THE UTILIZATION OF POSITIVE AND NEGATIVE REWARDS WITH THREE RETARDED CHILDREN

by

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TABLE OF CONTENTS

CHAPTER		PAGE
I.	THE PROBLEM	
	Introduction	1
	Statement of the Problem and Hypothesis	2
	Purpose of the Study	2
	Methodology	3
	Limitations of the Study	3
	Definition of Terms	4
	Justification for the Study	5
II.	REVIEW OF LITERATURE	
	History	6
	Classification of Mental Retardation	7
	Motivation and Learning	9
	Educational Subnormality	10
	Growth and Development of the Normal Child	10
III.	ANALYSIS OF THE DATA	
	Objective for the First Visit	16
	Number of Home Visits	16
	Explanation of Figures I, II, III, and IV	16
	Case Study 1: Heather	22
	Case Study 2: Pamela	34
	Case Study 3: Anita	48

CHAPTER PAGE

IV. SUMMARY AND CONCLUSIONS 62

V. RECOMMENDATIONS 63

APPENDIX

Sample Functional Tool 64

BIBLIOGRAPHY 83

ABSTRACT

The problem was to explore a reward system with three retarded children in their own homes to establish the effects of positive and negative rewards upon their ability to care for their own needs. Pleasant rewards were given for desirable behavior and unpleasant rewards were given for undesirable behavior. A total of twenty visits were made to two of the children and twenty-five were made to the third child.

Although their intellectual capacity had been judged to be more severely retarded, all of the children in this study showed improvement in reaching specific objectives. With one child, the changes included learning new skills which she had never displayed since her initial retardation. Another child showed the author that she could learn imitative skills. The last child showed the need parents have to understand the behavior of their children in relation to themselves before they can work effectively to help the child.

"The mentally retarded cannot pull themselves up by their own bootstraps--that is their handicap. They require a helping hand to develop into useful, contributing fellow men and women. There is no single formula for aiding the retarded; specific needs vary from one individual to another and from time to time."[1]

[1]National Association for Retarded Children, Inc., The Retarded Can Be Helped, New York, C632-9-63-60M, p. 7.

THE UTILIZATION OF POSITIVE AND NEGATIVE REWARDS WITH THREE RETARDED CHILDREN

CHAPTER I

THE PROBLEM

Introduction

"There are about 5½ million mentally retarded in the United States, of whom approximately five million are mildly or moderately retarded."[2]

In view of the fact that many of these people require lifetime supervision or care, mental retardation is an ever-increasing problem. With improved medical care more of these children are kept alive at birth and many live longer lives than they would have even ten years ago.

Because of their mental impairment, mentally retarded people usually have difficulty meeting everyday needs. The degree of adjustment, of course, as well as the ability to learn varies with the degree of mental deficiency.

Until recent years, it was felt that once a person's condition was diagnosed as mental retardation and he was assigned to one of the intelligence or behavioral levels that he would stay at the same level for the rest of his life. If an educational program was available to him, he was treated, trained or educated at that level. Advancement to another level was almost unheard of. Consequently, the retarded remained at the assigned level or deteriorated to a lower level. New insight

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[2]U. S. Department of Health, Education and Welfare, The Secretary's Committee on Mental Retardation, An Introduction to Mental Retardation: Problems, Plans and Programs, Washington, D. C., June 1965, p. 1.

has been gained in the last few years, however, and some programs are now in progress for the mentally retarded which give them the opportunity and challenge for further physical, social and mental improvement and growth. With professional help, many mentally retarded persons are no longer considered doomed to stay at the same level, but are encouraged and expected to move upward.[3]

As far as the author could discern, no individualized home training services were being offered to retarded children within the private homes of Gallatin County. It was decided to carry out a study to determine the effects of rewards on the behavior of three selected children living in their homes and cared for by family members.

Statement of the Problem and Hypothesis

The problem dealt with in this study was the exploration of a reward system with three retarded children to establish its effect upon their ability to care for their own needs. This problem was dealt with through the development of a hypothesis. The hypothesis for this study was: through the reward system, the retarded child's ability to care for his own needs will be improved.

Purpose of the Study

The limitations of the retarded child are cause for concern to parents. It was the author's hope to help substantiate the hypothesis that the retarded child's behavior can be improved by the use of rewards and thus reduce parental concern. Since more study and progress has been made with trainable and educable mentally retarded children, the

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[3]Ibid, pp. 2-3.

author planned to deal mainly with those children who were more severely retarded.

