

BEHAVIOR DEPARTMENT  
Walter E. Fernald State School  
Waverley, Massachusetts

Beatrice H. Barrett, Ph.D., Director

ANNUAL REPORT

1 July 1969 - 30 June 1970

---

TABLE OF CONTENTS

1.0 ADMINISTRATION - - - - -	1
1.1 Support from grants and institutional sources - - - - -	1
1.2 Behavior Department classroom - - - - -	1
1.3 Communication with residential units - - - - -	2
1.4 Consultation requested by Opportunity workshop - - - - -	2
1.5 Laboratory capabilities expanded - - - - -	2
1.6 Personnel - - - - -	3
2.0 BEHAVIOR EVALUATION - - - - -	4
2.1 Productive and disrupting behaviors - - - - -	4
2.2 Consequence effectiveness - - - - -	4
2.3 Rocking - - - - -	4
2.4 Locomotor activity, vocal behavior, and discrimination - - - - -	5
2.5 Simultaneous differentiation and discrimination - - - - -	5
2.6 Development of communication circuit - - - - -	5
3.0 HABILITATION OF FERNALD RESIDENTS - - - - -	7
3.1 Classroom pupils - - - - -	7
3.2 Curricula - - - - -	10
3.3 Vocational habilitation opportunities for adults - - - - -	13
3.4 Training & assessment of adult residents of custodial wards - - - - -	13
3.5 Transfers, school placements and retractions - - - - -	13
4.0 TRAINING - - - - -	14
4.1 Institution personnel - - - - -	14
4.2 University and high school students - - - - -	14
5.0 COMMUNICATION - - - - -	15
5.1 New articles - - - - -	15
5.2 Publications anthologized - - - - -	15
5.3 Distribution of articles - - - - -	16
5.4 Presentation to professional group - - - - -	16
5.5 Presentations to staff of Fernald School - - - - -	16
5.6 Presentations to parent and community groups - - - - -	16
5.7 Attendance at professional meetings - - - - -	16
5.8 Laboratory and classroom tours - - - - -	16
5.9 Special appointment - - - - -	16
6.0 PLANS FOR THE FUTURE AND NEEDS FOR NEXT YEAR - - - - -	17
6.1 Areas of development for next year - - - - -	17
6.2 Needs for facilities and personnel - - - - -	17

## 1.0 ADMINISTRATION

### 1.1 Support from grants and institutional sources

1.11 As noted in previous reports, the development of the classroom was seriously retarded for two years by the vagaries and red tape of Title I (P.L. 89-313) funding and the lack of clear "line" affiliation with the laboratory. From September to November of 1969 the classroom received no support from Title I. During that time, we began to re-organize the classroom to permit a close working relationship with the laboratory. James E. McCormack, Jr., who trained with us as a co-op student and then as a graduate fellow, was appointed classroom supervisor. Clerical duties were assumed by the laboratory secretary. Once organized, with an effective leader, the ongoing classroom was able to benefit from the eventual appearance of Title I staff.

We invited the Director of Education and Training to supervise work under Title I that was being conducted in the School House.

1.12 Grant MH-14880 from the Applied Research Branch of the National Institute of Mental Health continues to be our major source of funds. Some training materials and considerable technical assistance for the classroom have been financed by this federal grant to the laboratory.

1.13 Because of the demands of unitization, the loan of personnel from the Department of Education and Training had to be partly withdrawn. We lost the half-time teacher who was with us the previous year, and our recreation therapist worked with us only half time.

1.14 We have been told that in the coming year a principal psychologist position (grade 18) will be allotted to the Behavior Department. We are eagerly awaiting formal confirmation of this opportunity to add a professionally trained person to our staff.

1.2 The Behavior Department Classroom, under Mr. McCormack's able direction, has become an exciting arena where laboratory methods and findings can be applied and where habilitative strategies can be explored. Daily interaction between laboratory and classroom has generated an effective system of communication via a continuous flow of data. The communication circuit is described and schematized in section 2.6.

Some of the furnishings in the classroom were paid for with Title I funds. Many items have been donated by the staff and by parent groups, and some cast-offs have been contributed by other departments at Fernald. The laboratory electronics technicians installed fused AC receptacles in the tutorial cubicles, and vinyl floor tiles, donated by local merchants, were laid by the classroom staff. Mr. McCormack personally donated cement paint, which some of the resident-tutors applied to the floors in the larger areas.

Just recently, we were assured that the fluorescent lighting, which we have requested for the last two years, will be installed during the coming year. We have also been promised the use of a room across the hall from the classroom--space which is sorely needed as we now have 17 pupils participating in classroom programs, which are being run for five hours a day.

- 1.3 Communication with residential units is increasing. We have discussed our investigative and habilitative programs with the directors of two of the better organized and more accessible units. As other units become administratively stable, we plan to contact their directors also. As a basis for developing our program in useful directions, we constructed a questionnaire to assist them and us in outlining each unit's habilitative needs. As a result of these efforts, we have had our first referrals for the combination of assessment and habilitation services we are evolving (see sections 3.3 and 3.4).
- 1.4 Consultation on a regular basis was requested by the Opportunity Workshop of the Fernald League. As our instructional program has come to include less retarded residents (see sections 2.61 and 3.0), as well as those who are severely retarded, we have become increasingly concerned with the opportunities that might await young adults outside our classroom. Fernald's sheltered workshop could provide residents with opportunities for constructive use of the skills they acquire in our program. Toward the goal of building a truly prosthetic community to support the most competent behavior of long-term residents, we are trying to assist in developing assessment procedures for the workshop.
- 1.5 Laboratory capabilities continue to expand. A time-out circuit was added to Room 1. In Room 4, we are modifying the circuitry so that tape-recorded music and colored slides can be presented as antecedent (discriminative) stimuli, as well as reinforcing consequences. Episodically programmed music and slides and conjugately programmed music were previously available in this enclosure, but only as consequences of free-operant responding. We have also added music as a discriminative stimulus in Room 2.

It was discovered in the classroom that self-presentation of teaching materials was very effective for some pupils. Therefore, in Room 2, the participants themselves will soon be able to control the presentation of discriminative stimuli--an arrangement designed to make the laboratory more classroom relevant.

Our portable unit for the study of milieu-specificity of laboratory-measured behavior patterns was not ready for use until recently because the dolly necessary to stabilize its balance was delivered six months late. Now that the equipment is ready, Wheatley Hall--where we had planned to have it operating several months ago--is being remodeled. When the renovation is completed, and space is freed for the unit, we will move it to the ward. In the meantime, our plan is to place it in the classroom and in the corridor to see how our laboratory participants respond to it in a group setting.

