

BEHAVIOR DEPARTMENT

Walter E. Fernald State School

Waverley, Massachusetts

Beatrice H. Barrett, Ph.D., Director

ANNUAL REPORT

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APPENDED MATERIALS

Conversation Program

Gestures Communication Program

1.1 Support from grants

- 1.1.1 With the expiration of our NIMH grant, we are exploring other sources of funding for aspects of our work that are not supported by Fernald School.
- 1.1.2 One person supported by Fernald's Title I grant was assigned to the Behavior Department as laboratory teacher.

1.2 Loan of Behavior Department space and staff time for Title I activities.

Four Title I teachers worked with our core group of participants in our classroom areas, under the supervision of Mr. McCormack. Since late December, when Mr. McCormack withdrew from our department, he has been reporting directly to Dr. Robert Audette. We continue to be responsible for analyzing pupil records.

1.3 With new laboratory apparatus we are beginning to assess some basic academic skills in severely retarded residents and to analyze problems shown by individual pupils (see Section 2.4).

1.4 Personnel

1.4.1 Regular staff. Betty Falle, B.S., became special service assistant when Ann Stuart transferred to Volunteer Services. Gail Paul, M.S. in Ed., became laboratory teacher when Edward Pinkerton moved to New Hampshire. Carl Binder, B.A., replaced Timothy Barash, who is en route to Australia. Gene Buchman, B.A., joined us as classroom data manager and analyst; he also spends part of his time teaching in Farrell Hall. Jane Albert, B.S., a University of Wisconsin graduate student, spent six months with us developing and testing instructional programs. In June, Shelley McNaughton, B.A., joined us in a similar capacity. Until late December, James McCormack, Jr., M.Ed., was director of educational programs (see Section 1.2). Hara Bouganim, Ed.M., now splits her time between Farrell Hall, where she coordinates an Apartment, and the Behavior Department, where she works on program development and analysis. Barbara Colby, B.A., and Judith Rosenberg, A.B., continue their work as in previous years.

1.4.2 Arthur Leslie, a Northeastern University student, was a teaching assistant on co-op assignment.

1.4.3 Volunteers included Peter Ferro, B.A., who helped with data processing, and Mary McFadden, B.A., who is assisting in program development. Four others--students from Northeastern University and Boston College, and two housewives--carried out specific programs with Farrell Hall residents under Mrs. Bouganim's supervision, and they are continuing through the summer while Mrs. Bouganim is on vacation. Using a lab "teaching machine," Mike Mellish and Shane McDermott, students at Lincoln-Sudbury Regional High School, devised and "ran" their own instructional programs. Other high school and college students contributed time to classroom programs, as well as to Title I activities in the training unit.

2.0 BEHAVIOR EVALUATION

We spent a good part of the year programming new instructional apparatus, devising recording systems, and analyzing data. Sixteen residents continued to come to the laboratory regularly, one former participant rejoined us, and three newcomers were added. Work with two other residents was interrupted during the year because of illness, and three others had to be dropped temporarily because of extremely disrupting behavior apparently associated with their transfer from Wheatley Hall.

Our ongoing efforts to summarize many years of work have produced considerable information of relevance to the design of behavioral assessment techniques for developmentally disabled people. Our major objective is to "dehomogenize" the retarded population by providing ways for retarded people to acquire individual patterns of responding in the same differentially reinforcing environment. Once individual acquisition patterns emerge, we compare individual records for commonalities which define clearly distinguishable behavioral subgroups. Then, while maintaining a uniform measurement system for purposes of comparison, we alter the instructional environment to assess additional characteristics of individuals within each subgroup.

2.1 Subgroups defined by acquisition of differentiation and discrimination

Studies based on our response differentiation and stimulus discrimination paradigm (Barrett, 1965) have revealed a wide range of individual skills and deficits among retarded people. From 64 Fernald residents representing the gamut of psychometrically-defined retardation, six acquisition subgroups have emerged.

When they entered our program, the residents ranged in age from 3.8 years to 19.8 years, with a mean of 11.4. They had been at Fernald for periods ranging from one day to 14.1 years, with a mean of 6.1 years. According to the AAMD system (Heber, 1959), 44% would be classified as moderate to borderline and 56% as severely or profoundly retarded. Institution psychometrists considered 31% of the group to be "untestable." The only residents who have been deliberately excluded from our studies are those who, because of physical handicaps, cannot operate our differentiation/discrimination assessment apparatus. Children with behavior problems (including indiscriminate defecation and urination) have not been denied participation.

Studies are conducted in a small, sound-attenuated cubicle, where the resident may work on his own with no one else present. A wall-mounted console has two plungers and a receptacle into which objects are automatically dispensed as reinforcement for appropriate responding. Above each plunger is a display panel, each of which is illuminated during alternate one-minute periods throughout assessment sessions. The participant may earn a piece of candy or a token (dispensed from a random assortment) after every tenth pull of the left plunger during the periods when the left light is on. When the light on the right side is on, nothing can be earned by operating either plunger. No penalties are programmed for "wrong" responses. Such an "open" schedule, as Dr. Harold Weiner of NIMH calls it, offers latitude for

1.0 ADMINISTRATION

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FIGURE 1
 OVERLAPPING DISTRIBUTIONS OF PSYCHOMETRICALLY CATEGORIZED
 RESIDENTS IN FINAL ACQUISITION SUBGROUPS

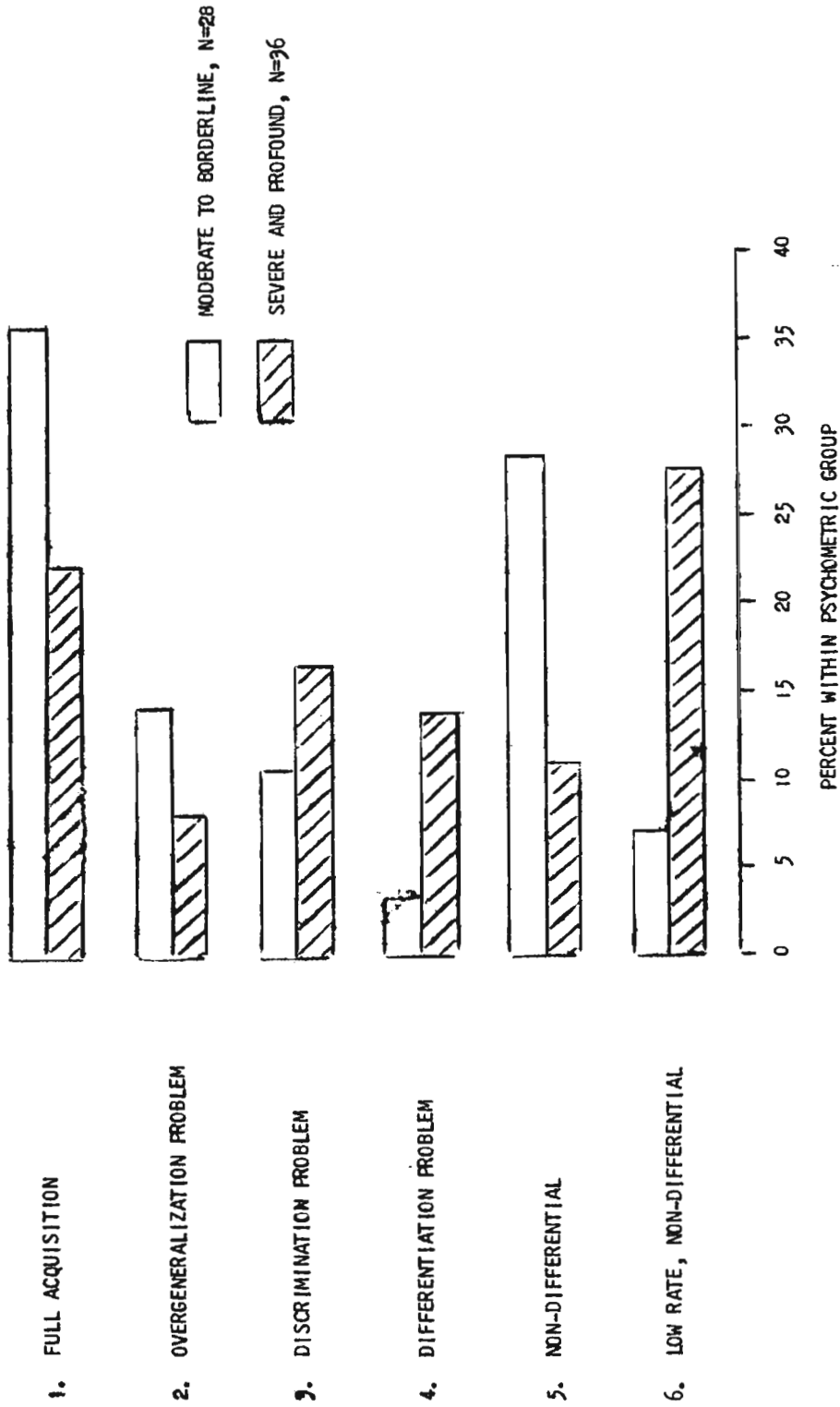
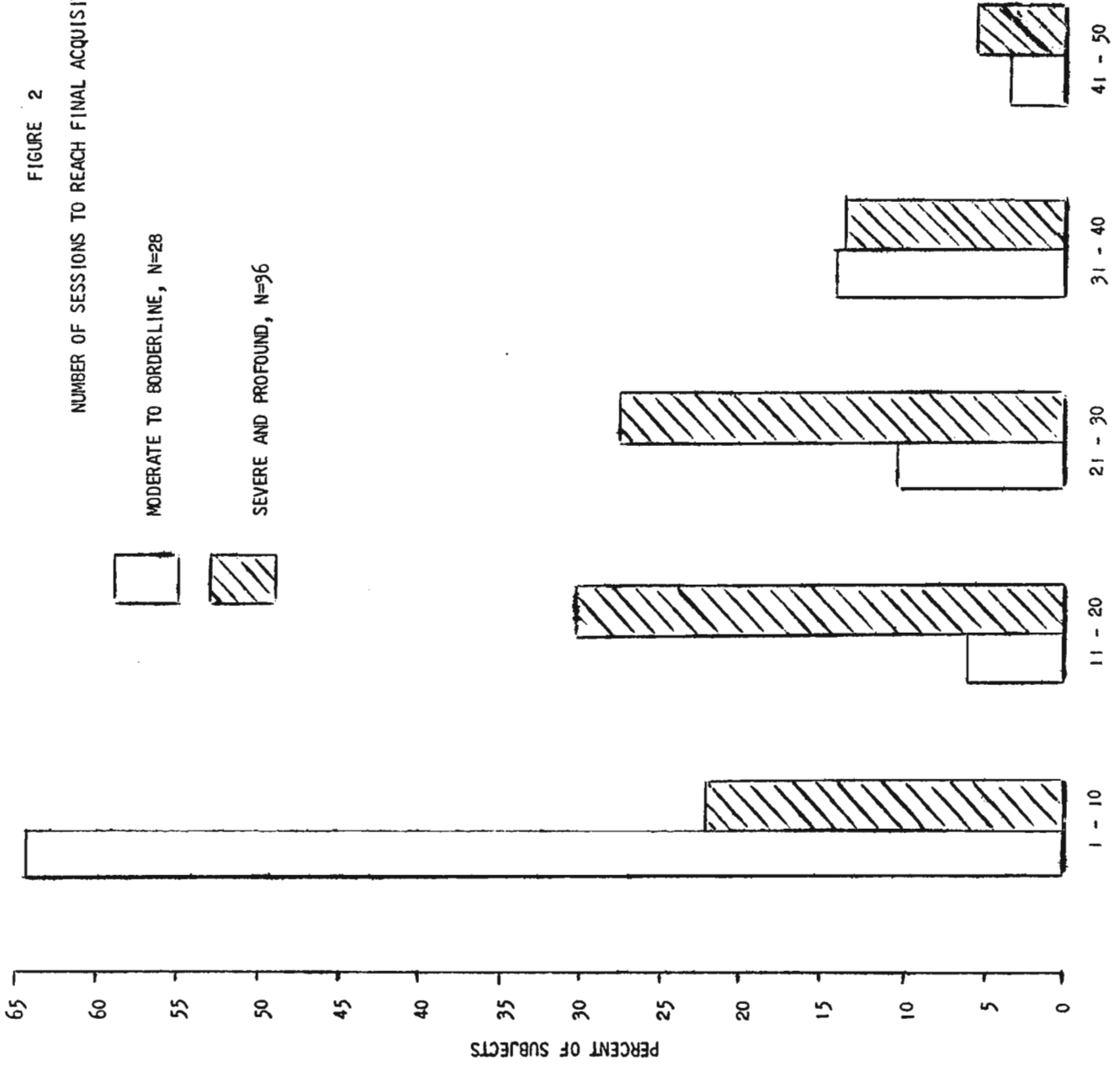


