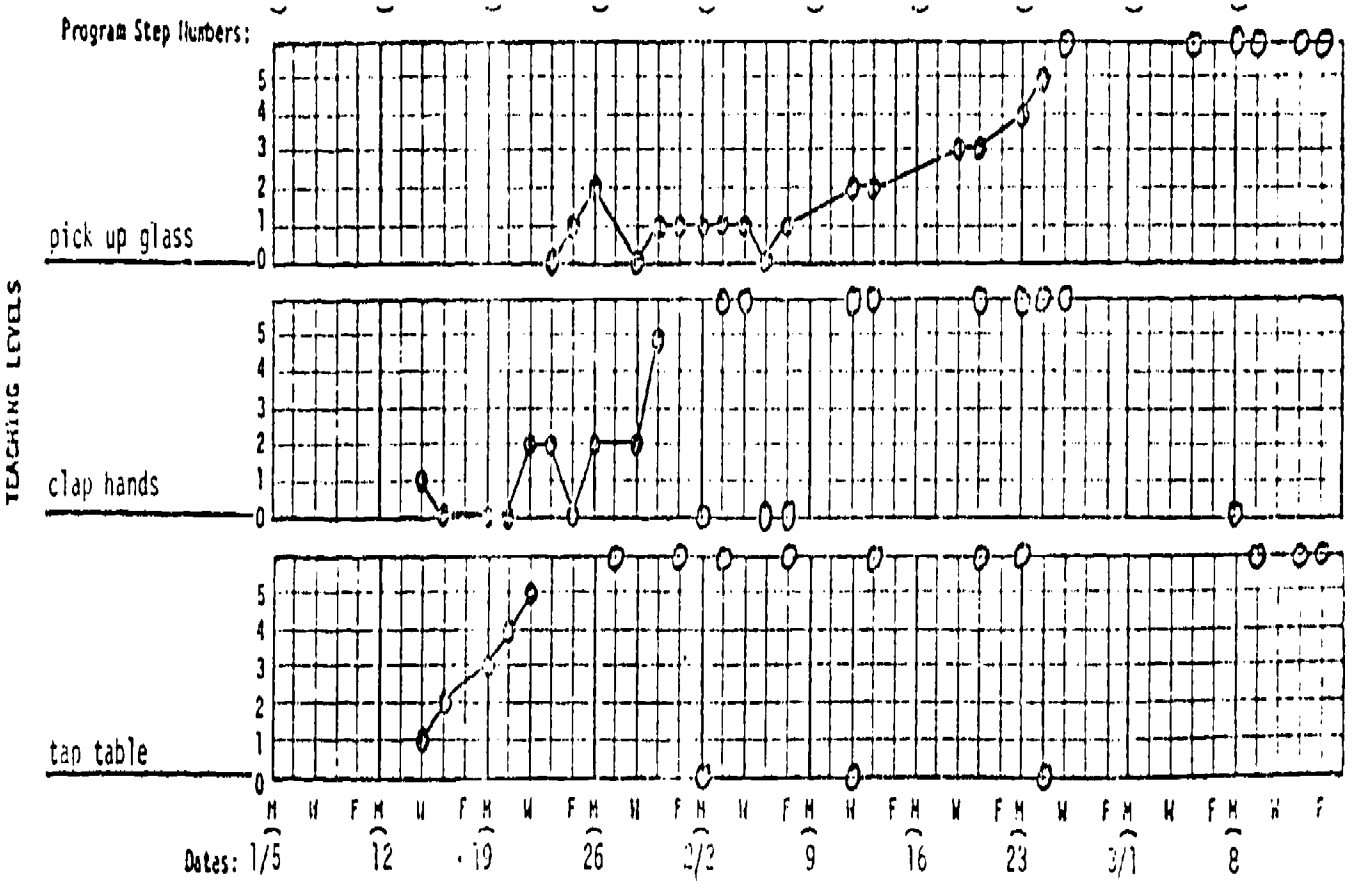
TEACHING SESSION GRAPH

GROSS MOTOR IMITATION

Teacher(s) Toddler Programme

Student Shannon



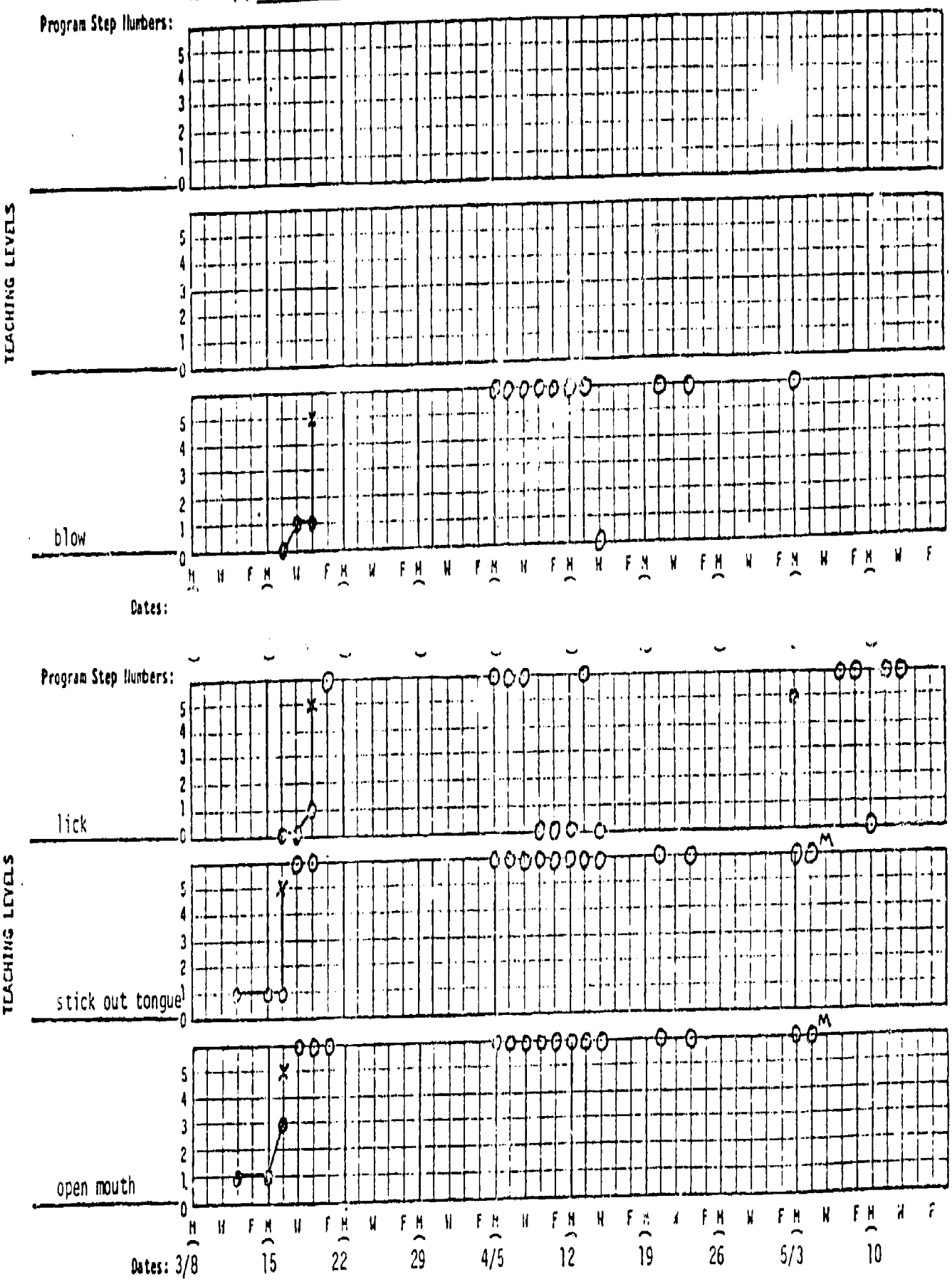


TEACHING SESSION GRAPH

FINE MOTOR IMITATION

Teacher(s) Toddler Programme

Student Shannon



[Slide 31]

Over a 1 1/2 month period, Shannon learned to imitate four sounds and then moved on into words.

A more typical set of graphs are Danny's. Danny learned his four

[Slide 32]

Gross Motor responses in a period of one month. You will notice that Danny has learned a probe item in addition to the responses being taught. When language programs began, the children were probed on five untaught items in the same program each day. If a child correctly responded to one item on five consecutive days, the probe was considered learned. We were obviously getting generalization of imitation with some children. After the first month we decided to probe five items in the next program each day (e.g., probe Fine Motor when the child was working on Gross Motor) and there has been only one instance of one child learning a probe item since then.