## 1.6 Personnel

### 1.61 Regular staff

Madeline Callahan resigned as secretary because of illness. She was replaced after three months by Elsa Berenberg.

Mark Wisan, M.S., was terminated as junior laboratory assistant and was not replaced. William Close resigned as instrumentation engineer to reside in California. Tom Severns, B.A., continues as laboratory assistant, and John Hoover, B.A., as instrumentation engineer.

Barbara Colby, B.A., continues as data analyst. Warren Hofstra has joined us as data ~~analysis~~ assistant. Judith Rosenberg, A.B., continues as information-retrieval and editorial assistant.

Jill Romanoke resigned as teacher to become self-employed. Joanne MacClary served half-time as both teacher and liaison with unit personnel. James E. McCormack, Jr., assumed supervision of the classroom while earning his M.Ed. at Northeastern University. Hara Bouganim, M.Ed., is writing and evaluating classroom programs. Linda Schwabe is teacher. Melissa Armstrong, special education student at Boston University, recently joined us as part-time teacher.

1.62 Student staff on field placement were Heidi Dolgoff and Carole Ernst from Northeastern University and Lee Vorderer, who received her B.A. from Wellesley College in June.

1.63 Volunteers included 15 students from Boston College who worked with Wheatley Hall children under the supervision of Miss MacClary and Mrs. Bouganim. In addition, 24 students from four colleges (Boston University, Brandeis University, Leslie College, and Wellesley College) and three high schools (Belmont High School, Milton Academy, and Lincoln-Sudbury Regional High School) volunteered as classroom teachers (see sections 2.62 and 4.2).

## 2.0 BEHAVIOR EVALUATION

Most of our time during the past year was devoted to data analysis and to development of the classroom. We have continued to expand the opportunities available to our laboratory participants, and three adult residents (R's 1, 2, and 3) have joined our laboratory group, bringing the total to 103. In addition, five residents are now participating in our Behavior Department program as classroom tutors.

2.1 Analysis of institutional factors associated with productive and disrupting behaviors in the laboratory was completed. The findings are reported in a paper entitled "Behavioral Differences Among an Institution's Back Ward Residents," which has been submitted for publication.

2.2 We are continuing and updating our comprehensive analysis of consequence effectiveness, which was reported in detail last year. We will eventually have a complete ranking of consequence effectiveness including all laboratory participants, all consequences, and all contingencies used. When we have ascertained the range of median rates and the mid-median rate of all participants for each consequence, we will be able to assess a given child's performance in comparison to the group. The effectiveness of the various consequences is also being considered with respect to the children's level of intelligence and/or adaptive behavior, age, and duration of institutionalization.

Rate patterns for each consequence are being analyzed for every child who has participated thus far and for each psychometric subgroup. The individual rate patterns will be graphed with reference to the mid-median rate of the total group within each psychometric category. This will permit more precise comparisons than our preliminary graphs which showed simply the mid-medians of selected groups.

Individual consequence profiles are being brought up to date. These will include, for comparison purposes, the total group's mid-median rate of responding for each consequence, as well as each individual's range of rates and median rate for each consequence.

We are beginning to do statistical correlations of rates to determine 1) if there are relationships between median rates for different consequences and 2) if there are behavioral subgroups that can be defined by deviations from the group matrix.

2.3 Analysis of rocking data is under way. Peter Wish, M.Ed., who spent a year with us as a predoctoral fellow, analyzed our records of one child's body rocking under different laboratory conditions. The mechanically-recorded rocking behavior of all rockers will be functionally defined in relation to time in the laboratory, acquisition of discriminated behavior, and simple free operant rates for different consequences.

- 2.4 We have begun to analyze our simultaneously recorded data on locomotor activity, vocal behavior, and discriminated operant behavior. We are particularly interested in the relative rates of locomotor and vocal behavior during acquisition of simultaneously measured differentiation and discrimination. Effects on the measured but unconsequated locomotor and vocal behaviors, when contingencies are reversed for the manual task, will be examined.
- 2.5 Simultaneous analysis of differentiation and discrimination is being continued. We have been experimenting with different ways of graphically summarizing both individual and group data, and we have begun to summarize data on remediation and prosthesis. Three residents (RC 65, RCF 28, R 3) whose laboratory experiences have heretofore been limited to some of the less complex apparatuses are now participating in our differentiation and discrimination studies.
- 2.6 Development of a communication circuit to evaluate instructional tactics has been, we think, a significant accomplishment. From our laboratory's well-established data control system, our classroom supervisor has evolved a functional system for data flow. The circuit, which is diagrammed below (Figure 1), has proved to be an effective vehicle for supervision, organization, and most importantly, communication.

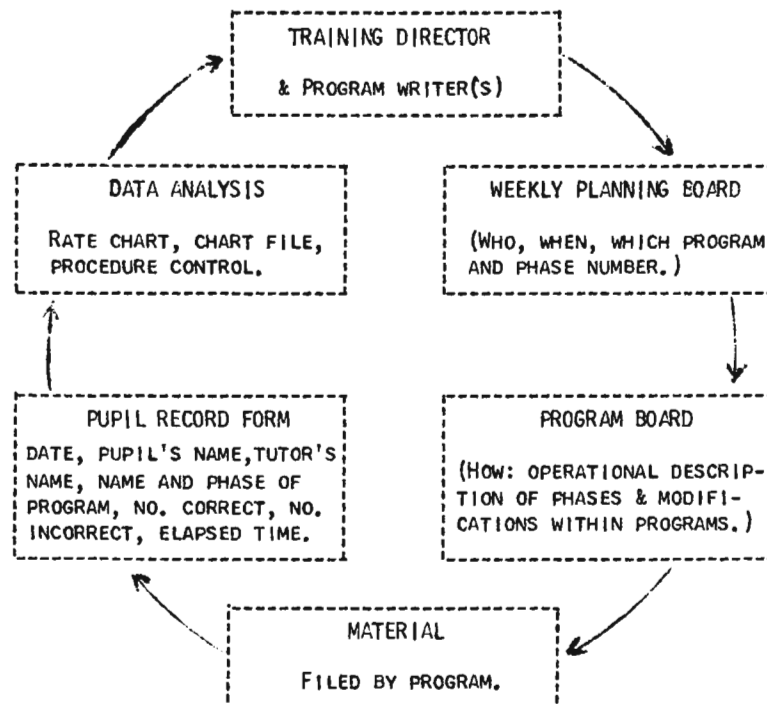


FIGURE 1  
COMMUNICATION CIRCUIT FOR RAPID FEEDBACK IN EVALUATING INSTRUCTIONAL METHODS

The classroom supervisor must have readily accessible information on program effectiveness so that he may make trial revisions to keep each pupil progressing rather than repeating the same errors. Because of the varying levels of both teacher and student competence and the large number of teachers and programs, a further requirement is a standardized recording form used by all teachers and a standardized chart on which each student's daily progress is plotted. These basic tools enable the classroom supervisor to make quick comparisons of pupils, programs, and teachers and to decide on sequential phases or program shifts for each pupil.