Methodology

The case study method was used to determine changes in behavior and to determine what constitutes a reward for each individual child. A case study should show the child as a functioning totality. A case study can be defined as

> "an analytical and diagnostic investigation in which interpretation has a large part and in which attention is focused upon factors contributing to the development of particular personality patterns and/or causing certain difficulties."[4]

A tool, developed by Alize Paulus, was used in an effort to judge at what levels of motor development, feeding ability, sleeping habits, communication skills, toilet training, play, discipline and dressing and undressing the child is functioning[5] before and after the reward system has been used with them.

As the author was endeavoring to determine individual rewards and to determine what particular behavior was to be rewarded, the experimental method was also employed.

The number of children to be involved in the study was limited to three girls in a selected community because of the nature of the study and the depth necessary to gain results.

Limitations of the Study

The study was limited to the information gained by the author through interview and observation of the parents and children between

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[4]Jane Warters, Techniques of Counseling, Second Edition, McGraw-Hill Book Company, New York, 1964, p. 293.

[5]Alize Paulus, Functional Screening Tool, University of Washington, School of Nursing, revised, January 1966.

February 25, 1966 and May 21, 1966, in a selected community (Gallatin County).

As a research method, the case study has the following limitations: (1) It is not standardized. Case studies made by two different investigators on the same individual may differ in several different important aspects. (2) There are so many varieties of human nature that it is very unlikely that a selected sample will constitute a fair random sample of any larger group. (3) To any great extent, statistical methods cannot be utilized to check the reliability and validity of the results, since the data used are for the most part unstandardized and difficult to measure.[6]

The tool chosen to judge the child's abilities before and after intervention by the author is limited in its range and depth. Many small changes which can be seen by an observer have no place within the tool.

Since parents who were felt to be cooperative were used as a criteria for choosing children, since these children were all girls, and since there were only three children chosen, the sample was not randomized.

The limitations of the author's ability can also affect the improvement or lack of improvement seen in these childfen.

Definition of Terms

Mental Retardation. "'Mental retardation refers to sub-average intellectual functioning which originates during the development period and is associated with impairment of adaptive behavior.'"[7]

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[6]Warters, op. cit., pp. 294-295.

[7]Adapted from A Manual on Terminology and Classification in Mental Retardation. Monograph Supplement to the American Journal of Mental Deficency, 1961. American Association on Mental Deficiency, Willimatic, Connecticut. Taken from An Introduction to Mental Retardation; Problems, Plans and Programs, June 1965, U. S. Department of Health, Education and Welfare.

Reward. A reward is that which is given in return for desirable or undesirable behavior.

Reward System. The use of positive and negative rewards to elicit desired behavior.

Positive Reward. A pleasurable reward given for desirable behavior.

Negative Reward. An unpleasant reward given for undesirable behavior.

Desirable Behavior. Behavior which will improve social and/or familial acceptance or which will improve self care skills.

Undesirable Behavior. Behavior which will not improve social and/or familial acceptance or which will not improve self care skills.

Justification for the study

> "It is customary in contemporary psychology, almost without exception, to postulate the existence of some drive, need, goal-attraction or other motivational state to instigate and sustain a behavior sequence in organisms."[8]

In this study, the author is attempting to determine the effect of positive and negative rewards as a motivational force in the care and training of mentally retarded children.

"Even though the mentally retarded person usually lacks the full normal capacity for learning, he does learn. And though his thought processes are limited, he does think."[9] Therefore, the retarded child must be treated as an individual with potential. Inadequate training and education can keep the retarded child from being a useful member of society.

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[8]Harry F. Farlow, N. C. Blazek and G. E. McClearn, "Manipulatory Motivation in Monkeys," ed. Raymond G. Kuhlen and George G. Thompson, Psychological Studies of Human Development, Appleton-Century-Crofts, New York, 1963, p. 206.

[9]U. S. Department of Health, Education and Welfare, The Secretary's Committee on Mental Retardation, An Introduction to Mental Retardation: Problems, Plans and Progress, Washington, D. C., June 1965, p. 4.

CHAPTER II

REVIEW OF LITERATURE

History

Until fairly recently, the problems of mental retardation were neglected by professional and laymen alike. Society, on one hand, expressed attitudes of rejection. Professional workers, on the other hand, found the problems of the retarded defying both scientific understanding and therapeutic endeavors.

> "By and large, the scientific researcher wants to enter a field that offers substantial promise in terms of advancing knowledge, and the doctor is attracted to those areas in which the exercise of his art has a clear therapeutic effect."[10]

Montessori and her followers were among the first people interested in training or teaching the mentally retarded. Her view was that "although training could provide no complete cure and would, in many cases, produce only a very slight improvement, this, in itself, was considered worthwhile."[11]

Advances in recent years have been along a broad front, ranging from financial investments and professional interest to new knowledge and interest in genetics, biochemistry, special education and vocational rehabilitation.