FIGURE 2

NUMBER OF SESSIONS TO REACH FINAL ACQUISITION SUBGROUP



distributed over time categories, with 78% of the group taking more than 10 sessions to reach their best levels. Clearly, with severely and profoundly retarded people, we must be prepared to offer repeated learning opportunities over a much longer time than is usually necessary with less handicapped people.

Amount of time to reach best performance is not related to sex, to age, or to the degree of performance efficiency. But, irrespective of psychometric status, those who show their best performance in the least amount of time were older at admission ($p < .01$) and have been at Fernald a shorter time ($p < .05$). For more accurate assessment of "trainability" a greater number of learning sessions is necessary for those who have been in the institution longer and from an earlier age. This finding is not surprising in view of the mounting evidence of deleterious effects of institutionalization, especially on children admitted when they are very young.

Another difference between psychometrically-categorized groups is shown in Figure 3. If we look at the absolute rates of responding rather than relative rates, we find that nearly 70% of the severely and profoundly retarded participants operate the apparatus at a median rate below 20 times per minute during consecutive sessions at peak efficiency, whereas 64% of the less retarded participants respond at median rates of 20 per minute or above. At peak acquisition, the moderate to borderline residents operate the apparatus at much higher rates (mid-median: 23.5 times per minute) than the severely and profoundly retarded residents (mid-median: 11.0 times per minute)--a highly significant difference ($p = .008$).

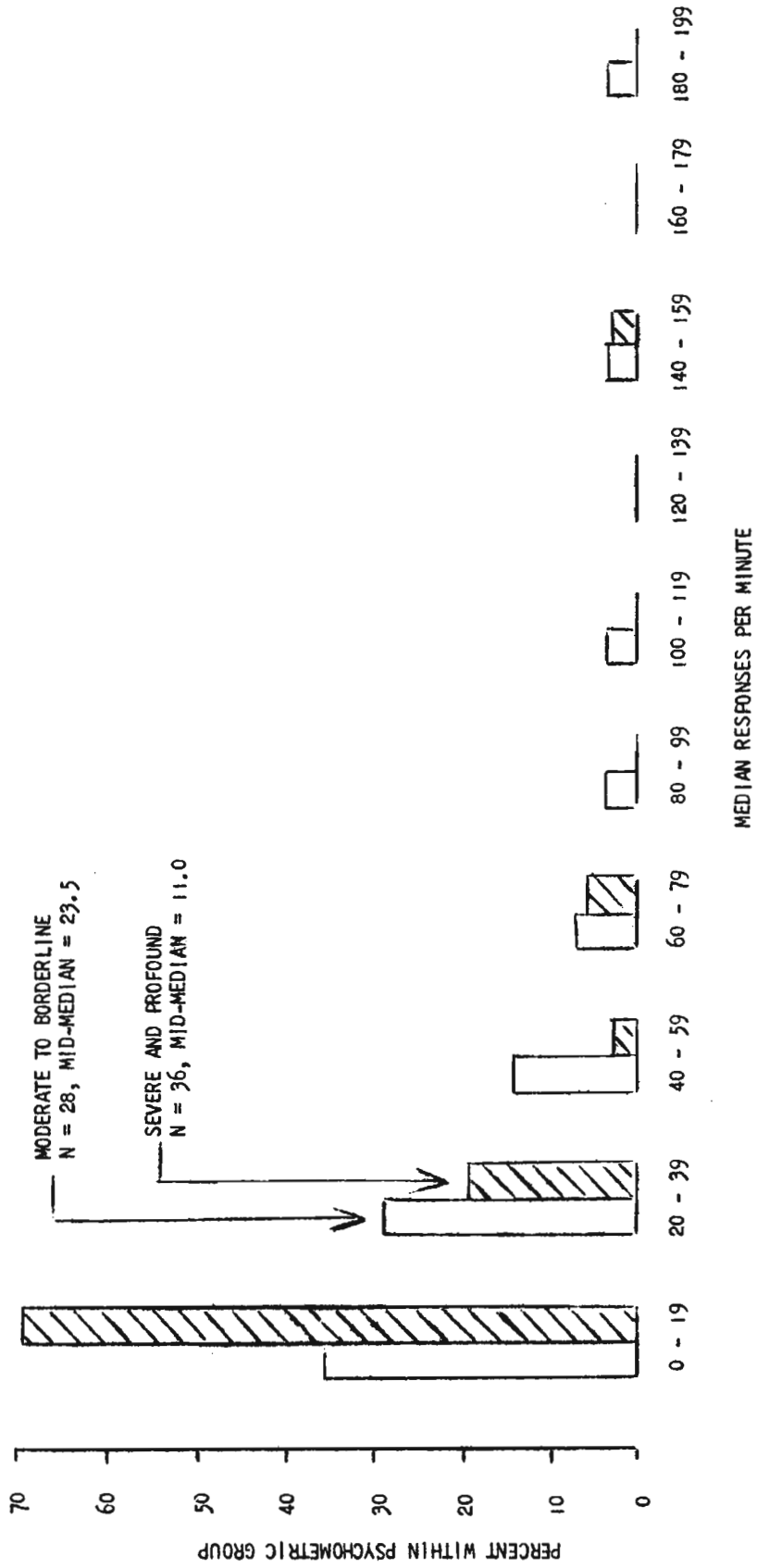
Rate of operating the apparatus is positively correlated with age ($.01 < p < .02$) and with age at admission ($p < .001$). The rate is inversely related to duration of residency, but the correlation is not statistically significant. Thus, it appears that, at peak acquisition, the older, less retarded residents who were older at admission emit more behavior than those who are younger, more retarded, and have spent less time outside the institution.

We thought that high-rate participants might distribute themselves differently in the acquisition subgroups than the low-rate participants. However, if we discount the individuals in the "low rate, non-differential" group, for whom the procedure is obviously not appropriate, we find no significant difference. If a person operates the plungers at all, his rate is not related to how much he learns.

Our analyses to date have yielded several implications for the design of assessment procedures appropriate for individuals within the severely and profoundly retarded range.

- Repeated samples of performance in a given situation are necessary to obtain a reasonable estimate of what a particular retarded person can do. A greater number of repetitions is necessary for assessment of severely and profoundly retarded people.
- Behavioral subgroups defined by commonalities in patterns of interaction with a standardized environment cross-cut the psychometric categories that have homogenized the retarded population, especially those in the severely and profoundly retarded cate-

FIGURE 3
 MEDIAN RESPONSE RATES OF PSYCHOMETRICALLY CATEGORIZED
 RESIDENTS PERFORMING AT ACQUISITION SUBGROUP CRITERIA



gory. To reveal the individual patterns of abilities and deficits of persons who are beyond the sensitivity of conventional measurement techniques, behavior-assessing methods should permit a variety of "solutions" to the same problem.

- To assess learning potential, we must provide opportunities for learning (behavior change) to occur in response to clearly defined and therefore replicatable contingencies.
- Whatever the problem and however many the patterns of individual response that are possible, a standard measuring system should be used so that we can directly compare individuals throughout the clinical population of interest.

Our interest is in delineating functional behavioral subgroups within the severely and profoundly retarded population--subgroups consisting of individuals who show common responses to specific "treatment" or instructional procedures. Subsequent analysis of our data will show how the subgroups revealed in our discrimination and differentiation studies further define themselves under prosthetic and remedial treatment.

2.2 Subgroups defined by "favorite" reinforcer.

Our early studies of Fernald residents with moderate to borderline retardation revealed only a small percentage whose response rates to obtain candies and tokens (or candies and pennies) were inadequate to reveal discrimination acquisition patterns. As we included more severely retarded residents, it became clear that other potential reinforcers should be available. Many of our more severely retarded participants treated M & Ms as UFOs to be gazed at quizzically or as particles of dirt to be dropped on the floor. Most participants who did not consume M & Ms, we discovered, were routinely spoon-fed and had never had the opportunity to put food in their own mouths. Therefore, we added equipment to provide other potential reinforcers, including colored slides, recorded music, and television (with the option of having the audio and video channels controlled separately or together).

With severely and profoundly retarded participants, we use rate-building procedures if necessary. When events are episodically programmed, we attempt to build to FR 10 (ten responses produce a five-second slide show or 5 seconds of music). If this works, we hold the schedule constant so that we can compare rates across participants. If FR 10 proves to be a "strain," the ratio is set at whatever produces the person's most stable day-to-day output. For the occasional participant with very high intrasession and intersession rates, the ratio is raised to FR 20. The same behavior-determined schedule tactic is used when consequences are conjugately programmed. (On a conjugate schedule, music or TV is continuously available if the participant maintains a continuing response rate.) A requirement of 80 responses per minute is effective for most residents, but some strain above 45 responses per minute, while a few easily handle 120 per minute to maintain, say, the

loudness of a musical recording or the brightness of a TV picture.