The communication cycle begins with the weekly planning board, which lists each pupil and his assigned programs. There is a blank for each day that the program is to be run. Teachers are given specific program assignments. After they have completed an assignment, they enter their name in the appropriate blank, providing an up-to-the-minute record of which programs have been run and which are still to be run.

The specific procedures of each program and every sequential phase within it are posted on a program board. After the teacher finds out what programs are to be run and with whom, she checks the planning board to see what phase the pupil is in. She then consults the program board, gets a standard recording sheet, invites the student to a cubicle, and runs the program. After completing the program, recording the time, and summarizing the number of correct and incorrect responses, the teacher places the recording sheet in the data collection box.

The data analyst collects the recording sheets daily. Each pupil's rates of correct and incorrect responses are plotted on standard six-cycle semi-log paper. There is a six-cycle graph of each student's progress on each program. The data analyst checks the graphs to see what changes are occurring in each pupil's behavior. He notes trends which suggest that a pupil is ready to move on to the next phase of a program, that a program should be terminated, or that a pupil is making no progress and therefore needs program revision.

The supervisor then decides what changes should be tried. To complete the communication cycle, he notes on the planning board the termination, modification, or change of phase he thinks most appropriate, and he posts a description of new procedures on the program board. In this way each pupil's curriculum is adapted continually to his recorded behavioral status.

The simplicity of the operations within the circuit has enabled us to offer immediate classroom participation to anyone who is interested, including visitors and parents.

The circuit operations appear to have solved many problems that have heretofore impeded functional interaction between the laboratory and classroom application. The circuit has brought us to a common data base, with sufficient flexibility for continuous evaluation of instructional sequences. Program development no longer suffers from staff turnover or idiosyncratic recording and graphing habits.

- 2.61 Resident tutors as integral members of the teaching team. Five residents of Fernald have participated on a continuing basis since November 1969. Their ages range from 17 to 42 years and their psychometric levels from III to V. Their activities are more fully described in section 3.22.
- 2.62 Variable-teacher tutorials. The efficiency of the communication circuit enables us to include as part of our teaching staff a large number of high school and college volunteers, who may come to the classroom at their convenience and participate in a systematic program by simply following the directions on the planning and program boards. The classroom pupils are thus provided with a variety of tutors, all of whom use standard procedures for administering programs and recording pupil behavior. We, in turn, have a basis for looking at the effectiveness of programmed sequences across tutors. One pupil's progress in learning to read under the tutelage of several teachers is shown in Figure 2 (page 8).

### 3.0 HABILITATION OF FERNALD RESIDENTS

- 3.1 The majority of our classroom pupils come from Wheatley Hall. Others come from East, Kelly, Chipman, Warren, Wallace, and Lavers. Their ages range from 10 to 32 years, and their classifications span the range from profoundly retarded to "outward bound." All of the profoundly and severely retarded pupils are being studied concurrently in the laboratory.

Participation in the classroom is always voluntary. The door is open for pupils to come and go as they choose. The open-door policy has enabled many of the "outward-bound" residents to observe and participate in classroom activities. We have no evidence of anything but beneficial effects resulting from this freedom of movement, which allows for freer interaction among the students.

Since last September, use of the classroom, in terms of pupil hours, has increased almost tenfold, as shown in Figure 3 (page 9).