President Kennedy in this decade brought retardation to the foreground as a problem. During his term, President Kennedy helped initiate legislation for the benefit of retarded children and adults. He stressed the importance of prevention through primary, secondary and research improvements.[12] These advances are encouraging but leave much to be learned

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[10]Arthur L. Benton, "Some Aspects of Mental Retardation," American Journal of Orthopsychiatry, Volume XXXV, Number 5, October 1965, p. 830.

[11]Lionel S. Penrose, Mental Defect, New York: Farrar and Rinehart, Inc., 1934, p. 4.

[12]Arthur J. Lesser, "Accent on Prevention through Improved Service," Children, January-February 1964, pp. 13-20.

about retardation and much to be done in the care of the mentally retarded individual.

Classification of Mental Retardation

Any condition that hinders or interferes with mental development before birth, during the birth process or in early childhood can cause mental retardation. The degree of retardation has been divided into four levels--mild, moderate, severe and profound. These levels have been classified utilizing developmental characteristics, potential for education and training and social and vocational adequacy. Table I shows this classification.

TABLE I[13]

DEGREES OF RETARDATION

Level	**Pre-School Age 0-5 **Maturation and **Development	*School Age 6-21 *Training and *Education	*Adult 21 and Over *Social and Vocational Adequacy
Profound	**Gross retardation; **minimal capacity for **functioning in sen- **sory motor areas; **needs nursing care.	*Obvious delays in *all areas of devel- *opment; shows basic *emotional responses; *may respond to *skillful training *in use of hands, *legs and jaws; needs *close supervision.	*May walk, need *nursing care, *have primitive *speech, usually *benefits from regu- *lar physical acti- *vity; incapable of *self-maintenance.
Severe	**Marked delay in **motor development; **little or no commun- **ication skill; may **respond to training **in elementary self- **help, e.g., self- **feeding.	*Usually walks bar- *ring specific dis- *ability; has some *understanding of *speech and some re- *sponse; can profit *from systematic *habit training.	*Can conform to daily *routines and repeti- *tive activities; *needs continuing *supervision in pro- *tective environment.
Moderate	**Noticeable delays in **motor development, **especially in speech, **responds to training **in various self-help **activities.	*Can learn simple *communication, ele- *mentary health and *safety habits, and *simple manual *skills; does not *progress in func- *tional reading or *arithmetic.	*Can perform simple *tasks under shel- *tered conditions; *participates in *simple recreation; *travels alone in *familiar places; *usually incapable of *self-maintenance.
Mild	**Often not noticed as **retarded by casual **observer, but is **slower to walk, feed **self and talk than **most children.	*Can acquire practi- *cal skills and use- *ful reading and *arithmetic to a 3rd *to 6th grade level *with special educa- *tion. Can be guided *toward social con- *formity.	*Can usually achieve *social and vocation- *al skills adequate *to self-maintenance; *may need occasional *guidance and support *when under unusual *social or economic *stress.

[13]The President's Panel on Mental Retardation, Mental Retardation, A National Plan for a National Problem: Chart Book, U. S. Department of Health, Education and Welfare, Washington, D. C., 1963, p. 15.

Motivation and Learning

Some of the common words used to refer to motivation include desire, need, goal, striving, wish, aim and ambition. Three aspects of motivation include: (1) A need arises. "Need may be defined as a lack of something required for the survival, health or well-being of the individual."[14] (2) Behavior is instigated to reduce the need. (3) Reduction or satisfaction of the need occurs.

In this study, rewards were to be used to produce or extinguish behavior. Positive rewards were used as incentives or goals which the retarded child would attempt to reach. Negative rewards are those from which the children would try to escape or avoid. For example, if a child's hand is slapped every time he touches a certain object, the behavior instigated to reduce the need would require the child to quit touching that object. Erikson studied this and came up with supporting evidence:

> "Consistency, continuity and sameness of experience provide a rudimentary sense of ego identity which depends on the recognition that there is an inner population of remembered and anticipated sensations and images which are firmly correlated with the outer population of familiar and predictable things and people."[15]

From the time of Aristotle, the famous Greek philosopher, man has been curious about the learning process. In the latter part of the nineteenth century, men like Pavlov and Thorndike brought the learning problem into the psychological laboratory.

B. F. Skinner, in the present decade, has done much work in the laboratory using operant conditioning with animals. The animal learns

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[14]Clifford T. Morgan, Introduction to Psychology, Second Edition, McGraw-Hill Book Company, Inc., New York, 1961, p. 66.