[Slide 33]

Danny has been working on Fine Motor Imitation items ever since, and is just now beginning to respond at 3s on his graph. He has remained at maximal and minimal levels of guidance (1s and 2s) probably because of the difficulty to discriminate the Fine Motor movements. As yet, he has made no attempts to imitate sound probes.

The language program for the preschoolers is quite different from the one just described. Six of the eight preschoolers went directly on to a language program outlined by Guess, Sailor and Baer (1975). To our knowledge, our project is the only test site for this program in Canada.

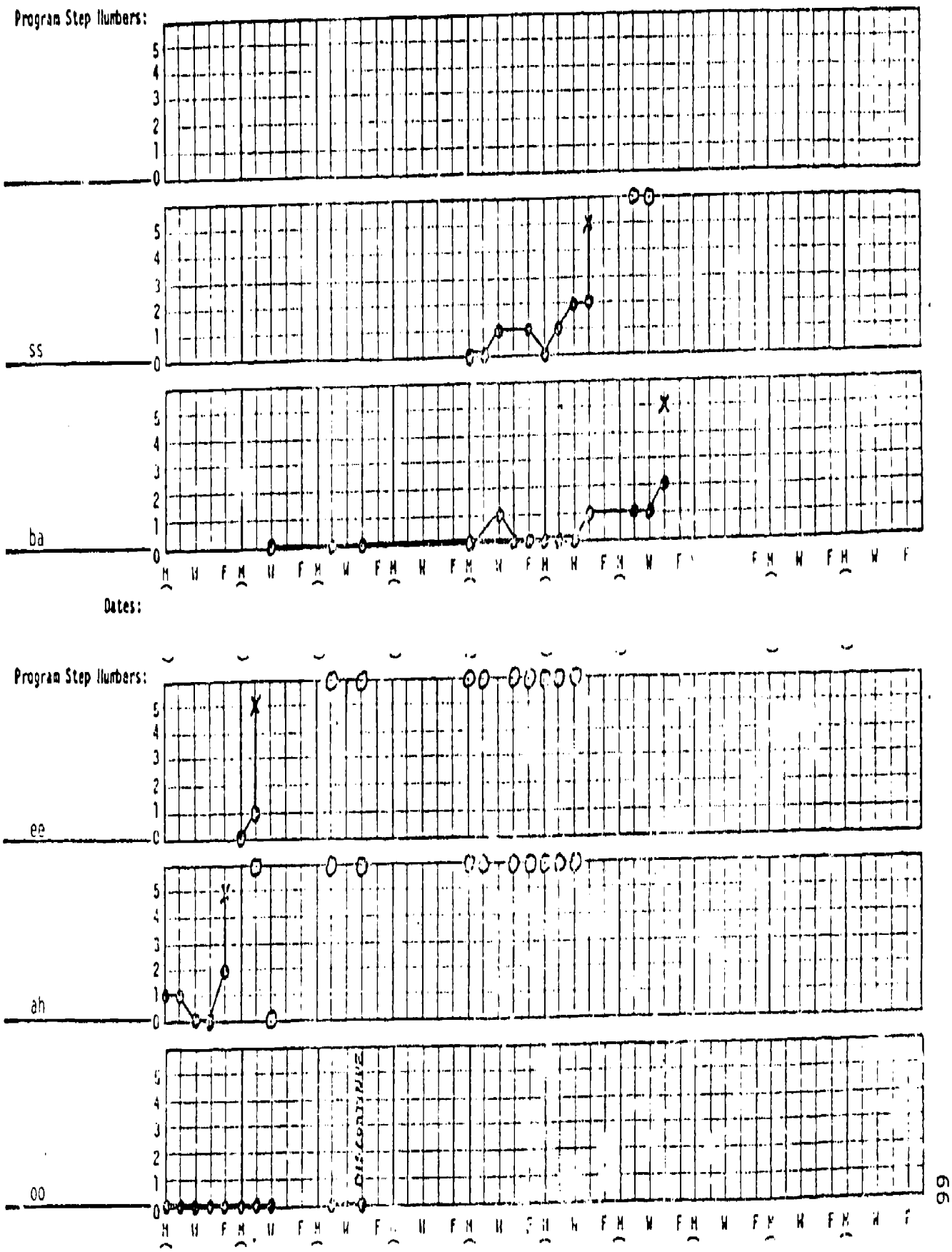
There are six categories in the Guess, Sailor and Baer language

TEACHING SESSION GRAPH

SOUNDS

Teacher(s) Toddler Programme

Student Shannon



99

TEACHING SESSION GRAPH

GROSS MOTOR IMITATION

Teacher(s) Toddlers

Student Danny C.