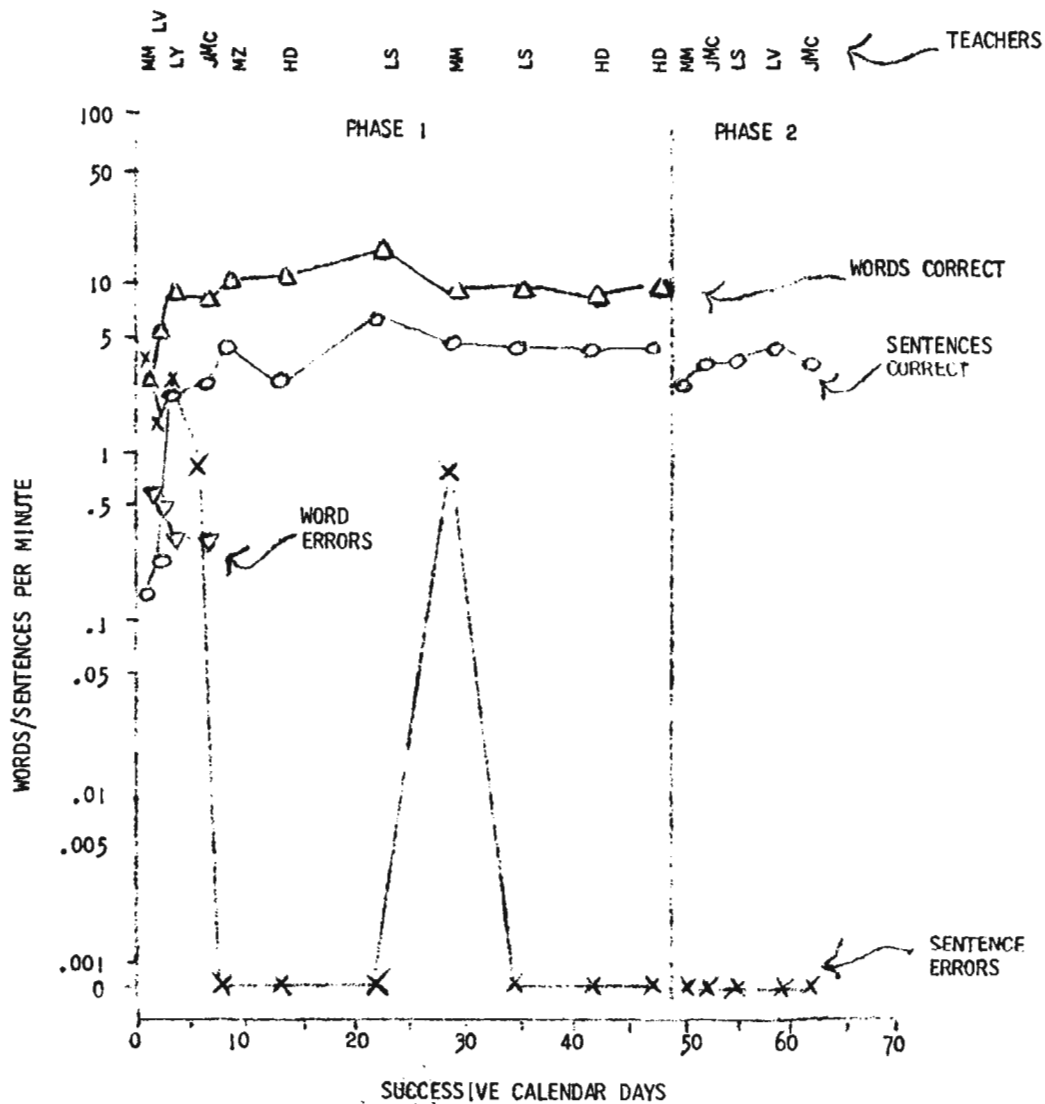


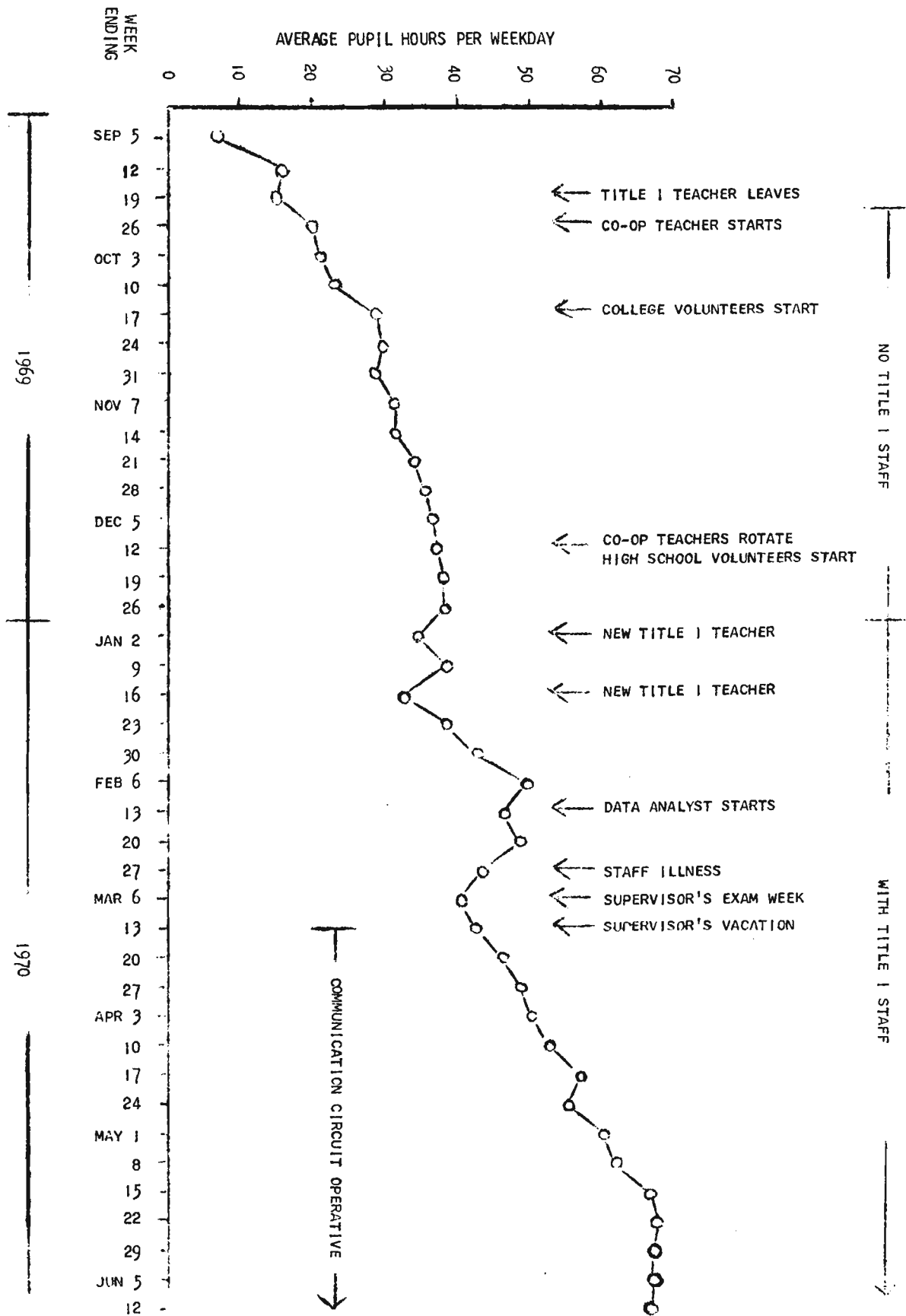
FIGURE 2

IDENTIFICATION OF WORDS AND SENTENCES:  
A PUPIL'S PROGRESS UNDER THE TUTELAGE OF DIFFERENT VOLUNTEER AND PROFESSIONAL TEACHERS

THIS PROGRAM INCLUDED TWO TASKS: 1) THE READING OF 6 SHORT SENTENCES, PRINTED ON SMALL CARDS; 2) IDENTIFICATION OF 20 WORDS, EACH PRINTED ON A SEPARATE CARD. IN PHASE 1, THE TEACHER PUT A SENTENCE IN FRONT OF THE PUPIL AND ASKED HER TO READ IT. IF THE PUPIL READ WITHOUT ERROR, SHE RECEIVED A TOKEN. IF SHE MISREAD A WORD, THE TEACHER CORRECTED HER AND ASKED HER TO READ THE SENTENCE AGAIN. EACH SENTENCE WAS PRESENTED TWICE IN EACH SESSION. THE SAME PROCEDURE WAS FOLLOWED FOR THE 20 WORDS. IN PHASE 2, FIVE SENTENCES WERE COMPOSED FROM THE 20 WORDS LEARNED BY THE PUPIL IN PHASE 1, AND SHE WAS ASKED TO READ THEM AS IN THE PREVIOUS PHASE.