[15]Erik H. Erikson, Childhood and Society, W. W. Norton and Company, Inc., New York, 1950, pp. 219-220.

through consistency in an instrumental environment. If the animal does a specific thing he will be rewarded. This reward may be food or some other reinforcer. The animal soon learns through experience that a specific behavior will produce a specific gratifying response.[16]

Operant conditioning has been used with retarded children to some extent and the experiments have proven to be successful. Dr. Baer, University of Canada, found that he could solicit imitative response from retarded children.

Educational Subnormality

According to the amount of retardation, the retarded child may have difficulty in learning social skills or the more mildly retarded child may have difficulties only in learning academic skills. Whether mildly or profoundly retarded, the child should have the opportunity for full development of his potentialities.

> "Mental subnormality of any degree impedes, if it does not distort, the baby's differentiation of experience and the perceiving of goals. The short term aim of early education is, at least ideally, to ensure that a child's experience is such that he can absorb it."[17]

Sufficient attention must be given to the foundation of learning in the early years of any child's life.

Growth and Development of the Normal Child

A child is born into a completely unstable environment in comparison to the environment he has just left. He must adapt and grow in order to maintain life.

At one month, the baby is getting bigger and stronger. His breath-

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[16]Morgan, op. cit., p. 200.

[17]R. F. Tredgold and K. Soddy, Tredgold's Textbook of Mental Deficiency, The Williams and Wilkins Company, Baltimore, 1963, p. 328.

ing is deeper and more regular. He doesn't choke or regurgitate as easily as he did when he was a newborn. He seems less fragile because his muscles have more tone. He is beginning to enjoy his bath and reacts positively to satisfaction of needs. The one-month-old baby still sleeps much of the day, sometimes as much as twenty hours out of the twenty-four. He is usually able at this age to hold both eyes in a fixed position, staring vaguely at a door or something else. He usually holds his hand in a tight fist.

At four months, the baby's capacity to hold his head up is increasing. He can hold his head steady when support is given to his wobbly body. He rotates his head freely from side to side when lying down. His eyes are better able to fix upon and follow objects. He smiles at the mere sight of a face. He is exercising his vocabulary by cooing, bubbling, chuckling, gurgling and even laughing. He notices sounds and recognizes his mother. By this time, the baby is becoming accustomed to routines such as meal and bath times. He begins bringing his hands together and engaging them in mutual finger play. He begins to realize that his hands are part of him. His arms activate as a toy is brought near.

By the time he is seven months old, the infant likes to sit in a high chair. He likes to sit up and take notice; and he especially wishes to get hold of an object which he can handle, mouth and bang. He is beginning to use his thumb more adeptly, but his fine finger coordination is still poor. He may vocalize, though not in words, his eagerness when he sees his bottle, mother or some other pleasurable object which he recognizes. As yet, he doesn't understand distance--he may reach for something completely out of reach. He is beginning to

handle solid foods well and use his lips and tongue competently when eating. He is aware of others and may alternate from self-activity to sociable activity.

At ten months, the infant is able to roll over, sit up and crawl. He may pull himself up to a standing position while holding on to furniture. He is now capable of pincer-like use of his index finger and thumb; he also uses his index finger to poke, feel and pick up objects. The infant now begins to understand distances and perspective. He learns tricks like bye-bye or pat-a-cake.

The one-year-old reaches the sitting position unaided, and can pivot in the sitting position. He may prefer to crawl or he may start walking on the bottoms of his feet and hands. Although he is not yet capable of handling a spoon to feed himself, he does quite well with finger foods and may be able to dip a spoon into a cup and release it. He shows an element of imitation and initiative. For his performances he especially likes an audience. This audience and the attention they give him help the one-year-old gain a better sense of his own identity. At this age, the infant is capable of showing jealousy, affection, sympathy and anxiety, although it is not well defined yet.

By the time the infant becomes fifteen months of age he has usually discarded crawling for walking. In relation to our culture he may be beginning to discard his bottle. He may indicate wet pants by simple vocalizations and gestures. The infant usually becomes demanding by the time he reaches this age and may insist on doing things for himself. His motor ability has increased tremendously. He likes to take off his shoes, empty waste baskets and climb. Although his gross motor coordination is far superior to his small motor skills, he now becomes able to

place one brick on top of another without upsetting the pile. He likes to throw.

At eighteen months, the infant becomes a powerhouse of locomotion. Running, lugging, tugging, pushing, pulling are all favorite pastimes. He still walks with his feet widespread and his arms extended bilaterally from the body. His arms and legs work much better than his hands and feet; therefore, he throws objects with his whole arm and keeps his feet wide apart for balance. He has difficulty getting his spoon to his mouth but is improving.

