

APPLICANT: REPEAT GRANT NUMBER SHOWN ON PAGE 1 →		GRANT NUMBER
SECTION IV SUMMARY PROGRESS REPORT		5 R01 MH 14820-07
PROGRAM DIRECTOR (Last, First, Initial)	PERIOD COVERED BY THIS REPORT	
Barrett, Beatrice H.	FROM	THROUGH
NAME OF ORGANIZATION	1 July 1969	30 June 1970
TITLE OF PROJECT (Repeat title shown in Item 1 on first page)		

### A Behavior Evaluation Program for Retarded Children

1. List any publications pending or published and not previously reported.
2. List and describe any foreign travel undertaken during the above period.
3. Describe accomplishments since last summary progress report. Specify and describe the significance of any changes in the direction taken by the project during the above period.

Because of conditions that we could not have anticipated (see section 1.5), some of the work we had planned to do during the past year had to be postponed. With the last year of our project period fast approaching, we believe it wise to make this year's progress report brief so that we can spend as much time as possible on the research itself. The following, then, is an outline of developments during the period 1 July 1969 - 30 June 1970.

## 1.0 ADMINISTRATION

1.1 The Behavior Department Classroom: As noted in previous reports, the development of the classroom was seriously retarded for two years by the vagaries of Title I (P.L. 89-313) funding and the lack of clear "line" affiliation with the laboratory. We are finally able to report - with pleasure and even pride - that the classroom is a daily-functioning complement to the laboratory. James E. McCormack, Jr., who trained with us as a university co-op student and who will shortly have his M.Ed., began supervising the classroom in September. Under his able direction, the classroom 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 schematized in section 2.6 and described on pages 5-7 of the appended brochure entitled "Behavior Department Classroom."

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; other departments at Fernald have contributed cast-offs. The laboratory electronics technicians installed fused AC receptacles in the tutorial cubicles, and vinyl floor tiles, donated by local merchants, were installed 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 promised that fluorescent lighting, which we have requested for the last two years, will be installed during the coming year.

1.2 Communication with residential units is increasing. Fernald has begun "unitizing" and has hired some competent people to serve as unit directors. Although the unit system is in a state of prolonged and at times agonizing labor, we hope that the various subgroups of residential quarters will soon begin to develop programs geared toward successively complex behavioral goals. 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 4.2 and 4.3).

- 1.3 A staff member on half-time loan from the Department of Education and Training continues to serve as a liaison to some of the residential units. She has brought to our program several adult residents of the back wards (see section 4.3).
- 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 4.0), 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 these consequences were contingent only on 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 and efficient for some pupils. Therefore, in Room 2, participants will soon be able to control the presentation of their own 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 just recently because the dolly necessary to stabilize its balance was six months late in delivery. Now that the equipment is ready, the dormitory where most of our laboratory children live - and where we had planned to have it operating eight months ago - is being "remodelled." The children are living in half the ordinary space, while workmen are in the other half. However, the equipment is now operative and we have completed shake-down runs. The final circuit layout is being drawn for easy trouble-shooting. Our current plan is to place the unit in the classroom and in the corridor to see how our laboratory participants respond to it in a group setting. When remodelling of the dormitory is completed, and space is freed for the unit, we will move it to the ward.

## 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 has been completed. The findings are reported in a paper entitled "Behavioral Differences Among an Institution's Back Ward Residents," which has been submitted for publication. A copy is appended.

2.2 We are continuing and up-dating 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 institution-alization. In addition, we plan to look at whatever further differences are revealed between the severely and profoundly retarded children from Building "A" and those from Building "B" (see appended preprint on Behavioral Differences).

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 (see last year's report).

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 pre-doctoral 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.

DO NOT TYPE IN THIS MARGIN

- 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 unsequenced 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) and outlined in somewhat greater detail on pages 5-7 of the appended description of the classroom, has proved to be an effective vehicle for supervision, organization, and most importantly, communication.

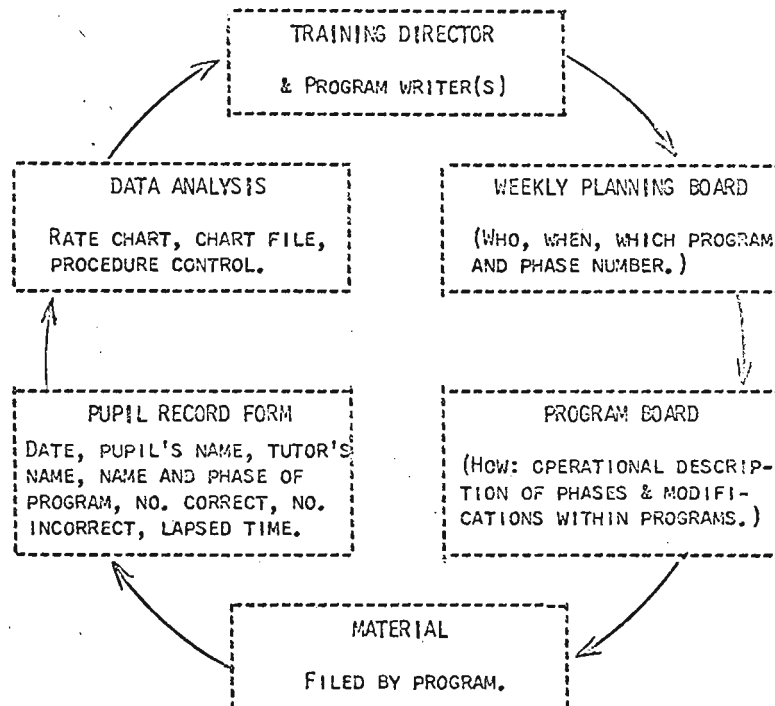


FIGURE 1.