INCREASING PUPIL USE OF BEHAVIOR DEPARTMENT CLASSROOM SINCE SEPTEMBER 1969

FIGURE 3



### 3.2 Curricula

- 3.21 For the more severely retarded pupils we offer individual training in specific skills. Group activities provide opportunities to apply these skills, to interact with other pupils, and to explore the environment, which includes a considerable variety of objects.

Specific programs in basic skills are selected to teach the pupils to carry out simple requests that could and should be an integral part of their daily activities in their residential units. The pupils are learning to recognize written letters and words, to identify objects in their immediate environment, to discriminate colors and shapes, to identify the days of the week, to count, to set the table, to locate parts of the body. They are learning to read aloud, to respond appropriately to short written requests, and to recognize currency. Relational concepts such as top-under and inside-outside are being taught to them, and they are learning to match numerals with quantities. All of these programs are initially conducted in the cubicles, on an individual basis.

Reinforcers. Most of the pupils learned to work for tokens in the laboratory. They now also work for tokens in the classroom. Children who have not yet learned the value of tokens are allowed to earn candy or snacks. They will eventually be taught how to use tokens to obtain these goodies. In the laboratory, we have found that many of the children are quite selective in what they will work for. By offering television, music, and visual materials, in addition to edibles, we can reach many more children. Therefore, classroom pupils may earn the privilege of watching Sesame Street, listening to records, or looking at pictures and books. Some pupils choose to "rent" flash cards and other educational materials. As the pupils' earning power has increased with their newly acquired skills, we have added other opportunities for token exchange such as gym sessions, field trips, and lunch in GBU.

Group activities. The children still have little chance to use their developing skills in their living quarters. We expect that the ward policies will be revamped as unitization progresses. Meanwhile, in an effort to counteract the behavioral restrictions of the ward environment, the classroom provides its 15 regular severely retarded pupils with both morning and afternoon sessions. To maximize opportunities for the children to generalize their skills we have made available a variety of group activities, most of which have to be paid for with tokens.

The pupils obtain most of their tokens in specific individual programs. In addition, they can also earn tokens for performing such tasks as sweeping the floor, emptying the wastebaskets into receptacles located elsewhere in the building, washing their cups in the laboratory sink, and participating appropriately in more structured classroom activities. Throughout the day, teachers structure tasks which test the student's ability to use his new behaviors. Pupils who purchase a session of Sesame Street are encouraged to participate in parts of the program by singing, counting, and making size and shape discriminations. In the gym, students are rewarded for joining in as many activities as possible.

While waiting for their individual sessions, the pupils may use crayons, pegboards, puzzles, musical instruments, books, and other educational toys. When the classroom opened, most of the students simply sat doing nothing. Few of them explored the classroom. Although they had been used to operating laboratory devices by themselves, their ward environment had never offered reinforcement for exploratory behavior in a group situation. If necessary, we rewarded the children for examining or even just touching the materials around them. Eventually the materials and activities themselves acquired reinforcing properties, and the pupils began exercising their own preferences. Now the pupils have to use their tokens to rent the various materials and activities.

- 3.22 Ten of Fernald's more capable and potentially "outward bound" residents have received training as classroom tutors and teaching assistants. Three were referred to us by unit personnel, while the other seven asked, on their own, if they could participate. These young adults have worked in other departments on the grounds, and one of them has worked in the community. Most of them have lost their jobs because of difficulties with their supervisors or because of unacceptable social behavior. They have told us that they did not like the menial tasks assigned to them and that the money they earned was not sufficient reason to remain at their previous jobs.

In the classroom, we regard these people as resident teachers-in-training. They are taught to conduct some of our individual training programs for the more severely retarded pupils. They quickly learn to carry out teaching sessions independently, to set up their own lesson plans, to keep systematic records of their pupils' correct and incorrect responses, and to use stopwatches to record elapsed time. Figure 4 (page 12) shows an example of retarded teacher accomplishment.

It appears that the opportunity to teach in the classroom is highly reinforcing to these people. They have been eager to learn new skills and techniques that will make them not only better teachers but generally more capable people. They may ask staff members for assistance in improving their reading, learning to use an electric typewriter, improving their grammar and spelling, and constructing instructional materials for the classroom. One of them has learned to use our photocopy machine to duplicate classroom materials. They assist in collating, stapling, and other routines of the classroom. These teachers-in-training have become an integral part of the classroom and are contributing to its growth and progress.