We had planned to provide every participant with extended opportunities to work for all the available consequences, but this proved to be impossible because of transfers, discharges, extended illnesses, quarantines, deaths, etc. Despite such extenuating circumstances, so often encountered in long-term studies, the majority of our 104 participants were able to show us which consequence maintained their highest output. The sequence of opportunities to work for different reinforcers was determined mainly by scheduling-availability of the various devices; no systematic order was followed. The mixture of candies and tokens (or candies and pennies), rather than just candy, was used if and when a participant showed signs of acquiring "exchanging" behavior immediately following each session.

In an earlier report (Barrett, 1971), we presented the reinforcer hierarchy determined by mid-median rates of the group up to that time. We also gave examples of profiles of individual median rates for various reinforcers. Here, we summarize reinforcer-determined subgroups based on studies of 88 Fernald residents.

From each participant's profile of rate medians and ranges for each reinforcer, we selected the condition that produced the highest median rate. In the case of discrimination/differentiation studies, only the reinforced rate was considered. The reinforcers were categorized, irrespective of schedule, into 1) candy and pennies or candy and tokens, 2) candy only, 3) auditory events, 4) visual events, and 5) the usual audio-visual combination of television.

The distributions of psychometrically-categorized participants (see Section 2.1) in their "favorite" reinforcer category appear in Figure 4. That 73% of the less retarded group worked hardest for a mixture of candy plus either pennies or tokens is not surprising. Tokens were exchangeable for soft drinks, and pennies could be exchanged for coins to operate a candy or drink vending machine or could be saved for later purchases at the institution canteen. Furthermore, return to the dormitory with money often won the admiration of both ward attendants and peers. That the same mixture was attractive to only 26% of the severely and profoundly retarded is consistent with the restrictive ward practices existing at that time.

The most striking characteristic of the distributions in Figure 4 is their marked difference. While a sizable majority of the moderate to borderline residents show peak response rates for a candy-token or candy-penny mixture, the peak rates of the more severely retarded are nearly evenly distributed across reinforcer categories. It appears that people applying reinforcement technology with the severely and profoundly retarded need a wider variety of potential reinforcers than those working with the less retarded. Fortunately, slide projectors, tape recorders and television sets--commonly available in homes and classrooms today--can be used to generate and sustain the behavior of severely and profoundly retarded people if the devices are controlled by the specific behavior targeted for change.

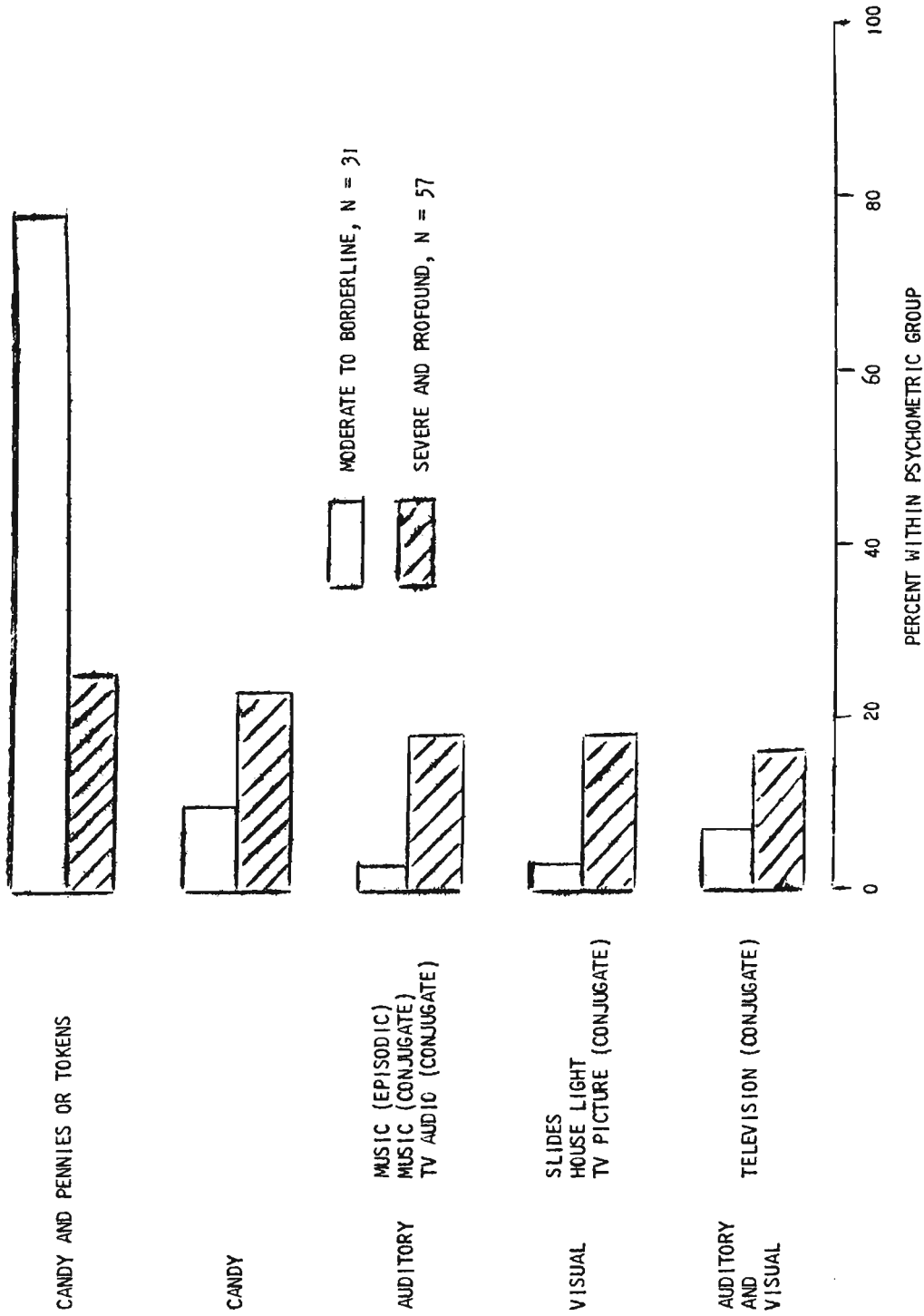


FIGURE 4
 DISTRIBUTION OF PSYCHOMETRICALLY CATEGORIZED SUBJECTS
 IN "FAVORITE" REINFORCER CATEGORIES

2.3 Classroom correlates of reinforcer "preferences"

From the records of pupil purchases during 175 classroom "store" sessions held two years ago, Mr. Binder has evolved a hierarchy of "backup" reinforcer preferences derived from conditional probabilities of individual choices from among a variety of items offered for "sale" or "rent." Of the greatest interest to us are the items or privileges that correspond to the reinforcers used in the laboratory--namely, food and drinks, TV, projected slides, and music, all of which could be purchased or rented at "store" with tokens earned in tutorials. Not counting novelty items occasionally available at the "store," ranks of classroom purchases and laboratory preferences across pupils yielded two identical hierarchies. In the classroom, as well as in the lab, consumable items (food and cold drinks) were most popular. TV was second, projected slides third, and music fourth.

Individual participants' preferences in the two settings were also compared. For 80% of the classroom pupils, their first and/or second most powerful lab reinforcer corresponded to the first and/or second most frequently chosen classroom backup reinforcer. Only 20% of the pupils showed no correspondence in their first and second choices in the two settings.

Obviously, the methods were very different in the two settings; sequential work rates for different consequences and repeated single choices from among may simultaneously available reinforcers are not directly comparable. Given this disparity, we were somewhat surprised to find such consistency of preferences. Does familiarity account for it? Could we shift the hierarchy by introducing a broader range of choices? Are individual choices influenced by observing the choices of others? By being in a group setting versus the privacy of a laboratory cubicle? By the intervention of tokens between responses and the act of choosing? Are the individual profiles established by consecutive availability similar to those that might be established with concurrently available reinforcers in the same setting? Answers to these questions could increase the effectiveness of reinforcement technology in the habilitation of retarded citizens.

2.4 New prototype teaching apparatus

Our newest apparatus is now producing baseline data on color discrimination and color recognition, and an instructional program is underway with selected residents. Even at this early date, the capability of this device for both instructional purposes and assessment of developing skills makes it directly applicable to many of the problems encountered with our classroom pupils. We are now in the process of selecting other skills to teach with this apparatus. Visual and auditory discrimination, receptive vocabulary, comprehension of written words, classification, and discrimination of one's own "correct" responses are all within programming capability and should both complement and supplement other instructional programs being developed for classroom use.

2.5 Generating stable responding as workshop requisite

We have been attempting to develop steadier rates of responding in some participants whose performances heretofore have been highly variable. Increasing ratio requirements has been effective, and we plan to change from fixed ratio to variable ratio schedules to further improve response rate constancy. Casual observation suggests that symptomatic behaviors such as nonfunctional vocalizations interfere with productive behavior, and that rocking behavior may adventitiously contribute to evenly-spaced responding. We plan to place a negative contingency, i.e. time out from reinforcement, on rocking and then to attempt to shape stable responding in the absence of rocking.

The production of evenly-spaced responding in the absence of any discrimination requirements is of interest for several reasons. It is prerequisite to a recently proposed study of concurrent performances in retarded children, and it is particularly important if we wish to train students to maintain constant levels of performance in any training or work situation. It would be a necessary behavioral quality for those severely retarded participants who, we hope, will eventually advance to workshops or other places of employment.

References for Section 2.0

Barrett, B.H. Acquisition of operant differentiation and discrimination by institutionalized retarded children. American Journal of Orthopsychiatry, 1965, 35, 862-885.

Barrett, B.H. Annual Report: 1 July 1970 - 30 June 1971. Behavior Department, Walter E. Fernald State School, Waverley, Massachusetts, July 1971.

Heber, R. A manual on terminology and classification in mental retardation. (American Association on Mental Deficiency.) American Journal of Mental Deficiency, monograph supplement, 1959, 64. (No. 2)

3.0 EDUCATION AND HABILITATION OF FERNALD RESIDENTS

In November, Wheatley Hall residents--our core group of participants--were split into two other residential units, one of which has been the focus of most of the Title I activities. As a result of the shift in Title I emphasis from classroom instruction to ward service, progress on curriculum development was greatly retarded. Nonetheless, 42 residents continued to participate in our educational programs. Twenty-one pupils attended our classroom regularly, eight were taught by Mrs. Bouganin in Farrell Hall, seven received instruction in their new home on the second floor of Withington, and six of the more capable residents were on work-training programs in our department.