COMMUNICATION CIRCUIT FOR RAPID FEEDBACK IN EVALUATING INSTRUCTIONAL METHODS.

DO NOT TYPE IN THIS PAGE-BINDING MARGIN

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 on pages 3-4 of the appended brochure.

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.

### 3.0 COMMUNICATION

#### 3.1 New articles:

3.11 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.

3.12 Behavioral differences among an institution's back ward residents. Submitted for publication.

#### 3.2 Publications anthologized:

3.21 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).

3.22 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).

DO NOT TYPE IN THIS PAGE-BINDING MARGIN

- 3.3 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.
- 3.4 Presentations to professional groups:
- 3.41 Retarded pupils: Our best teachers of classroom tactics. American Association on Mental Deficiency, Washington, D. C., May 1970.
- 3.5 Presentations to staff of Fernald School:
- 3.51 James E. McCormack, Jr. Behavior Department Classroom. In-Service Orientation Program, April 1970.
- 3.52 Linda Schwabe. Behavior Department Classroom. In-Service Orientation Program, May 1970.
- 3.6 Presentations to parent and community groups:
- 3.61 New ways to let children teach us. Mothers-of-Twins Association of Dedham. Dedham, Mass., October 1969.
- 3.62 New ways to let children teach us. Parents and teachers, Warren School for Trainable Retarded Children. Waltham, Mass., November 1969.
- 3.63 Prosthesis and suppression in the management and assesment of retarded behavior. Greater Plymouth ARC. Pembroke, Mass., December 1969.
- 3.64 Earth Day: How we learn about retarded children by altering their institutional environment. Eastern Middlesex ARC. Stoneham, Mass., April 1970.
- 3.7 Attendance at professional meetings: The program director attended the annual meetings of the American Psychological Association, American Association on Mental Deficiency, and American Academy on Mental Retardation.
- 3.8 Laboratory and classroom tours and discussions: Since 1 July 1969, we have had 161 visitors, including 89 professionals. Most of the other visitors have been university students.
- 3.9 Special appointment: The program director was elected Member-at-Large, Executive Committee, American Academy on Mental Retardation.

DO NOT TYPE IN THIS MARGIN

## 4.0 HABILITATION OF FERNALD RESIDENTS

- 4.1 Individual and small group training in the classroom have become more closely coordinated as a result of more efficient organization and more effective communication. Individual tutorials are described in the appended report. Group training provides opportunities to transfer the skills acquired in tutorials, to exercise, to play outdoors, and to participate in cooperative and competitive games which are designed to increase the social interaction among all levels of residents.
- 4.2 Vocational habilitation opportunities for adults have greatly expanded this year due to the effectiveness of classroom organization. Ten adult residents have received training as tutors and teaching assistants. Three were referred to us by unit personnel, while the other seven asked, on their own, if they could participate. Following our laboratory-derived notions of a prosthetic community for a broad range of retarded persons, we hope to develop further the variety of skills that residents could put to use in functionally engineered habilitative environments.

One of our trainees in the laboratory (RC 16), who had long participated in our studies, has made such progress over the past year that he was transferred from a custodial building to a unit geared to vocational habilitation. He purchases personal items at the campus 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 and he proudly delivers all mail marked for the Superintendent's house.

- 4.3 Training and assessment of adult residents of custodial wards have also expanded in the past year. J. S. is still receiving individual training in numerical skills and time-telling. He was transferred out of a custodial building to a building where more opportunities for habilitation are supposed to be available. His appearance and, no doubt, his health have been greatly improved by a weight loss of 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 the institution, 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.

DO NOT TYPE IN THIS PAGE-BINDING MARGIN

- 4.4 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 Fernald resident appears to be working out very well.

Three Wheatley Hall children (RC 65, RCF 28, RCF 29), who were accepted into School Department classes last year, have been withdrawn by us because they were not receiving instruction commensurate with the skills they had acquired in our program. One of these children (RC 65) was accepted into the new unit for outward-bound boys. The other two (RCF 28 and RCF 29) have returned to our classroom, where behavioral requirements and opportunities are far greater than in the School Department class they attended last year.

## 5.0 TRAINING

- 5.1 Institution personnel. The aims and activities of the classroom have been the focus of our presentations to Fernald's newly reorganized in-service education program. Our staff members rotate as lecturers once a month to acquaint new Fernald employees with our work. The appended description of the classroom was prepared as a supplement to the lecture. Following our strategy of more direct participation as a training vehicle, we plan to substitute periods of observation and discussion in the classroom and laboratory for the more traditional lectures.

## 5.2 University and high school students

- 5.21 Students from four colleges and three high schools have obtained field training through their volunteer service in the classroom. Some of the university students participated to fulfill course requirements. 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 the classroom staff (see section 2.62). They ran specific programs in the variable-teacher tutorials and contributed data to the pupils' behavior charts. Many of the students wrote term papers based on their classroom training experience.

Another 15 volunteers were handled quite 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 the variable-teacher tutorial, 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.

DO NOT TYPE IN THIS SPACE-BINDING MARGIN



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.

- 5.22 Graduate fellows. Peter Wish, M.Ed., completed his year of predoctoral 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.

James E. McCormack, Jr., former co-op student and, last year, a graduate fellow with us, is a master's degree candidate in special education at Northeastern University. Since September, Mr. McCormack has been in charge of the classroom (see section 1.1).

- 5.23 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.

DO NOT TYPE IN THIS SPACE-BINDING MARGIN