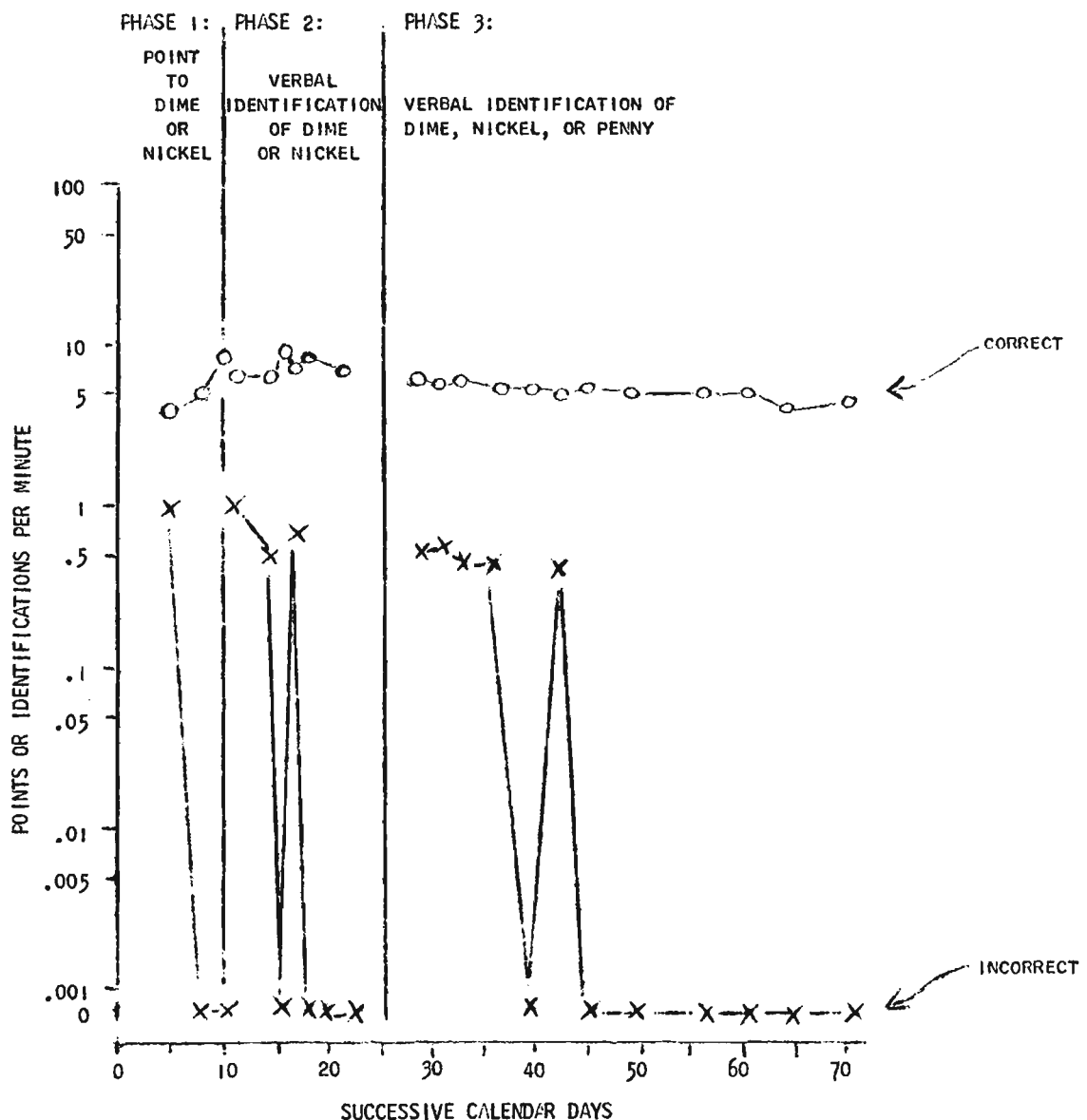


FIGURE 4

A PUPIL'S PROGRESS IN LEARNING TO IDENTIFY CURRENCY  
UNDER THE TUTELAGE OF A RET/REDDED TEACHER-IN-TRAINING

IN PHASE 1, THE TUTOR PUT THE COINS IN FRONT OF THE PUPIL AND ASKED HER TO POINT TO ONE OF THEM. IF THE PUPIL POINTED TO THE RIGHT ONE, SHE RECEIVED A TOKEN AND WAS PRAISED. IF SHE MADE AN ERROR, SHE WAS CORRECTED AND ASKED AGAIN. DURING EACH SESSION, THE PUPIL HAD 10 OPPORTUNITIES, RANDOMLY ORDERED, TO IDENTIFY EACH COIN. IN PHASE 2, THE PUPIL HAD TO NAME WHICHEVER COIN THE TUTOR DISPLAYED. EACH COIN WAS PRESENTED 10 TIMES, IN RANDOM ORDER. IN PHASE 3, A PENNY WAS ADDED, AND THE PUPIL WAS ASKED TO NAME THE COINS AS IN PHASE 2. EACH COIN WAS PRESENTED 5 TIMES.

3.3 Vocational habilitation opportunities for adults have greatly expanded this year due to the effectiveness of classroom organization. In addition to the young adult residents who are participating in the classroom activities, we are continuing to offer vocational training to a young man (RC 16) in the laboratory who had long participated in our studies. He has made such progress that he was recently transferred from Wallace to Dowling. He purchases personal items at the STARS store, he reads newspapers, and he now has full responsibility for answering the telephone and taking messages during our secretary's lunch hour. He has performed his mail-transporting duties so well that other departments and units have solicited his services.

3.4 Training and assessment of adult residents of custodial wards have also expanded in the last year. J.S. is still receiving individual training in numerical skills and time-telling. He was transferred out of North Building to Lavers Hall. His appearance and, no doubt, his health have been greatly improved by a weight loss of more than 70 pounds since February; he has stopped consuming gallons of water, he no longer eats bread and potatoes, and he seems to have acquired an aversion to his obesity.

D.G. is continuing to type his autobiography. His writing has improved in all respects, and he now spends part of his time operating a key punch machine. This man's verbal skills, retained through more than 20 years in the custodial back wards of Fernald, continue to inspire us to locate and build upon unrecognized skills in as many residents as possible.

By typewritten letter, D.G. referred one of his wardmates to us. J.DuP. is now receiving daily tutoring in reading. He is up to second-grade level, and he does his homework each night. J.DuP.'s "pusher" (of wheelchair, that is), D.C., is also being tutored each day.

3.5 Transfers, school placements and retractions. For the third year, RC 57 is attending school in nearby Lexington. Our first attempt at direct public school placement of a severely retarded resident appears to be working out very well.

Three Wheatley Hall children (RC 65, RCF 28, RCF 29) were accepted into School Department classes last year. One of these children (RC 65) is now in the new unit for outward-bound boys. The other two (RCF 28 and RCF 29) have returned to our classroom, where they are receiving instruction commensurate with the skills they have acquired.

## 4.0 TRAINING

4.1 Institution personnel. The aims and activities of the classroom have been the focus of our presentations to the newly reorganized in-service orientation program. Our staff members have rotated as lecturers once a month to acquaint new Fernald employees with our work. An informal paper describing the classroom was prepared as a supplement to the lectures. Following our strategy of direct participation as a more effective training vehicle, we plan to substitute periods of observation and discussion in the classroom and laboratory for the more traditional lectures.

## 4.2 University and high school students

4.21 Students from four colleges and three high schools have obtained field training through their volunteer service in the classroom (see section 1.63). Some of the university students participated to fulfill course requirements. Many of the students wrote term papers based on their classroom training experience. Some of the high school students were from a group that had volunteered the previous year and had asked to continue the program. The specificity of teaching tasks and the flexibility of our scheduling system enabled 24 volunteers to function as integral members of our classroom staff (see section 2.62).

Another 15 volunteers were handled differently. They did not participate via the communication circuit. Instead, they picked their own residents, retained the more conventional constant-teacher tutorial (same teacher and same child), kept no systematic records, and, as a group, operated independently of the classroom program. This is the more usual way of accomodating rather than integrating volunteer participants, who are often considered more "trouble" than they are worth.

The volunteers who operated within our communication circuit were far more effective and helpful to us. They were more dependable and, by participating in variable-teacher tutorials, contributed significantly to the development of both the pupils and the total program. They, in turn, enjoyed the experience of having contact with a large number of retarded pupils.

Many of the other volunteers became discouraged with the lack of progress in the individual residents they had chosen. Dissatisfaction was evidenced by irregular and dwindling attendance and unproductive discussions on selection of target behaviors. Their idiosyncratic efforts, although well meant, added nothing to our fund of information about the residents.