Program Step Numbers:

TEACHING LEVELS

drop string

brush hair

(learned probe)
arms up

Dates: 1/5 12 19 26 2/2 9 16 23 3/1 8

Program Step Numbers:

TEACHING LEVELS

(learned probe)
lift block

clap hands

tap table

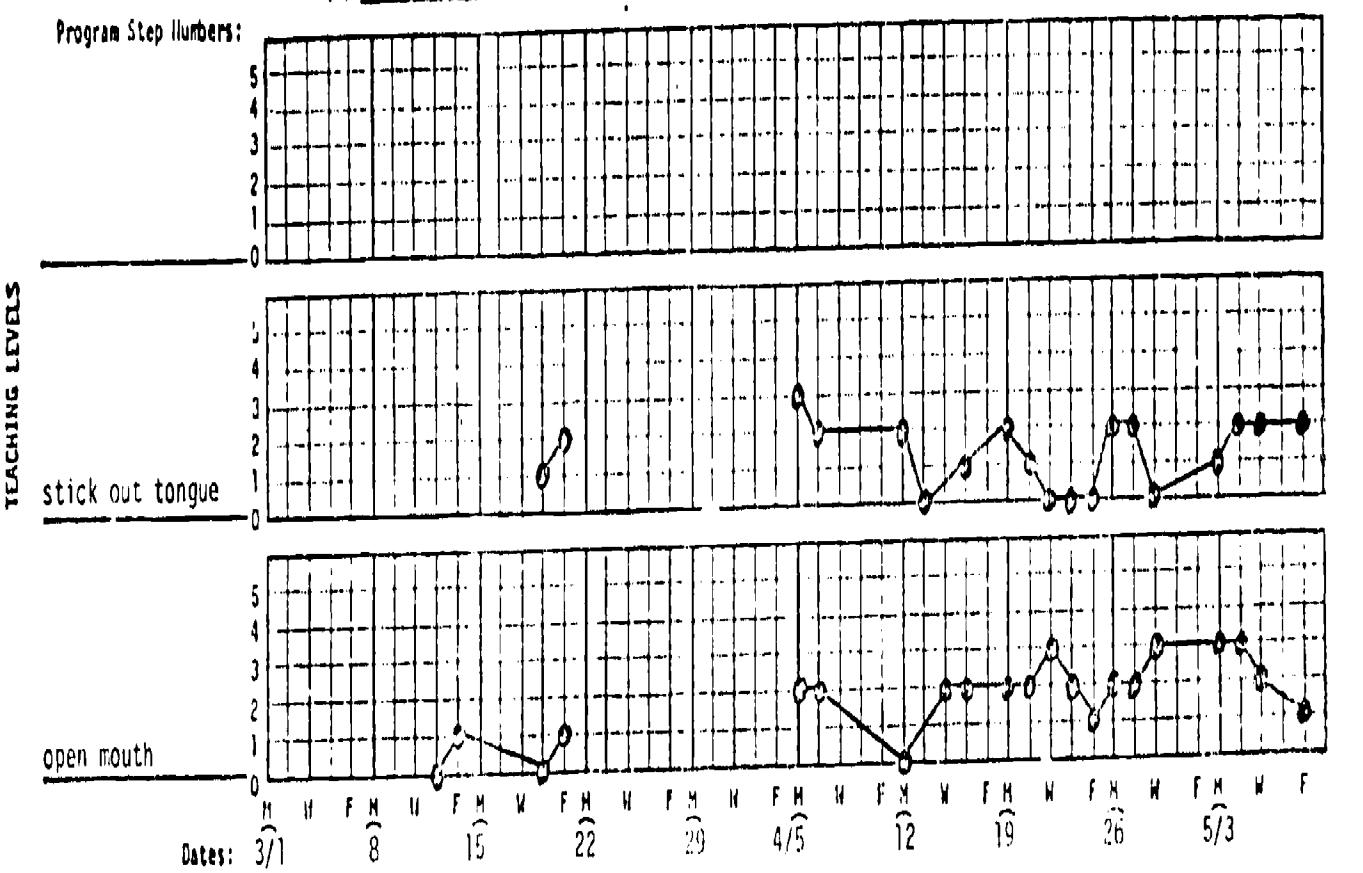
Dates: 1/5 12 19 26 2/2 9 16 23 3/1 8

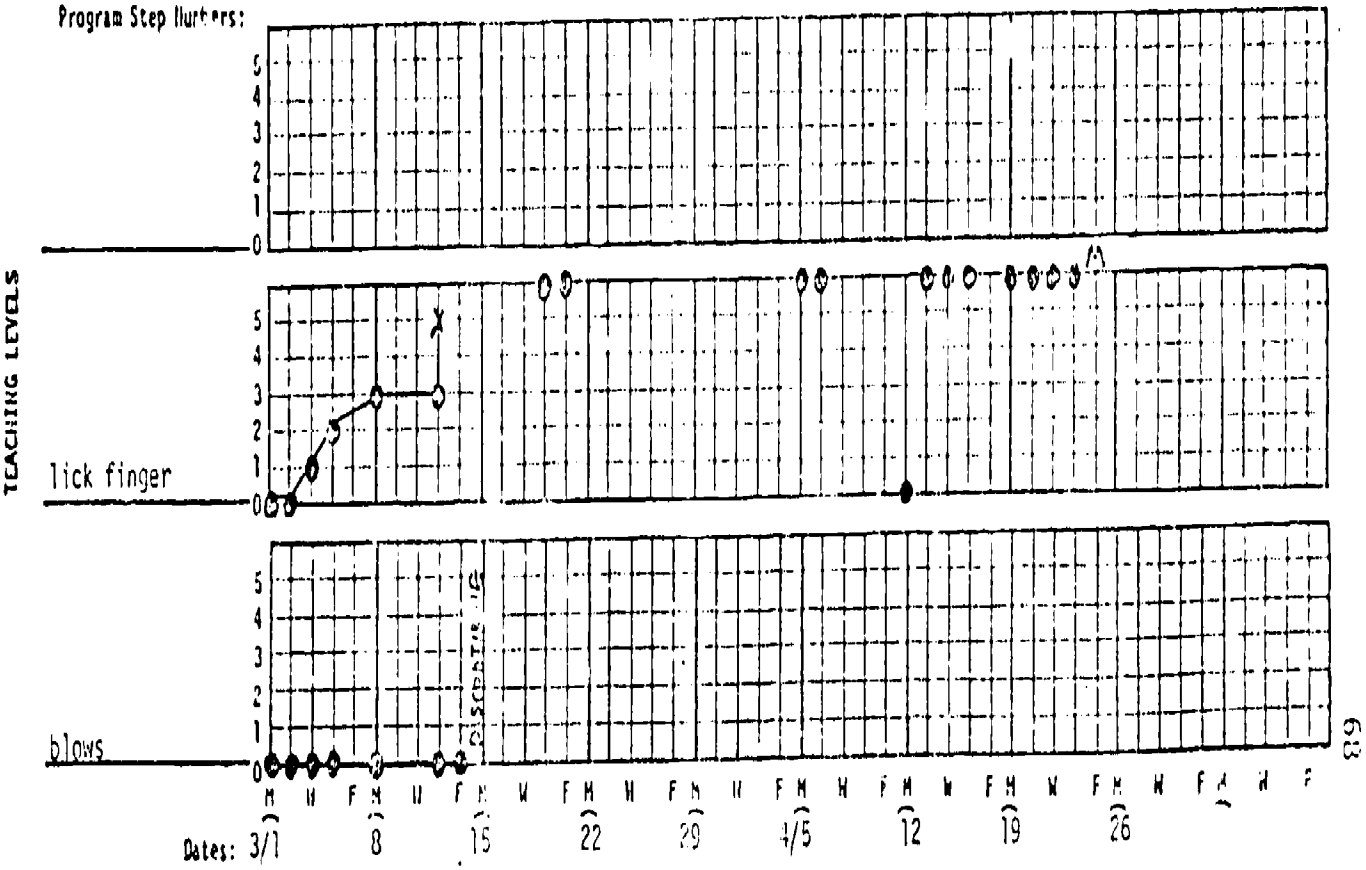
FINE MOTOR

TEACHING SESSION GRAPH

Teacher(s) Toddlers

Student Danny C.





[Slide 34]

program: [Read through six categories.] At present, the children on the program are working on the first category, Persons/Things. There are nine steps in this category, and our children are now working through steps 1, 2, 3, and 4 which involve: (1) Labelling of objects, (2) Pointing to objects, (3) Asking for objects, and (4) Asking "What's that?"