The two-year-old is sturdy on his feet. He still doesn't move completely in an erect fashion, but rather hunches forward. The two-year-old child can climb up and down stairs, but as yet has not learned to alternate his feet. He is still geared to gross motor activity and continues practicing many of the tasks described at the eighteen-month level. His fine motor control has advanced, however, and he begins fitting one thing into another, turning doorknobs etc. Vocabularies of two-year-olds may range from only a few words to a thousand. He still prefers playing alone.

The two-and-one-half-year-old may be said to be a trying age for parents. The child is filled with energy, still practicing the old tasks and learning new ones. He becomes aware of two ways to do almost everything. He has little capacity for voluntary choice; thus we find him trying alternatives. This is not stubbornness as it may be mistaken for, but inability to choose the best way to perform a task or try a new experience. Those experiences which are familiar to him are upsetting if they change. Especially in the home, the child may seem ritualistic and wish to keep things exactly the way they have been up until now.

Toilet training may fall down because the child either lets go or holds elimination too long.

The three-year-old, in contrast to the two-and-one-half-year-old child, has gained a fairly high degree of self-control. He now tries to please. He pays attention to spoken words and often displays seriousness. The child becomes more sure and nimble in walking and running. He still likes to hurry, but can also take time for sedentary play, giving him an opportunity to practice fine motor skills. By this time, he usually speaks in sentences, although they may be quite fragmentary. He listens intently and practices speech. The three-year-old may join in parallel play and begin to wait his turn.

The four-year-old again becomes an assertive individual. He continues motor activities but covers much more ground and is much more graceful than he was previously. He is learning more about self-expression and in the process learns to boast and become bossy. Although his gross motor drive is high, he can combine talking and eating with his activities. He can lace his shoes, stand on one foot, cut on a line with scissors. As long as he is interested he can sit for a long period of time utilizing manipulatory skills. The child of four loves to talk. "Why" and "how" seem to become his favorite words, not just because he wants an answer but because he needs practice speaking and listening.

By the time a child reaches five, he is more sure of his thinking. He may become curt, clear and complete. He will have something in mind when drawing and stick to it, rather than changing a turtle into an elephant as a four-year-old might do. He has more of a tendency to finish

a project once started than the four-year-old has.[18]

After five, the majority of children are felt to be able physically and academically ready to start to primary school. Since the ability of the retarded children in this study is presently below the functioning level of a five-year-old, I will not go on to define tasks completed in other age groups. If the child is slow in reaching these levels it doesn't necessarily mean that he is retarded.

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[18]Arnold Gesell and Frances L. Ilg, Infant and Child in the Culture of Today, Harper and Brothers Publisher, New York, 1943, pp. 92-251.

CHAPTER III

ANALYSIS OF THE DATA

Objective for the First Visit

On the first visit to all three children, it was the author's objective to gain information. This information was necessary in order to gain an initial understanding about these children's ability and development and to decide which areas reinforcement could be used to improve behavior and which rewards to use with each individual child.

Number of Home Visits

The total number of home visits made to Heather and Anita were twenty each. The total number of home visits to Pamela was twenty-five.

All visits were not reported in the analysis of the case studies since the changes were not something one would usually see in the course of a few days. Significant experiences were recorded in relation to specific objectives for each individual child.

Explanation of Figures I, II, III and IV

The tool which was used in this study may be seen in the appendix. Figures I, II and III show the functional levels of the children as determined by this functioning tool. The levels are determined by a series of functional tasks or activities which the child of average intelligence should be able to accomplish at the age level indicated. Since several functional tasks are required for a child to attain a higher level, the functional levels were found to be identical for both the first and last family visits made. The figures show two different ages for each child to indicate that evaluation of each child was done at the beginning and end of the study but that the functional levels remained the same.

In specific areas, the children accomplished a few additional func-

tional tasks but these accomplishments were not great enough to show a change in functioning level. Activities and functional tasks will be seen later within the case studies.

Figure IV contains data showing the comparison of heights and weights of the children in this study to the average height and weight ranges for that age in normal children.