Our experience shows that volunteers can be integrated into total programming, that they prefer to contribute in specific and measurable ways, and that, given an operationally simple and highly structured system in which to work, they can contribute to progressive changes in institutional training programs.

- 4.22 Graduate fellows. Peter Wish, M.Ed., completed his year of pre-doctoral training and is now teaching at Bentley College while writing his dissertation for Boston College. W. Alan Bodnar, A.B., received training in data analysis last summer; he is now a graduate student in psychology at Boston University.
- 4.23 Undergraduate co-op students from Northeastern University continue to receive training as teaching assistants. They are now supervised by Mr. McCormack, whose own experience as a co-op student with us makes him well qualified to help his co-op students to get the most out of their participation in an institution classroom. The Northeastern students and a Wellesley student have competently augmented our small teaching staff (see section 1.62).

## 5.0 COMMUNICATION

### 5.1 New articles:

- 5.11 Behavior Modification in the home: Parents adapt laboratory-developed tactics to bowel-train a 5½-year-old. Psychotherapy: Theory, Research and Practice, 1969, 6, 172-176.
- 5.12 Behavioral differences among an institution's back ward residents. Submitted for publication.

### 5.2 Publications anthologized:

- 5.21 Reduction in rate of multiple tics by free operant conditioning methods. Journal of Nervous and Mental Diseases, 1962, 135, 187-195.
- Reprinted in: Schwitzgebel, R. (Ed.) Behavior instrumentation. Holt, Rinehart & Winston, 1970 (in press).
- 5.22 Deficits in acquisition of operant discrimination and differentiation shown by institutionalized retarded children. American Journal of Mental Deficiency, 1962, 67, 424-436. (with O. R. Lindsley)
- Reprinted in: Edwards, D. (Ed.) The experimental analysis of behavior. New York: Simon & Schuster, 1970 (in press).

5.3 Distribution of articles: Since 1 July 1969, we have filled 146 requests for reprints and descriptions of our work, and we have distributed a total of 348 articles and reports.

5.4 Presentation to professional group:

5.41 Retarded pupils: Our best teachers of classroom tactics.  
American Association on Mental Deficiency, Washington, D. C.,  
May, 1970.

5.5 Presentations to staff of Fernald School:

5.51 James E. McCormack, Jr. Behavior Department Classroom. In-Service Orientation Program, April 1970.

5.52 Linda Schwabe. Behavior Department Classroom. In-Service Orientation Program, May 1970.

5.6 Presentations to parent and community groups:

5.61 New ways to let children teach us. Mothers-of-Twins Association of Dedham. Dedham, Mass., October 1969.

5.62 New ways to let children teach us. Parents and teachers, Warren School for Trainable Retarded Children. Waltham, Mass., November 1969.

5.63 Prosthesis and suppression in the management and assessment of retarded behavior. Greater Plymouth ARC. Pembroke, Mass., December 1969.

5.64 Earth Day: How we learn about retarded children by altering their institutional environment. Eastern Middlesex ARC. Stoneham, Mass., April 1970.

5.7 Attendance at professional meetings: Dr. Barrett attended the annual meetings of the American Psychological Association, American Association on Mental Deficiency, and American Academy on Mental Retardation.

5.8 Laboratory and classroom tours: Since 1 July 1969, we have had 161 visitors, including 89 professionals. Most of the other visitors have been university students.

5.9 Special appointment: Dr. Barrett was elected Member-at-Large, Executive Committee, American Academy on Mental Retardation.

## 6.0 PLANS FOR THE FUTURE AND NEEDS FOR NEXT YEAR

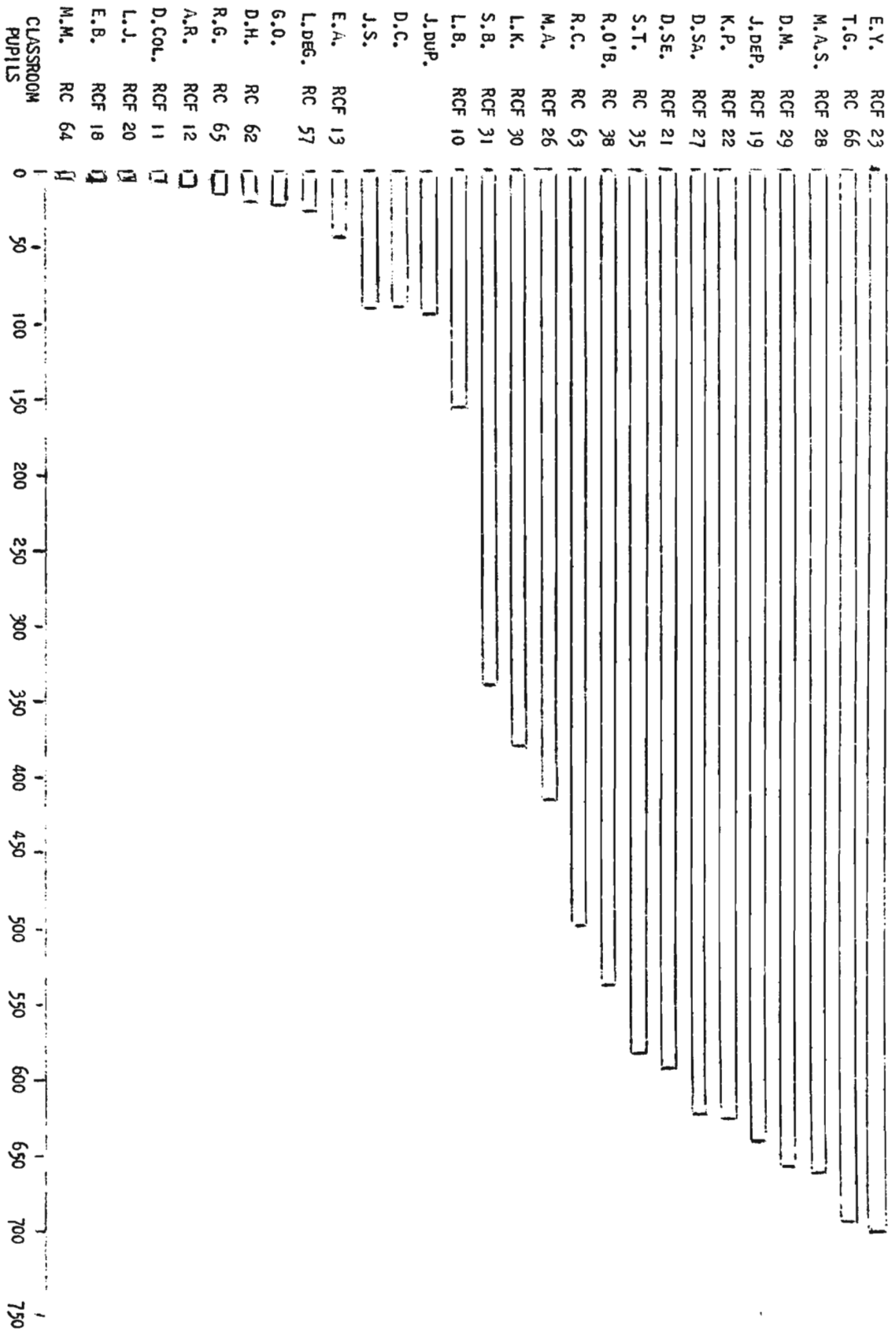
With the advent of a well-supervised, functional classroom and, especially, with the inception of a number of new training procedures, a whole new range of habilitative and training services has been sought--not only by Fernald staff, but also by Fernald residents and by high school and college students. We find this heartening, for we believe that the utility of behavior research is enhanced by daily exposure to the problems raised by ongoing habilitative and professional training efforts. We would like to be able to focus our work on areas of need as seen by the staff and students who are directly involved in training Fernald residents.