3.1 Our studies of varied-teacher tutorials resulted in an article documenting their effectiveness for teaching severely and pro-

foundly retarded pupils to learn from many persons rather than just a single familiar teacher (see Section 5.1). The tactic is still being used but has not been further evaluated in any systematic way.

3.2 Pre-workshop programs, including training in assembly, sorting, and packing, were initiated this year. One of our pupils underwent a three-week evaluation at the Withington workshop and is now on the waiting list for admission.

3.3 While the classroom data flow and recording system seemed useful for day-to-day decision-making with respect to individual pupils, it proved to be inadequate for across-pupil and across-program analyses. One problem turned out to be carelessness in storing records, with consequent loss of large quantities of data. Another was failure to record the nature of pupils' errors.

A revised recording form, in use since March, allows for appropriate notation of errors, and we now record in duplicate so that forms can be filed by program as well as by pupil. Laboratory files contain one set of each pupil's records as well as graphs of all pupils' progress on each instructional program. While the new recording form still needs revision, it has yielded an ample data base for modification of instructional methods. Quite likely our next form will incorporate some of the features of the system Mrs. Bouganin devised for her Farrell Hall pupils and student teachers (see Section 5.3).

3.4 Program development

Dr. Joseph Rice, Assistant Commissioner for Special Education, and Dr. Robert Audette have both indicated to us that they see our work as a model and as a resource for those seeking to abide by the legislative mandate to provide habilitative and educational programs for all children, including those hitherto thought to be untrainable. Accordingly, we have continued to develop, modify, and refine instructional sequences for use in other settings as well as in our own classrooms. New programs have been developed and existing programs revised, not only on the basis of pupils' performance records (i.e., their documented failures and achievements), but also in response to the evident need for more flexible programs that can be used in a variety of teaching situations.

3.4.1 Programs to assess and/or teach pre-academic skills

Ms. Albert organized 12 instructional programs into a mini-curriculum for severely and profoundly retarded residents who lack rudimentary behavioral skills essential for regular classroom participation. The sequence begins with a program that teaches a resident to stay seated with a teacher at a table on which toys or educational materials have been placed. Two subsequent programs concentrate on eye contact and gross motor imitation. (An eye contact program recently devised by Mrs.

Bouganim could be readily incorporated into Ms. Albert's sequence.) At another level in this mini-curriculum, the resident is taught simple matching skills. Four separate programs cover both matching-to-sample and sorting of three-dimensional objects as well as two-dimensional shapes, colors, and sizes. These programs lead to a third set of four programmed sequences which teach the resident to identify (i.e., point to) the various objects, shapes, colors, and sizes. Finally, spatial relations ("in," "on," "next to," and so on) are taught.

3.4.2 Addition program for severely retarded pupils

Ms. Albert also developed a modification of an addition program used in the public schools in Madison, Wisconsin. Two of our severely retarded pupils have already completed part of this sequence.

In the first phase, the pupil learns rote counting, from 1 to 10. The pupil then progresses to number recognition, rational counting, and drawing of lines equal in number to a displayed numeral. In the next phase, actual addition problems are presented. The pupil is given a written problem such as $3 + 2 =$. Under each numeral are vertical lines corresponding to the number. The pupil is asked to say the first number ("three") and to draw over the lines with a felt marker while counting aloud. The pupil must then select the appropriate answer card (in this example, 5) and place it in the proper location to the right of the equal sign. In the next phase, the pupil draws the lines under the second numeral himself, while counting up from the existing lines under the first numeral. As the series progresses, other phases require verbal identification of numerals; ability to state which number comes after another; and finally, marking the lines under both numerals, counting up, and placing the correct answer in the appropriate place.

As in most of our instructional programs, pupils are praised and given a token for correct responses. When an error occurs, the pupil is told or shown the correct response and asked to try again.

3.4.3 Sequence of programs to teach math-related concepts and skills

As shown in Figure 5, 41 instructional programs--all adapted from a math series used by the Madison public schools--have been organized into a latticed curriculum for moderately and severely retarded pupils. Ms. Albert arranged this empirically testable sequence so that two or more phases may be taught concurrently, while the pupil gradually develops a repertoire of skills and concepts necessary for acquisition of subsequent phases. For example, when the pupil has acquired some skill at rote counting, he or she may begin learning elementary concepts of both equivalence and relative difference in quantity ("same," "more," and "less"). At the same time, the pupil may begin learning the relational concepts of "big" and "small,"

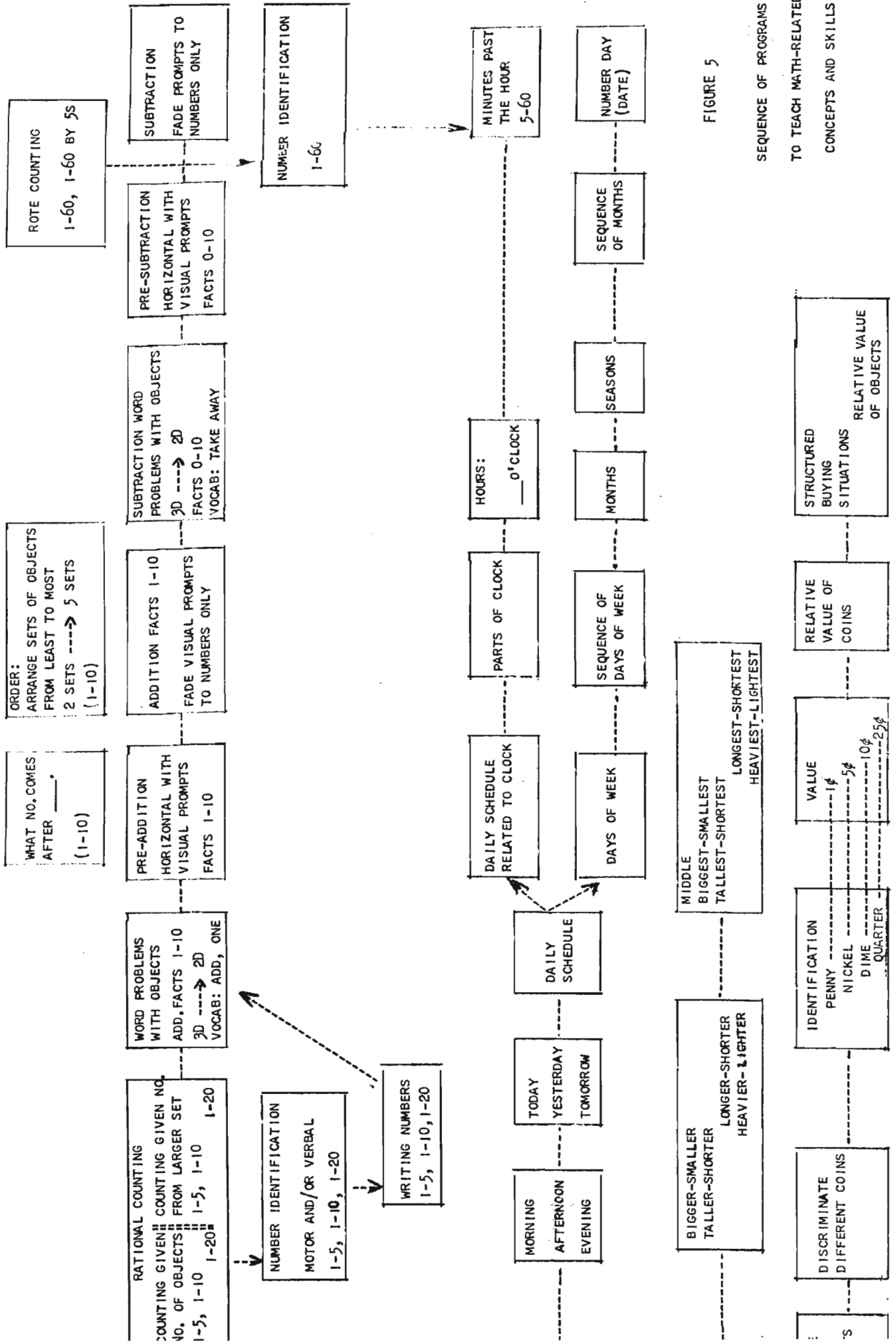


FIGURE 5

SEQUENCE OF PROGRAMS

TO TEACH MATH-RELATED

CONCEPTS AND SKILLS

ORDER:
ARRANGE SETS OF 0
FROM LEAST TO MOST
2 SETS ----> 5 SETS
(1-10)

WHAT NO. COMES
AFTER ____.
(1-10)

ADDITION FACTS 1-10
FADE VISUAL PROMPT
TO NUMBERS ONLY

PRE-ADDITION
HORIZONTAL WITH
VISUAL PROMPTS
FACTS 1-10

WORD PROBLEMS
WITH OBJECTS
ADD. FACTS 1-10
3D ----> 2D
VOCAB: ADD, ONE

RATIONAL COUNTING
COUNTING GIVEN NO.
NO. OF OBJECTS FROM LARGER SET
1-5, 1-10 1-10 1-20
1-5, 1-10 1-20

1:1 CORRESPONDENCE
MORE, SAME, LESS
3D ----> 2D

BASIC USE
OF NUMBERS

NUMBER IDENTIFICATION
MOTOR AND/OR VERBAL
1-5, 1-10, 1-20

WRITING NUMBERS
1-5, 1-10, 1-20

PARTS OF CLIP

DAILY SCHEDULE
RELATED TO CLOCK

DAYS OF WEEK

SEQUENCE OF
DAYS OF WEEK

DAILY SCHEDULE

TODAY
YESTERDAY
TOMORROW

MORNING
AFTERNOON
EVENING

DAY
NIGHT

TIME

MIDDLE
BIGGEST-SMALLEST
TALLEST-SHORTEST
LONGEST-SHORTEST
HEAVIEST-LIGHTEST

BIGGER-SMALLER
TALLER-SHORTER
LONGER-SHORTER
HEAVIER-LIGHTER

BIG-SMALL
TALL-SHORT
HEAVY-LIGHT

RELATIONAL
CONCEPTS

RELATIV
VALUE 0
COINS

VALUE
-----1¢
-----5¢
-----10¢
-----25¢

IDENTIFICATION
PENNY
NICKEL
DIME
QUARTER

DISCRIMINATE
DIFFERENT COINS

DISCRIMINATE
COINS FROM
OTHER OBJECTS

MONEY

"tall" and "short," and so on as indicated on the chart. As the series progresses, the pupil is given instruction in simple arithmetic processes, temporal concepts, relational concepts, and identification of coins.

3.4.4 Revised classroom programs

Primarily on the basis of pupils' demonstrated needs and achievements, Mrs. Bouganim has revised a number of our instructional programs, including a quantity program, a program to teach number recognition and identification (using color cues), and a beginning speech program. A sequence to teach pupils to pay attention to the teacher's actions has also been revised. This program, initially suggested by Mr. McCormack, gradually shapes a pupil's behavior to the point where he can quickly (and without error) retrieve an object that he has seen the teacher place under one of three cups. The program follows a paradigm similar to that of the well-known Wisconsin General Test Apparatus.