FIGURE I

Child: Heather

Chronological Age: 7 years 2 months - 7 years 5 months

FUNCTIONAL LEVEL

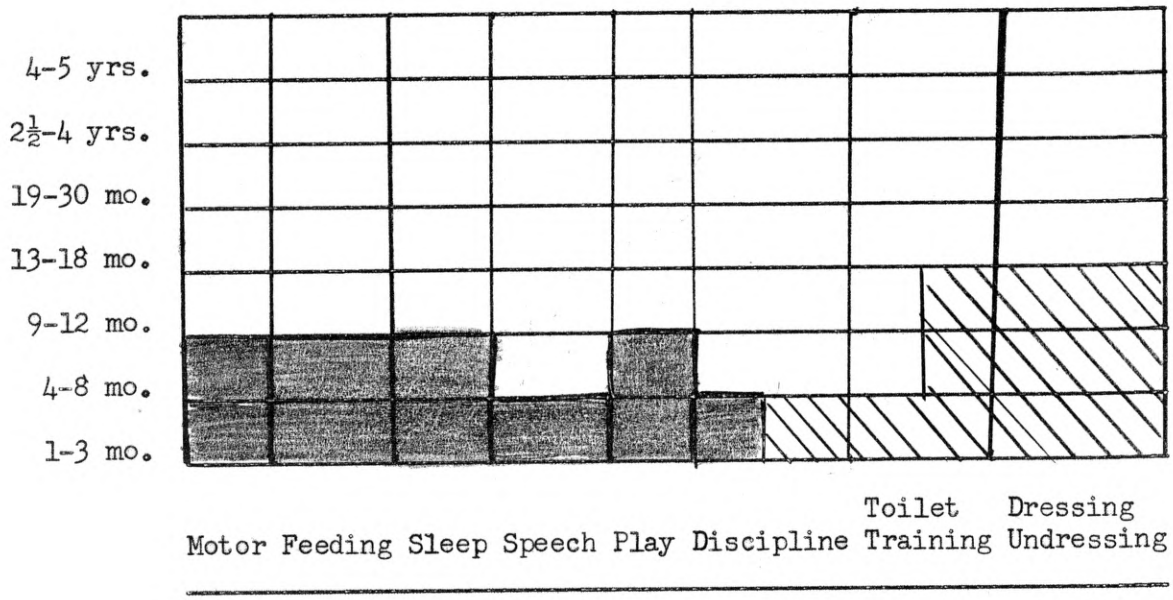
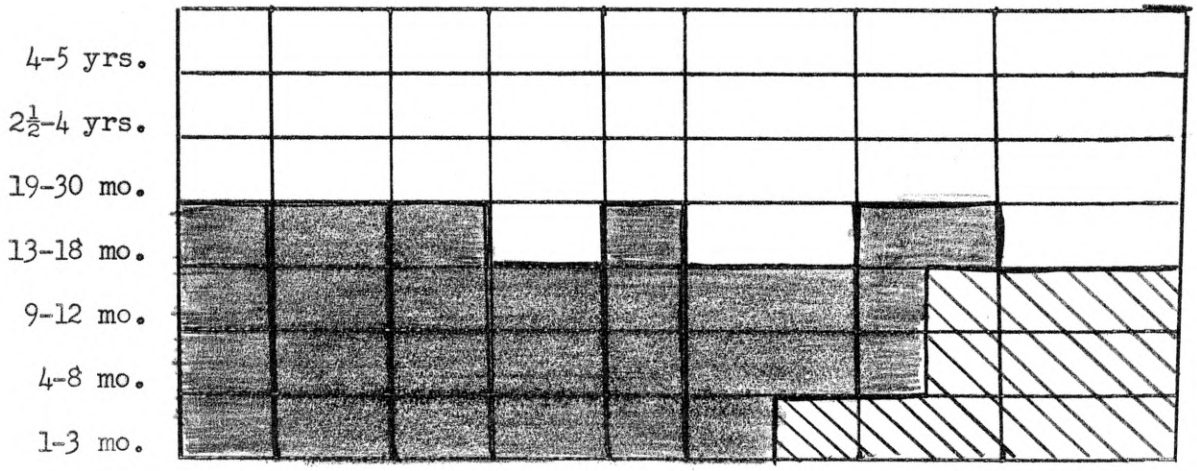