6.1 Areas for development. During the forthcoming year, we hope to pursue four areas that will simultaneously broaden our data base, provide habilitative opportunities for more residents, and increase the scope of activities available for training college and high school students who may eventually seek employment at Fernald. Our plans are:

- 6.11 To increase the number and broaden the variety of pupils involved in classroom programs as well as those being trained as tutors. We hope to include more adult residents as well as some Wheatley children who have been excluded because of space limitations.
- 6.12 To continue developing and evaluating programmed sequences to teach specific skills to severely and profoundly retarded residents.
- 6.13 To expand our high school and college volunteer program to reach a larger number of Fernald residents.
- 6.14 To extend our laboratory procedures for behavior measurement and analysis to the wards in Wheatley Hall. Our portable unit has been ready since April. We will locate it in one of Wheatley's dayrooms as soon as renovation is completed and the space is available for this purpose.

6.2 Needs for facilities and personnel. To help us meet the growing number of requests for habilitative and technical assistance, we desperately need:

- 6.21 Additional space for training programs and for storage. Our present classroom affords less than  $3\frac{1}{2}$  square yards of usable space per person on a slow day. Figure 5 (page 18) shows the attendance record of pupils since the classroom opened last September. It can be seen from the graph that many residents could not be regularly included because of a lack of space. The graph does not account for our resident-tutors, volunteer teachers, and staff members.



CLASSROOM HOURS, 17 SEPTEMBER 1969 - 25 JUNE 1970

FIGURE 5

IN LESS THAN 10 MONTHS, 28 PUPILS SPENT A TOTAL OF MORE THAN 8,547 HOURS IN OUR ONE SMALL CLASSROOM AND ITS TUTORIAL CUBICLES

We are grateful to Dr. Moser for requesting that we be permitted to use the men's locker room in the GBU basement for another classroom and the small unventilated room across from the elevator for storage of equipment that now occupies much-needed classroom space. We sincerely hope his request will be honored.

6.22 Adequate lighting for the classroom. Requested in our last two reports, fluorescent lighting has been promised by Mr. Arthur Bailey, Fernald's new Chief Engineer. An estimate was obtained from an outside electrician, and a layout of fixture locations and switching was submitted to Mr. Bailey, who was to write up specifications and solicit bids. We hope that funds earmarked for this purpose will be included in the final Fernald budget that gets legislative approval.

6.23 Personnel. The fiscal uncertainties of Title I have caused a yearly turnover in our teaching staff. For that reason, and also because we will not have other grant funds to cover these people by fiscal year 1972, we requested the following positions.

Supervisor in Education. Those Unit Directors who know of our program have expressed need for the types of training we are developing. To keep pace with training referrals, to develop instructional programs geared to the behavioral goals formulated by Unit Directors, and to provide the supervision and coordination necessary to guide our teaching staff and our volunteer tutors, we need a position for a qualified individual. We already have the person. James E. McCormack, Jr., now has his M.Ed. and is performing Supervisor in Education functions while in the position of Institution School Teacher. To compete favorably with other opportunities open to him, we need a position commensurate with his graduate training, his proven supervisory skills, and his creative teaching of both residents and college students preparing for careers in special education. (This position was also requested last year.)

Junior Electrical Engineer. As our training programs develop, there is great need for the services of a full-time Electrical Engineer to design, construct, and maintain the devices found so useful in training severely retarded residents. These services are not available elsewhere on the grounds. Heretofore, most Unit Directors had not been aware that electrical equipment could make their training endeavors easier and more effective. We have a shop in which devices can be built. We believe our services to the residents and to the unit training staffs could be greatly expanded if we could provide some of the necessary technical help. (This position was also requested last year.)

Vocational Instructor. One of our most promising liaisons during the past year was with the Fernald League Opportunity Workshop. Many of our classroom participants have been or could be taught the skills necessary for productive participation in a sheltered workshop. A Vocational Instructor would use workshop materials to train classroom pupils and eventually would assist them in using their skills in the workshop setting.

Junior Mental Health Coordinator. Our teaching programs are designed for year-round instruction of Fernald residents. To extend our habilitative programs to a greater number of residents, we need a position for a full-time, 12-months-a-year instructor. This person would work closely with unit teams to develop classroom programs that would be coordinated with the training of residents within their own units. This person would keep our teaching staff abreast of unit needs and could help the unit staff to provide opportunities for unit residents to use and build upon skills learned in our classroom. We currently have no position for a person qualified to perform these functions. One of our department staff, with a Master's degree in Education, could fill such a position, but we will lose her when the grant which pays her salary terminates. To become more useful to the units, we need a position to ensure continued development of a unit-coordinated habilitative program.

We have people whom we have trained during our six years of NIMH support. If state positions are not available for them, we will have no choice but to phase out the program which NIMH paid us to develop.

Dr. Moser has promised us a Principal Psychologist position for our research programs. We eagerly await verification of this position, which will greatly assist us at a time when Federal grants are being drastically cut.

The positions requested are for the applied habilitative work that has emerged as a useful product of our research. Fernald residents will directly benefit from our years of ongoing study only if we have the opportunity to continue developing and broadening these applications.