3.4.5 Programs to teach communication skills

Two programs were developed by Mrs. Bouganim this year to teach communication skills to severely and profoundly retarded residents. One, a modification of an earlier classroom program called "Questions," is designed to give residents training and continual experience in responding appropriately--and with some degree of spontaneity--to casual conversation. The other program, originally conceived in collaboration with Mr. McCormack, is designed to teach nonverbal residents to communicate in a sign language. A copy of the Conversation Program and a copy of the Gestures Communication Program are appended. Since these programs--particularly the Conversation Program--are still at an experimental stage, we would welcome suggestions for further revision.

3.4.6 A program to teach moderately and severely retarded residents to teach each other

Despite opportunities to participate in group activities, most of our pupils have never shown evidence of learning from one another. This year, however, Ms. Albert initiated programs in which two to five pupils participate together in instructional sequences that demand interaction. At one level, the emphasis is on teaching pupils to follow the teacher's instructions rather than depending upon visual cues as is the case in most of our classroom programs. For four pupils who already displayed some competence in following verbal directions, program components were modified to generate more independent work. Ten pupils, in three groups, have participated in these programs. One pupil who began in the lowest group rapidly demonstrated his ability to follow instructions and was "promoted" to a higher-level group.

During each session, each participant gets to play at least two roles: Tutor, Pupil, and if there are more than two individuals in the group, Observer. The "real" teacher monitors the activity and records correct and incorrect responses. The group is seated at a table. The Tutor is given a set of four picture cards (or similar materials), plus a "token ladder"-- a card marked with a line at the bottom, a red circle in the middle, and a green circle at the top. The teacher places a token on the bottom line of the token ladder. The Pupil is given a matching set of cards. The Tutor then displays one card from his set, and the Pupil must point to whichever of his or her cards matches the sample. If the Pupil's response is correct, the Tutor moves the token one step up the ladder to the red circle. If the Pupil's next response is also correct, the Tutor moves the token to the green circle. When the Pupil makes a third correct response, the Tutor gives him the token. This reinforcement tactic is similar to that recently published by Mrs. Bouganim (see Section 5.1). After a total of six presentations, the participants change roles.

Once the pupils have mastered the procedure, the teacher can change instructional materials, vary the nature of the response, or change the ratio requirement. From our experience to date, we feel that the participants enjoy playing "teacher" and being responsible for token dispensing. More important, these programs offer our pupils a new kind of learning experience: working jointly on a task that requires attending to and interacting with one another to a degree we have not heretofore observed.

3.5 Habilitative programs for adult residents

3.5.1 P.S. has continued to progress. He does his routine work faster and with less prompting, and this year he assumed responsibility for our guest book as well as for maintaining our supply of towels, bulbs, toilet paper, and the like. He has almost learned how to fill his coffee mug without spilling it-- an indication, we think, of improved judgment and coordination. His appearance is neater and less "institutional," in part because he himself now decides when to get a haircut, which he pays for with his own money. He is also learning to shave himself with fewer rough spots (and to preserve his new mustache!), and he has a new set of "uppers" which are a decided cosmetic improvement. His interaction with both staff and visitors, on the telephone as well as face-to-face, is more confident and outgoing.

He continues to receive formal instruction in arithmetic from Mr. Binder, and he particularly enjoys solving written problems programmed on our ST-400 "teaching machine." Reading instruction with Ms. Albert produced dramatic gains-- from Book 4 to Book 12 in the Sullivan programmed reading series in only five months. Some months ago he opened a savings account at a local bank. Ms. Paul has been teaching him how to take care of and use the bank book.

At a recent meeting with his unit staff, we were pleased to learn that many of the improvements that we have been observing over the years in the lab have, in the last six months, generalized to his living environment. Although P.S. still has much to learn, he has shown steady progress as we have increased the complexity of his assignments. We are looking forward to assisting him in further developing his social, intellectual, and vocational skills.

- 3.5.2 D.G. is still with us, despite rumors that he would be transferred to a more appropriate facility such as Middlesex Hospital or a nursing home. He receives instruction in grammar from Ms. Paul and, on his own, has been studying an intermediate-level grammar workbook. He does routine typing for staff members, and when time permits, keeps up his correspondence with friends and family. He recently informed us that some time after summer camp he will be evaluated for workshop training at Withington-- an opportunity he is eager to explore.
- 3.5.3 M.H. continues to monitor pupils during their free activity periods in the classroom and now helps supervise lunch in the Basic Skills Training Unit.
- 3.5.4 R.C. also assisted in the classroom this year but has not returned since the recent revision of the stipend program.
- 3.5.5 D.B. assists in sorting and filing of pupil records. As with D.G., there had been rumors that D.B. might be transferred to a facility for the physically disabled, but we have not heard anything more about this.
- 3.5.6 A.P. continued, for the first half of the year, to do janitorial work in the classroom and to assist the more retarded pupils. He is now working at Fernald's donation center.

3.6 Fernald residents as community volunteers

Last summer, Mr. Barash, other staff members, and volunteers organized an outing, which was announced in a local weekly newspaper and subsequently reported in the Boston Sunday Globe. WBZ-TV videotaped some of the activities and showed portions on the 7 o'clock and 11 o'clock news.

From the Arlington Advocate, July 13, 1972:

FERNALD CHILDREN TO CLEAN UP PARK

This Saturday morning 15 children from the Walter E. Fernald School will be doing clean-up work in Arlington. The youngsters, with Timothy Barash of Arlington, who works with the school's Behavior Department Laboratory, will clean up Menotomy Rocks Park and have a picnic there.

From the Boston Sunday Globe, July 16, 1972:

ARLINGTON WOODS CLEANER AFTER FERNALD SCHOOL
OUTING

It was pick-up day as well as picnic day yesterday for 11 youngsters from the Fernald State School at Arlington's wooded Menotomy Rocks Park.

The children, whose average age is 14, were taken to the park for an outing by volunteers headed by Timothy Barash of 4 West St., Arlington.

Barash said the children, most of them classified as severely retarded, had taken part in a Spring 1971 cleanup campaign on the grounds of the school in Waltham. He said they grasped the idea of helping with a cleanup and were pleased with doing their part.

Barash said he had proposed the combination outing and cleanup not only for the children but to drive home the idea that even retarded teenagers can do volunteer work for a community.

The children, armed with rakes, cartons, and plastic trash bags, picked up litter and papers and some of the leaves which have layered the woods floor for years.

What they collected was carried off in trucks supplied by the Arlington department of properties and natural resources.

4.0 TRAINING

4.1 New training "package" for workshops or courses in behavior modification

Mr. Binder has developed a set of materials for training teachers and attendants in behavior modification principles and procedures (see Section 5.3). In its preliminary form, the "package" includes an eleven-page outline of behavior modification techniques which covers the following: the essentials of educational behavior change (specification of goals, selection of procedures, carrying out the procedures, communication of results), plus techniques for increasing the frequency of behaviors, for teaching new behaviors and maintaining them, for lessening or elimination problem behaviors, and for evaluating the effectiveness of a program. Also included are sample beginning projects for trainees and a bibliography of

technical and semi-technical literature.

The materials could be adapted for use in a broad variety of training programs, from a one-day workshop to a full-semester course in behavior modification. They could be supplemented with any of a number of books-- for example, Sulzer and Mayer's Behavior Modification Procedures for School Personnel (1972), Becker, Engelmann, and Thomas's Teaching: A Course in Applied Psychology (1971), or R. Vance Hall's Managing Behavior (1970)-- as well as with exercises, demonstrations and discussions to fit the needs of the personnel being trained.

The training "package" was used in June for an all-day workshop conducted by Mr. Binder for a group of Head Start teachers and administrators (see Section 5.6).

4.2 Graduate and undergraduate student teachers

- 4.2.1 Under Mrs. Bouganim's supervision, Gene Buchman, a candidate for a double M.A. in special education and experimental psychology from Goddard College, and Peggi Brown, a special education major at Boston University, gained valuable experience in learning to write and modify programmed sequences and in learning to gain the cooperation of ward personnel in implementing the instructional programs on a daily basis.

Mr. Buchman and Mrs. Bouganim are currently writing a paper to describe their classroom application of the Premack principle with a young, emotionally disturbed, retarded pupil.

- 4.2.2 Thirteen other students, from six Massachusetts colleges and universities, worked with Mr. McCormack in the classroom. Seven of the 13 received course credit.

4.3 Graduate research training

- 4.3.1 Mr. Buchman's daily interactions with the laboratory staff, as well as with experienced and exceptionally well-trained teachers, make his work in our setting uniquely pertinent to his dual graduate major (see Section 4.2.1). He is getting not only the teacher training required for certification but also direct experience in research design and data recording and analysis.
- 4.3.2 Jane Albert, from the University of Wisconsin's Department of Behavioral Disabilities, gained practical experience in adapting existing programs for our severely retarded classroom pupils (see Sections 3.4.1, 3.4.2, and 3.4.3), in latticing the programs into a testable sequence (see Section 3.4.3 and Figure 5), and in putting together an extensive bibliography of relevant theoretical and experimental literature (see Section 5.3). In collaboration with Mr. Binder and Mr. Buchman, Ms. Albert also explored the problems of response definition

5.3 Materials prepared for teaching and consultation

Albert, J. Theories of language development and remediation, language skills assessment, language programs and remediation techniques: An annotated bibliography. Behavior Department, Walter E. Fernald State School, May 1973.

Binder, C. The management of behavior using techniques of behavior modification. First draft of a course outline and reading list. Behavior Department, Walter E. Fernald State School, June 1973.

Bouganim, H. A. Basic skills classroom data system. Preliminary description, Behavior Department, Walter E. Fernald State School, May 1973.

5.4 Distribution of articles

This year we received 180 requests for reprints and other descriptions of our work. We distributed a total of 306 articles and reports.

5.5 Presentations to professional groups

Dr. Barrett presented a paper entitled "Acquisition subgroups: A step toward functional assessment of learning potential among the severely and profoundly retarded" to the American Academy on Mental Retardation, Atlanta, May 1973.

In June, Mrs. Bouganim gave a lecture at a Nursing Institute attended by nine public health nurses.

5.6 New appointment and consultation requested by others

Dr. Barrett was appointed to the executive committee of the Boston Behavior Therapy Interest Group, a branch of the Association for the Advancement of the Behavior Therapies.

Mr. Binder conducted an all-day workshop on the management of behavior problems in the classroom for St. Joseph's head Start Program, Brooklyn, New York (see Sections 4.1 and 5.3).