FIGURE II

Child: Pamela

Chronological Age: 5 years 2 months - 5 years 5 months

FUNCTIONAL LEVEL



Below age level when child should begin these tasks

Level of achievement

FIGURE III

Child: Anita

Chronological Age: 31 months and 34 months

FUNCTIONAL LEVEL

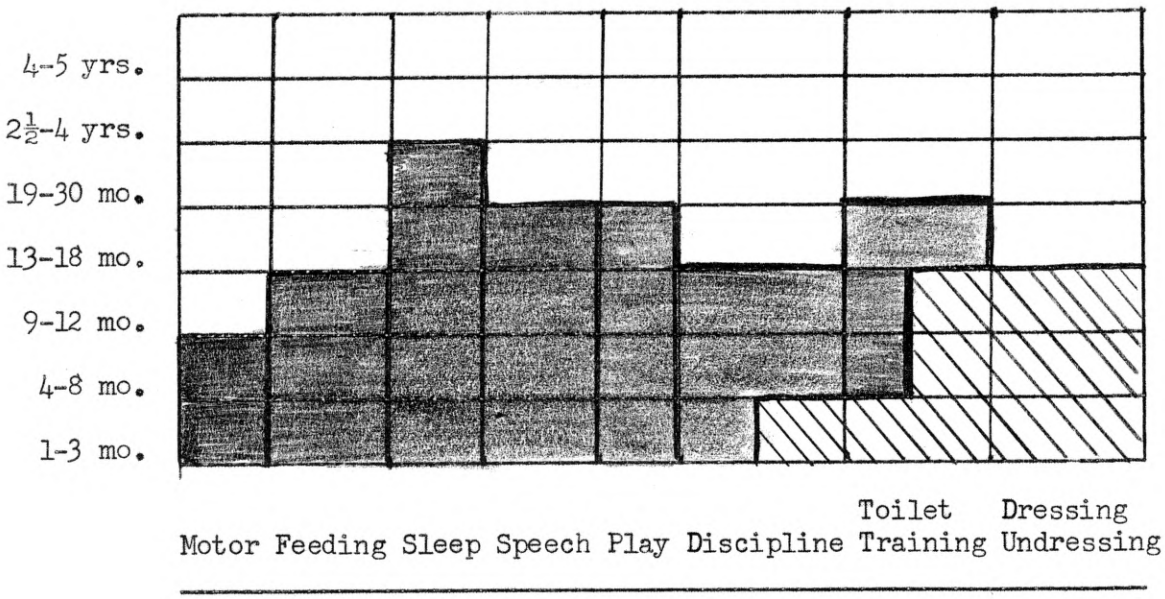


FIGURE IV

A COMPARISON OF THE HEIGHTS AND WEIGHTS OF THE CHILDREN IN THIS STUDY TO THE AVERAGE HEIGHT AND WEIGHT RANGES FOR THAT AGE IN NORMAL CHILDREN

Height and Weight Chart[19]

Child:	Heather	Pamela	Anita
Age:	7 yrs. 2 mo.	5 yrs. 2 mo.	2 yrs. 7 mo.
Height:	43"	47"	32"
Weight:	35#	83#	20#
Average height range for age:	46" - 50"	42" - 45"	35" - 38"
Average weight range for age:	45# - 53#	37# - 42#	27# - 34#
Difference between actual and average height:	-2"	-2"	-3"
Difference between actual and average weight:	-10#	+45#	-7#

[19]Averages taken from Philip G. Jeans, F. Howell Wright and Florence G. Blake, Essentials of Pediatrics, J. B. Lippincott Company, Philadelphia, 1958, pp. 19-20.

Case Study 1: Heather

Heather, a white female, the second of three children, was born December 4, 1958 and was seven years two months old when the author first visited her.

The mother says the pregnancy was uneventful, labor was normal, but the infant was held back between twenty and thirty minutes until the doctor arrived. The baby was blue at birth and respirations were delayed. Heather's birth weight was six pounds, nine ounces. Heather's mother reports that the child developed normally until she was ten months of age. At this time, she began to have seizures. Heather learned to walk at fourteen months and talked in words and sentences. At about eighteen months she had pneumonia with a fever of 107 degrees for one hour. Following this, Heather's mother noticed regression with more frequent and severe seizures.

On February 26, 1966, the author first visited this family. Heather could neither walk nor talk. She sat in a stroller most of the day. The mother reported Heather to be more active and crawl about the house on her "better days". She is unable to climb, however, and falls from the couch or bed at times. Heather's diet consists of strained baby foods and milk as she chokes easily, even on chopped foods. One of the mother's biggest problems with Heather is the child's constipation. There is no voluntary movement; the mother must massage the stool through the intestine and remove it manually. The child can stand with support, but the left ankle turns completely in and weight is on the side of the foot. At this time, Heather was having approximately 4 - 5 seizures one day a week. One seizure seems to precipitate other seizures.

Heather has frequent bouts of tonsillitis and respiratory infections. Immunizations never have been completed because of her severe reaction to the first one. Heather is taking anti-convulsant and antibiotic medications. She was given atropine drops during her third to fourth month because of an enlarged esophagus. Vitamins were discontinued by ten months because of her seizures.

On January 26, 1966, the following clinical examinations and recommendations were made by the Montana Center for Cerebral Palsy and Handicapped Children, Billings, Montana:

"Diagnosis: Convulsive disorder mental retardation.

"Orthopedic exam: There is no evidence of a contracture of any sort but there is sufficient muscular power for her to stand with a minimal amount of support. I feel that by virtue of the other problem, no orthopedic care is indicated.