This language program attempts to teach the child:

1. Reference (certain sounds represent certain objects)
2. Control (you can get what you want by naming object)
3. Self-extended control (learn "What's that?" to learn more referents)
4. Integration (learn concepts)
5. Receptive skills (understand statements heard and questions asked)

The next series of slides shows the procedure when a correct response

[Slides 35-38]*

is made. Lisa is working on step 1, Persons/Things.

An approximation is accepted as a Shaped Response and treated as a correct response if the response made is an improvement over the previous approximation. If not, it is treated as an incorrect response. The next

[Slides 39-44]*

series of slides shows an incorrect response, and the correction procedure used to correct the error.

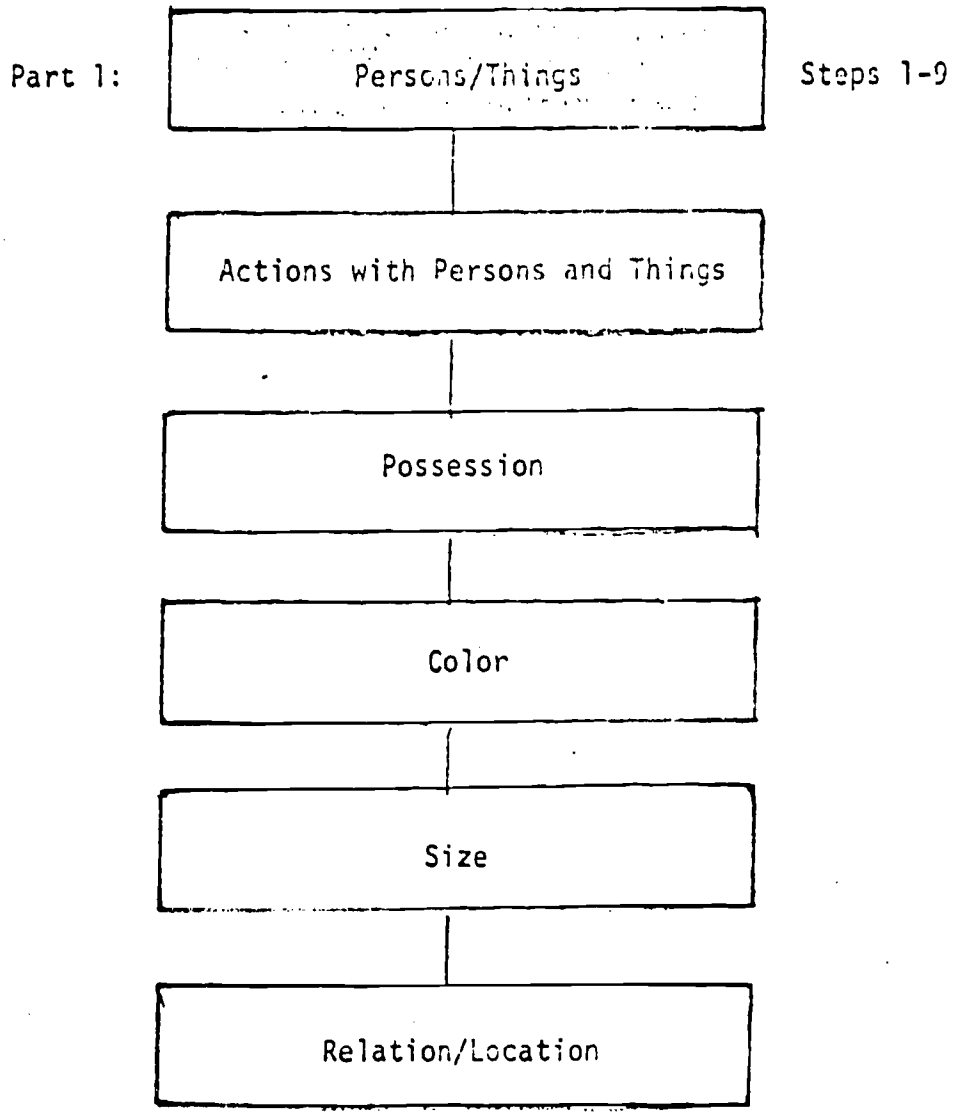
[Slides 45-46]*

The next two slides show Kerri's progression through step 1 of the program.

Percent correct trials per day is along the vertical axis and

*Pictorial slides.

Schematic of the Training Sequence



LANGUAGE: Kerri (a) Step 1