Mr. Buchman serves as a behavioral consultant for children's educational programs of the Century Foundation, Boston, and as consultant for the joint behavioral program of the Perkins School for the Blind and Farrell Hall.

5.7 Department tours and lectures

In the past year the laboratory welcomed 278 visitors, including 116 professionals. Our classroom had more than 650 visitors, including groups from several state schools and hospitals in Massachusetts and other New England states.

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5.8 Information-seeking visits to other facilities

Mr. Binder visited the Child Development and Mental Retardation Center at the University of Washington, Seattle. Several staff members attended lectures at Mansfield State Training School.

5.9 Attendance at professional meetings and workshops

Staff members attended the annual conventions of the Eastern Psychological Association, the American Academy on Mental Retardation, the American Association on Mental Deficiency, and the New England Psychological Association, as well as monthly meetings of the Boston Behavior Therapy Interest Group and the Annual Brockton Symposium on Behavior Therapy (this year's topic was Behavior Modification in Education).

Dr. Barrett also attended the annual Columbus Workshop on Behavior Modification. Some materials and approaches described at the workshop should be of interest to Fernald staff. Copies are available in our department for study.

--Ray Foster and Kenneth Gossett have prepared a training manual, called Code of Conduct, for the staff of a residential center in North Aurora, Illinois. The purpose of the manual is to guide the staff in teaching and maintaining behaviors considered socially and vocationally adaptive in both the residential environment and the community. It includes extensive lists of target behaviors, with prescribed consequences to be dispensed by staff. Fines and earnings for various behaviors are spelled out exactly. Focusing on a range of social, emotional, economic, and sexual behaviors, the manual is geared primarily to the training of adolescents and young adults.

--R. Don Horner described a program for ward attendants that equips them to teach institutional residents self-help skills. He also discussed a proficiency rating scale for evaluating a trainer's effectiveness in such areas as behavior shaping, reinforcement, fading, communicating, data collection, and use of tokens. This project used HIP grants funds to train a ward staff that replaced existing ward staff while the latter attended a four-week formal course in behavioral procedures. The last week was spent in supervised training of residents on the staff's regular ward. In one year, the first- and second-shift attendants from all eleven living units participated on a rotation cycle. Posted feedback sheets were found to be effective reinforcers for the attendants as they trained residents. Over 300 residents were "graduated" from the program during the year.

--James F. Budde talked about applications of systems technology to the problems of 1) "de-institutionalizing both the programs and the residents of institutions, 2) build-

ing subsidiary training systems, and 3) insuring that subsystem content is meeting stated objectives. Budde emphasized the usefulness of a lattice-systems approach as a management and problem-solving technique.

- Marc Gold discussed application of experimental findings (especially those of Zeaman and House) to the training of discrimination basic to gainful employment of severely retarded people. Complex tasks such as assembly of bicycle brakes and electronic circuit boards are performed without jiggling and without programmed extrinsic reinforcement. Training in basic component skills may be more effective for performance of specific tasks than direct training in the task itself, Gold noted. He presented a compelling film, with live narration, to demonstrate that if we do not assume attenuated upper limits but, instead, proceed with applications of basic research findings, severely retarded people can be rapidly trained to be constructive workers at industry-competitive rates.
- Jim Lent has ready for publication (University of Kansas) five carefully designed and validated programs to teach Hair Rolling, Ironing, Showering, Feminine Shaving, and Face Shaving.
- Ivar Lovaas reported that visual input interferes with auditory input in his autistic children. If you wish to train such children to auditory control, he suggested, it should be done "singly" rather than in conjunction with visual stimuli. He also noted that his subjects can discriminate between presence and absence but not between left and right. Lovaas's follow-up studies of self-injurious autistic children were also summarized at the workshop and have since been published in the Journal of Applied Behavior Analysis (1973, 6, 131-165). The report is available as Monograph #2 from the Business Office of the journal at the University of Kansas.

CONVERSATION PROGRAM

BACKGROUND

The Conversation Program is a revised version of a 13-phase program entitled "Questions," developed between December 1970 and July 1972 in the Behavior Department classroom. The Questions Program was intended for use with institutionalized profoundly and severely retarded people. From five to eleven residents participated in each phase. Analysis of the data showed that some items in each phase were more difficult than expected, others easier. Thus, the program was rewritten with more homogeneous phases.

The goals of the program have also become clearer: development of conversational language from one-syllabled to polysyllabled phrases, from rote answers to varying answers.

BEHAVIORAL PREREQUISITES

- 1 - Attention span of 5 minutes or more
- 2 - Normal vision and hearing
- 3 - Comes when called
- 4 - Can touch body parts named by teacher
- 5 - Can touch colors named by teacher
- 6 - Can identify intelligibly one-syllable common objects

PROCEDURAL SUGGESTIONS

The goal of each phase is advancement in use of language. At first, partial answers--approximations to the goal response--should be rewarded. If no clear response is given, you provide the response and the pupil imitates. Questions can be repeated until the pupil emits the response without a cue. Reinforce all efforts with praise, but reserve material reinforcers (such as tokens) for correct first responses. Vary the order in which you ask the questions. The criterion for moving to a new phase is two consecutive sessions with one error or none.

The program is designed for individual instruction. However, groups of pupils can be drilled on phases they have completed. The verbal behavior covered by the program is designed to be relevant to everyday situations. Use the questions in interaction with the resident and tell others in contact with him or her to expect and praise the new speech level.

It is helpful to attach a small chart, with individualized answers, to each phase sheet--particularly if volunteers or student teachers also run the program. For example, in Phase 1:

NAME	EYE COLOR	HAIR COLOR
Joann	brown	brown
Rusty	hazel	yellow

The program will be more durable if you encase the phase sheets in plastic page protectors or clear "Con-Tact" plastic.

We suggest you take data on all responses. By keeping records you can tell at a glance how much progress the pupil has made each week and which items are causing trouble. One way this can be done is shown here. Zero (0) means correct, O-C means correct-cued, and X means incorrect.

STUDENT	<u>Mary</u>					PROGRAM	<u>Convers. PHASE 3</u>				
DATES	<u>9-18-9-22-72</u>					TEACHER	<u>Hara</u>				
	MON.	TUES.	WED.	THUR.	FRI.	ITEM	X-TOTALS				
1	0	0	0	0	0	0	0				
2	0	0	0	0	0	0	0				
3	0	0	0	0	0	0	0				
4	O-C	X	O-C	O-C	O-C	1	1				
5	X	X	X	X	O-C	4	4				
6	O-C	O-C	O-C	O-C	0	0	0				
7	0	O-C	0	0	0	0	0				
8	X	X	O-C	O-C	O-C	2	2				
9	O-C	0	0	0	0	0	0				
10	0	0	O-C	0	0	0	0				
TOTALS											
0	5	5	5	6	7						
O-C	3	2	4	3	3						
X	2	3	1	1	0						

To date, the Conversation Program has been initiated with only a few residents, so we do not yet have an adequate data base for evaluating its effectiveness. However, we plan to use the program with other pupils as time permits, and we hope the program will also be used by other teachers. Please inform us in writing if you are using it. Since it is still experimental, we would like to see summaries of your data, to aid us in further revisions. We welcome suggestions concerning further modification of the program.

Hara Ann Bouganim, Program analyst
 Behavior Department
 Walter E. Fernald State School
 Waverley, Massachusetts

CONVERSATION 1
(ONE-SYLLABLE RESPONSES)

QUESTION	RESPONSE REQUIREMENTS
1 WHAT'S YOUR NAME?	FIRST NAME, ONE CLEAR SYLLABLE
2 WHERE DO YOU LIVE?	RESIDENCE BUILDING, ONE WORD, ONE CLEAR SYLLABLE
3 ARE YOU A BOY? ARE YOU A GIRL?	ASK EITHER QUESTION, RESPONSE IS JUST "YES" OR "NO".
4 WHAT'S THIS? (TOUCH YOUR EYE, NOSE, OR EAR)	NAMES IT CLEARLY (NOTE WHICH BODY PART YOU TOUCHED)
5 WHAT'S THIS? (TOUCH YOUR TOE, HAND, OR HAIR)	NAMES IT CLEARLY (NOTE WHICH BODY PART YOU TOUCHED)
6 WHAT COLOR ARE YOUR EYES?	SAYS COLOR CLEARLY
7 WHAT COLOR IS YOUR HAIR?	SAYS COLOR CLEARLY
8 WHAT DO YOU LIKE TO EAT?	NAMES A FOOD, ONE CLEAR SYLLABLE
9 WHAT ELSE DO YOU LIKE TO EAT?	NAMES ANOTHER FOOD, ONE CLEAR SYLLABLE
10 IS IT RAINING TODAY?	ANSWERS CORRECTLY, "YES" OR "NO"

CONVERSATION 2
(ONE-WORD RESPONSES)

QUESTION	RESPONSE REQUIREMENTS
1 WHAT'S YOUR NAME?	FIRST NAME, COMPLETE
2 WHERE DO YOU LIVE?	RESIDENCE BUILDING, ONE WORD COMPLETE
3 ARE YOU A GOOD/BAD BOY/GIRL?	YOU VARY THE QUESTION; STUDENT ANSWERS APPROPRIATELY "YES" OR "NO"
4 WHAT'S THIS? (TOUCH YOUR ARM, LEG, TONGUE, OR KNEE)	NAMES IT CLEARLY (NOTE WHICH BODY PART YOU TOUCHED)
5 WHAT'S THIS? (TOUCH YOUR NECK, TEETH, OR FOOT)	NAMES IT CLEARLY (NOTE WHICH BODY PART YOU TOUCHED)
6 WHAT COLOR IS THIS? (TOUCH A RED OBJECT)	SAYS COLOR CLEARLY
7 WHAT COLOR IS THIS? (TOUCH A BLUE OR GREEN OBJECT)	SAYS COLOR CLEARLY
8 WHAT DO YOU LIKE TO EAT?	NAMES A FOOD CLEARLY
9 WHAT DO YOU LIKE TO DRINK?	NAMES A DRINK CLEARLY
10 IS IT RAINING TODAY?	ANSWERS APPROPRIATELY, FOR EXAMPLE: "YES, RAIN" OR "NO, SUN" OR "NO, SNOW" OR "NO, CLOUDS"

CONVERSATION 3

(TWO-SYLLABLE RESPONSES)

BEFORE STARTING, TALK ABOUT THE WEATHER (BRIEFLY).

QUESTION	RESPONSE REQUIREMENTS
1 WHAT'S YOUR NAME?	SAYS FIRST NAME COMPLETELY, THEN YOU SAY LAST NAME AND TRAINEE REPEATS
2 WHERE DO YOU LIVE?	RESIDENCE BUILDING, TWO-WORD ANSWER SUCH AS "WHEATLEY HALL"
3 HOW OLD ARE YOU?	SAYS AGE, SUCH AS "SIXTEEN"
4 WHAT'S THIS? (YOU TOUCH SHOULDER, CHEST, OR ANKLE)	NAMES IT CLEARLY (NOTE WHICH BODY PART YOU TOUCHED)
5 WHAT'S THIS? (YOU TOUCH FINGER, MOUTH, ELBOW, OR STOMACH)	NAMES IT CLEARLY (NOTE WHICH BODY PART YOU TOUCHED)
6 WHAT COLOR IS THIS? (TOUCH A WHITE OBJECT)	SAYS COLOR CLEARLY
7 WHAT COLOR IS THIS? (TOUCH A BLACK OR BROWN OBJECT)	SAYS COLOR CLEARLY (NOTE WHICH COLOR YOU TOUCHED)
8 WHAT DO YOU LIKE TO EAT?	SAYS TWO WORDS, SUCH AS "EAT CANDY"
9 WHAT DO YOU LIKE TO DRINK?	SAYS TWO WORDS, SUCH AS "DRINK MILK"
10 WHAT'S THE WEATHER LIKE TODAY?	SAYS TWO WORDS, SUCH AS "IT'S _____" (SUNNY, RAINING, SNOWING, HOT, OR COLD)

CONVERSATION 4

(TWO-WORD, THREE-SYLLABLE RESPONSES)

BEFORE STARTING, TELL STUDENT, "TODAY IS _____."

QUESTION	RESPONSE REQUIREMENTS
1 WHAT'S YOUR NAME?	SAYS FIRST AND LAST NAMES
2 WHAT WARD DO YOU LIVE IN?	SAYS TWO WORDS, SUCH AS "WARD 12"
3 WHAT MONTH WERE YOU BORN? OR: WHEN WERE YOU BORN?	SAYS MONTH CLEARLY
4 WHAT'S THIS AND THIS? (YOU TOUCH TWO BODY PARTS FROM AMONG: EYE, NOSE, EAR, TOE, HAND, HAIR, ARM, LEG, NECK, KNEE, TONGUE, TEETH, FOOT, SHOULDER, CHEST, ANKLE, FINGER, MOUTH, ELBOW, STOMACH)	NAMES THEM CLEARLY
5 WHAT DAY IS TODAY?	SAYS APPROPRIATE DAY CLEARLY
6 WHAT COLOR IS THIS? (TOUCH A PURPLE OR ORANGE OBJECT)	SAYS COLOR CLEARLY (NOTE WHICH YOU TOUCHED)
7 WHAT COLOR IS THIS? (TOUCH A YELLOW OBJECT)	SAYS COLOR CLEARLY
8 WHAT DO YOU LIKE TO EAT?	TWO WORD ANSWERS -- SHOULD VARY FROM DAY TO DAY, SO NOTE EXACT ANSWERS GIVEN
9 WHAT DO YOU LIKE TO DRINK?	
10 WHAT'S THE WEATHER LIKE TODAY?	THREE-WORD ANSWER, SUCH AS "IT'S _____ TODAY" OR "IT'S _____ OUT"

CONVERSATION 5

(SHORT SENTENCES)

BEFORE STARTING, ASK TRAINEE HIS NAME. PRAISE HIM FOR GIVING WHOLE NAME CORRECTLY.

QUESTION	RESPONSE REQUIREMENTS
1 WHO IS THE MATRON IN YOUR BUILDING?	SAYS " _____ IS MATRON"
2 WHERE DO YOU GO TO SCHOOL?	SAYS "I GO TO FERNALD SCHOOL"
3 WHEN IS YOUR BIRTHDAY?	SAYS MONTH AND DATE, SUCH AS "MAY THIRD"
4 WHAT AM I DOING? (YOU CLAP HANDS, STAND UP, WRITE ON PAPER, ETC.)	SAYS SHORT SENTENCE, INCLUDING VERB, SUCH AS "TEACHER IS WRITING"
5 WHAT DAY IS TODAY?	SAYS "TODAY IS _____"
6 HOW DO YOU FEEL?	SAYS SHORT SENTENCE, SUCH AS "I FEEL FINE" OR "I'M SICK" OR "I'M COLD"
7 WHAT COLOR IS YOUR _____ (CLOTHING) _____ ?	SAYS, FOR EXAMPLE, "SHIRT IS RED"
8 WHO ARE YOUR FRIENDS?	NAMES AT LEAST TWO PEOPLE AND SAYS WORD "FRIENDS"
9 WHAT DID YOU EAT FOR (BREAKFAST) (LUNCH) (DINNER) ? (USE LAST MEAL)	SAYS "I ATE _____ AND _____"
10 WHAT'S THE WEATHER TODAY?	SAYS SENTENCE SUCH AS "IT'S RAINING TODAY" AND YOU ADD APPROPRIATE COMMENT SUCH AS "IT'S RAINING, YOU NEED A RAINCOAT" AND TRAINEE REPEATS

CONVERSATION 6

(SHORT SENTENCES)

BEFORE STARTING, ASK TRAINEE HIS NAME, THEN TELL HIM THE MONTH AND COMMENT ON A HOLIDAY THIS MONTH AND THE WEATHER (THIS IS IN PREPARATION FOR ITEMS 5 AND 10).

QUESTION	RESPONSE REQUIREMENTS
1 WHO ARE YOUR ATTENDANTS?	NAMES TWO IN SENTENCE
2 WHERE DO YOU GO TO SCHOOL? DO YOU LIKE SCHOOL?	SAYS "I GO TO FERNALD SCHOOL. I (LIKE) (DON'T LIKE) SCHOOL."
3 HOW OLD ARE YOU?	SAYS "I'M _____ YEARS OLD"
4 WHAT AM I DOING? (YOU STAND UP, COMB HAIR, ETC.)	DESCRIBES YOUR ACTION, USING <u>VERB</u> . FOR EXAMPLE: "YOU COMB YOUR HAIR"
5 WHAT DAY IS TODAY? WHAT MONTH IS IT?	SAYS "TODAY IS _____" (NO CREDIT), THEN SAYS "IT'S _____" (WORK ON CLEAR PRONUNCIATION)
6 DO YOU LIKE T.V.? WHAT'S ON T.V. TODAY?	ANSWERS BOTH QUESTIONS BRIEFLY
7 TELL ME WHAT YOU'RE WEARING TODAY.	GIVES FOUR-WORD ANSWER, INCLUDING COLORS, SUCH AS "RED SHIRT, BROWN PANTS"
8 WHAT DO YOU DO WITH YOUR FRIENDS?	NAMES ACTIVITY INCLUDING <u>VERB</u>
9 WHAT COLOR IS _____ (FOOD) _____ ? WHAT COLOR IS _____ (FOOD) _____ ?	SAYS, FOR EXAMPLE, "CORN IS YELLOW" AND "APPLES ARE RED"
10 WHAT'S THE WEATHER LIKE? WHAT DO YOU DO WHEN IT'S _____ ?	FOR EXAMPLE, SAYS "IT'S HOT" (NO CREDIT) THEN SAYS "YOU GO SWIMMING"

CONVERSATION 7

(SENTENCES)

BEFORE STARTING, ASK TRAINEE HIS NAME (SAYS FIRST AND LAST), THEN WRITE AND SPELL HIS FIRST NAME ALOUD.

QUESTION	RESPONSE REQUIREMENTS
1 DO YOU HAVE A BUILDING/WARD JOB? WHAT IS IT?	IF ANSWER IS "YES" MUST DESCRIBE IT
2 WHAT DO YOU DO IN SCHOOL?	NAMES TWO ACTIVITIES IN SENTENCE
3 WHEN IS YOUR BIRTHDAY? WHAT DO YOU WANT TO DO ON YOUR BIRTHDAY?	SAYS BIRTHDAY (DAY AND MONTH -- NO CREDIT) AND SAYS ACTIVITY FOR BIRTHDAY
4 (YOU HOLD UP AN ACTION PICTURE) WHAT IS THE _____ DOING?	DISCUSSES PICTURE IN SENTENCES
5 WHAT DAY IS IT TODAY? WHAT MONTH IS IT?	(AFTER ANSWERS, TELL TRAINEE THE SEASON AND TALK ABOUT A HOLIDAY THIS MONTH, IF A MAJOR ONE OCCURS)
6 WHAT IS YOUR FAVORITE T.V. SHOW?	NAMES AND TALKS ABOUT THE SHOW
7 TELL ME WHAT YOU'RE WEARING TODAY.	DESCRIBES TWO ITEMS IN A SENTENCE, INCLUDING COLOR
8 WHAT DO YOU LIKE TO DO WITH YOUR FRIENDS?	DESCRIBES TWO ACTIVITIES
9 WHAT DO YOU LIKE TO EAT IN A RESTAURANT?	NAMES ITEMS IN A MEAL (WORK FOR VARIED ANSWERS)
10 (DISCUSS THE WEATHER BY ASKING QUESTIONS SUCH AS THESE) WHAT'S THE WEATHER LIKE TODAY? WHAT CAN YOU DO? . . . WEAR?	TALKS ABOUT THE WEATHER AND HIS PLANS FOR THE DAY, ETC.

_____ MUST MAKE THESE GESTURES TO RECEIVE THESE ITEMS. PLEASE BE SURE THAT EVERYONE IN CONTACT WITH THIS RESIDENT UNDERSTANDS THE PROGRAM AND INSISTS ON THE SAME HIGH STANDARDS.

B O O K PLACE HANDS TOGETHER, THEN OPEN THEM.

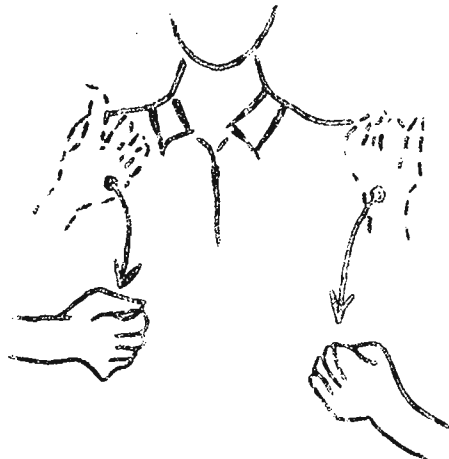


(EXAMPLE: THE RESIDENT CAN USE SIGN TO MEAN "READ ME A BOOK" OR "WHERE IS THE BOOK?")

C A N D Y WITH TWO FINGERS OF RIGHT HAND, MAKE VERTICAL MOVEMENT DOWN PAST MOUTH, TOUCHING NOSE, LIPS, AND CHIN.

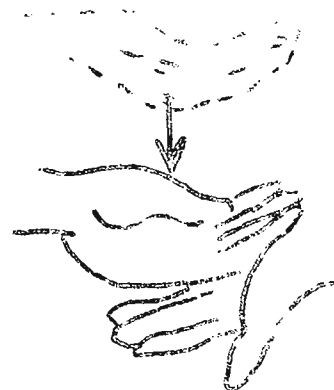


C O A T MAKE FISTS AT SHOULDERS AND MAKE DOWNWARD MOTION.



(EXAMPLE: THE RESIDENT CAN USE SIGN TO MEAN "WHERE IS MY COAT?" OR "I WANT TO GO OUT.")

M O N E Y RIGHT HAND, CUPPED, IS LOWERED ONTO LEFT HAND, MAKING A SLAPPING NOISE.



(EXAMPLE: THE RESIDENT CAN ALSO USE SIGN TO MEAN "TOKEN" OR "PAY ME" OR "HOW MUCH DOES IT COST?")

_____ MUST MAKE THESE GESTURES WHEN COMMUNICATING ABOUT OR REQUESTING THESE ITEMS.
PLEASE BE SURE THAT EVERYONE IN CONTACT WITH THIS RESIDENT UNDERSTANDS THE PROGRAM AND INSISTS ON THE SAME HIGH STANDARDS.

PART 2

G I R L RIGHT HAND IN FIST WITH THUMB UP--MAKES MOVEMENT FROM JAW TO CHIN.



(EXAMPLE: ASK THE RESIDENT IF _____ IS A GIRL, AND HAVE RESIDENT ANSWER WITH GESTURE)

PART 2

B O Y RIGHT HAND IN "SALUTE" POSITION MOVES DOWN FOREHEAD.



PART 2

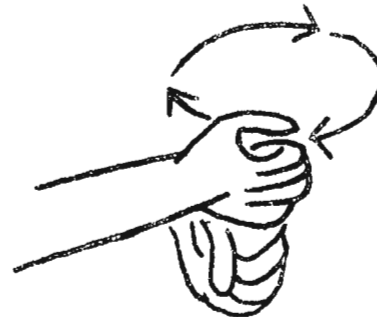
B A B Y RIGHT ARM LYING ON TOP OF LEFT; ARMS ROCK BACK AND FORTH.



(EXAMPLE: STUDENT COMBINES "COAT" WITH "BABY" IN ASKING TO VISIT A BABY HE OR SHE KNOWS.)

PART 3

C O F F E E BOTH HANDS FISTED, RIGHT HAND MOVES CLOCKWISE OVER LEFT HAND ONE TIME.



PART 3

M I L K BOTH HANDS RAISED HALF-OPEN MAKE DOWNWARD CLOSING MOTION, LIKE MILKING A COW.



PART 3

W A T E R RIGHT HAND FLAT AND VERTICAL MOVES OUT AND BACK FROM LIPS.



(EXAMPLE: CAN MEAN "I AM THIRSTY.")

BESTE COMMUNICATION PROGRAM

PHASE	MATERIALS	HOW TO SET UP MATERIALS	WHAT YOU SAY AND DO (SEE ATTACHED SHEETS FOR MANUAL COMMUNICATION SIGNS)	RESPONSE TRAINEE HAS TO:	TRIALS HOW OFTEN	REINFORCEMENT IF HE DOES IT RIGHT	CORRECTION PROCEDURE IF HE DOES IT WRONG
1	10 ITEMS: BOOK, CANDY, COAT, MONEY (4 COINS TAPED TO CARD), 3 DOLLS (GIRL, BOY, BABY), 3 SMALL JARS CONTAINING COFFEE, WATER & MILK	SPREAD OUT ON TABLE	SAY "TOUCH THE _____" OR "WHERE'S THE _____?"	TOUCH ITEM	20	PRaise AND A TOKEN	YOU POINT TO ITEM AND HE IMITATES
2	BOOK, CANDY	PLACE ON TABLE	MAKE THE SIGN FOR EITHER "BOOK" OR "CANDY" THEN POINT TO APPROPRIATE ITEM	TOUCH ITEM	10 (RANDOM, DO NOT ALTERNATE)		YOU REPEAT THE SIGN AND POINT TO ITEM, AND HE POINTS TO ITEM; YOU REPEAT ONLY
3			MAKE THE SIGN FOR EITHER "BOOK" OR "CANDY" (DO NOT POINT)	IMITATE THE SIGN, THEN POINT TO ITEM			
4			SAY EITHER "BOOK" OR "CANDY"	MAKE THE APPROPRIATE SIGN (DOESN'T HAVE TO POINT)	6		YOU REPEAT THE SIGN, HE IMITATES SIGN AND POINTS TO ITEM (FIRST SESSION, GUIDE TRAINEE IN MOTION)
5	COAT, MONEY		MAKE THE SIGN FOR EITHER "COAT" OR "MONEY" THEN POINT TO APPROPRIATE ITEM + MAKE THE SIGN FOR EITHER "COAT" OR "MONEY" (DO NOT POINT)	TOUCH ITEM	6		YOU MAKE THE SIGN, HE IMITATES SIGN AND POINTS TO ITEM
6	COAT, MONEY		MAKE THE SIGN FOR EITHER "COAT" OR "MONEY"	IMITATE THE SIGN THEN POINT TO ITEM	10 (RANDOM)		YOU REPEAT THE SIGN, HE IMITATES SIGN AND POINTS TO ITEM
7	COAT, MONEY		SAY EITHER "COAT" OR "MONEY"	MAKE THE APPROPRIATE SIGN (DOESN'T HAVE TO POINT)	6		YOU REPEAT THE SIGN, HE IMITATES SIGN AND POINTS TO ITEM
8	BOOK, CANDY, COAT, MONEY		MAKE ONE OF THE FOUR ITEMS	IMITATE THE SIGN THEN POINT TO ITEM	20 (RANDOM)		YOU REPEAT THE SIGN, HE IMITATES SIGN AND POINTS TO ITEM
9	9 DOLLS -- GIRL, BOY, BABY	PLACE ON TABLE	MAKE THE SIGN FOR EITHER "GIRL," "BOY" OR "BABY," THEN POINT TO APPROPRIATE ITEM	TOUCH ITEM	15 (TOTAL)	PRaise AND A TOKEN	YOU REPEAT THE SIGN AND POINT TO ITEM, AND HE POINTS
10			MAKE THE SIGN FOR EITHER "GIRL," "BOY" OR "BABY" (DO NOT POINT)	IMITATE THE SIGN THEN POINT TO ITEM	12 (RANDOM)		YOU REPEAT THE SIGN, HE IMITATES SIGN, AND POINTS TO ITEM

FOR PHASE 17 ONE SESSION TO DETERMINE IF TRAINEE USED GESTURES HE KNOWS WHEN OTHER ITEMS ARE PRESENT. TELL HIM HE WILL GET TO LEARN THE OTHERS BECAUSE HE HAS DONE SO WELL WITH THE FIRST FOUR

PHASE	MATERIALS	HOW TO SET UP MATERIALS	WHAT YOU SAY AND DO (SEE ATTACHED SHEETS FOR MANUAL COMMUNICATION SIGNS)	RESPONSE	TRIALS	REINFORCEMENT	CORRECTION PROCEDURE
12	3 DOLLS -- GIRL, BOY, BABY	PLACE ON TABLE	SAY EITHER "GIRL," "BOY" OR "BABY"	TRAINEE HAS TO: MAKE THE APPROPRIATE SIGN	HOW OFTEN 12 (RANDOM)	IF HE DOES IT RIGHT: PRAISE AND A TOKEN	IF HE DOES IT WRONG: YOU REPEAT THE SIGN, HE IMITATES SIGN, AND POINTS TO ITEM
13	BOOK, CANDY, COAT, MONEY, 3 DOLLS (GIRL, BOY, BABY)		MAKE ONE OF THE SEVEN ITEMS		21 (3 EACH ITEM, RANDOM)		
14	3 SMALL JARS CONTAINING COFFEE, WATER & MILK		MAKE THE SIGN FOR EITHER "COFFEE," "WATER" OR "MILK" THEN POINT TO APPROPRIATE ITEM + MAKE THE SIGN FOR EITHER "COFFEE," "WATER" OR "MILK" (DO NOT POINT)	TOUCH ITEM	(15 TOTAL) 9 + 6		YOU REPEAT THE SIGN AND POINT TO ITEM AND HE POINTS
15			MAKE THE SIGN FOR EITHER "COFFEE," "WATER" OR "MILK" (DO NOT POINT)	IMITATE THE SIGN THEN POINT TO ITEM	12 (RANDOM)		YOU REPEAT THE SIGN, HE IMITATES SIGN AND POINTS TO ITEM
16			SAY EITHER "COFFEE," "WATER" OR "MILK"	MAKE THE APPROPRIATE SIGN			
17		SPREAD OUT ON TABLE	NAME EACH OF THE ITEMS		20 (RANDOM)		
18	ALL 10 ITEMS (SEE PHASE 1)		SAY, "WHAT DO YOU WANT?"	MAKE THE APPROPRIATE SIGN, THEN PICKS UP ITEM AND PLACES IT NEAR HIM	10	PRAISE AND A TOKEN PLUS OPPORTUNITY TO HOLD OBJECT	YOU MAKE THE SIGN, HE IMITATES SIGN AND POINTS TO ITEM (YOU TAKE ITEM); HE CAN TAKE IT
19		IN A SHOPPING BAG (I.E., OUT OF TRAINEE'S SIGHT)	SAY, "WHAT DO YOU WANT?" AND MAKE APPROPRIATE SIGN	REPEAT THE GESTURE + GIVE YOU THE ITEM	10 (EA. ONCE) + 10 (EA. ONCE)	TOKEN, PRAISE, AND YOU GIVE STUDENT THE ITEM TO PUT ASIDE + TOKEN AND PRAISE	YOU MAKE SIGN, STUDENT IMITATES AND YOU TAKE ITEM + YOU REPEAT GESTURE AND POINT TO ITEM AND TRAINEE GIVES IT TO YOU
MAINTENANCE	EVERY 12 TRAINEES WHO HAVE COMPLETED PHASE 19	STUDENTS FACE EACH OTHER, "TUTOR" - STUDENT HOLDS SHOPPING BAG WITH 10 ITEMS IN IT	SAY, "WHAT DO YOU WANT?" TO TRAINER-STUDENT, WHILE TUTOR-STUDENT ATTENDS TO HIM	MAKE THE APPROPRIATE SIGN	10 + 10 (2ND HALF STUDENTS SWITCH ROLES)	TOKEN, PRAISE, AND TUTOR-STUDENT GIVES TRAINEE-STUDENT ITEM TO HOLD	IF TUTOR-STUDENT GIVES GESTURE AS USUAL, YOU DEMONSTRATE GESTURE AND BOTH STUDENTS IMITATE; OBJECT STAYS IN BAG

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