"Pediatric exam: This child was seen for the first time and presents a rather interesting but tragic case. Apparently the pregnancy and early development were normal. The patient apparently did well until the age of ten months when she had a series of seizures. She was then placed on anti-convulsant therapy which was discontinued after about six months. At about eighteen months of age she again seemed to have severe seizures following a respiratory illness which was associated with a temperature of 107 degrees. Since that time there has been progressive regression. The patient has had excellent medical care at Stanford University in California. Repeat electroencephalograms have been done and each time show progressive increase in the severity of the convulsive disturbance. Medications have been used and although none are successful, the dilantin and phenobarbital have been found most effective. The PKU has been done and has been negative. The electroencephalograms have not shown hypsarrhythmia and it would be my thought that this patient probably does show a severe progressive degenerative brain problem. The family history is not remarkable; there is a child of a second cousin who is mentally retarded. I would doubt, in the absence of a strong family history, that this is one of the more common hereditary types of degenerative diseases. The family is well-adjusted to this problem. We discussed the problem of constipation. I thought that Zimenol would be helpful as to routine use and perhaps Dulcolax suppositories would also be helpful for the occasional time when the other does not seem to be helpful. The parents discussed the possible use of physical

therapy which I felt, in my own mind, would not be very helpful.

I am unable to diagnose this case completely except that she has a severe convulsive disorder with mental retardation, probably on a degenerative basis. Height 40"--Weight 37½#.

"Psychological evaluation: On the basis of her responses to the Cattel Infant Intelligence scale, Heather functions at a ten-month level with a resultant I. Q. of 13. Even allowing for her father's judgment of those items she could have mastered on one of her more alert days, she is not capable of functioning in any area beyond the eleven-month level. He understood from previous psychological testing that her mental age was nine and ten months. The observed rate of progress in her mental abilities has naturally been extremely slow.

The parents seem to have an unusually good acceptance of Heather's mental limitations. They realize that her present rate of intellectual development is never likely to accelerate substantially and that institutional care will eventually be necessary.

"Speech and Hearing Evaluation:

"Oral peripheral: Heather has extremely hypertrophied gums.

"Hearing: Not tested. However, she seems to respond to speech indicating adequate hearing.

"Speech and language: No speech or language was noted. She did giggle when her name was said. She made some spontaneous whining sound.

"Recommendations: None.[20]

Home Visits

February 26, 1966 - March 5, 1966

During the first two visits, Mr. and Mrs. W., Heather's parents, were very helpful in explaining Heather's behavior although they were dubious about making any improvements.

Since Mrs. W. was pregnant at this time, she voiced fears of being unable to watch Heather closely when the new baby arrived. Heather on her more active days had to be watched carefully. If she was on a couch

[20]Excerpts taken from the records of the Montana Center for Cerebral Palsy and Handicapped Children, Billings, Montana.

or bed she might fall. Falling disturbed the parents greatly because Heather usually managed to lacerate her extremely hypertrophied gums. On occasion, Heather would pull the tablecloth with whatever happened to be sitting on it, onto herself and the floor.

Heather was able at this time to pull herself up to her knees by holding on to furniture. In the process, however, she frequently fell against a square wooden chest that was kept in the living room.

Heather was unable to feed herself although at times she showed interest in her cup. She would grasp the cup and push it away from her mouth as she had seen her mother push the cup toward her.

In light of Mr. and Mrs. W.'s discussion of constipation, although it is one of her most difficult problems, we didn't feel it was applicable to this study. The following conversation may give an idea why effort was not made to improve constipation:

Mrs. W.: "We have had Heather to several doctors. One suggested that we give her mineral oil. I didn't think it would be a good idea because she has trouble getting enough vitamins anyway, and I've heard that mineral oil disturbs vitamin absorption."

Author: "Perhaps you're right. Do you feel this is something we could work on with Heather?"

Mrs. W.: "No, there seems to be no voluntary movement. I don't think she would do anything about it if she knew what we wanted."

Because of Heather's very limited physical and mental activity, the family and I chose very limited goals. They include:

1. Self-protection

    A. Learning to get off a couch or bed without falling.

    B. Learning to stay away from dangerous household articles.

2. Discipline

   A. Learning the meaning of "no".

3. Feeding

   A. Learning to hold and drink from a cup.

Next Mr. and Mrs. W. tried to help choose positive rewards to motivate Heather. They felt that Heather liked bananas to eat but as far as most food went, she swallowed it but showed no particular interest in it. She apparently knows what "bye-bye" means and will wave and smile in relation to this. The parents state that this waving means that they will take her for a ride in the car. The parents felt that this was one of Heather's favorite activities. Heather's favorite toy is a "Busy Box". It consists of brightly colored plastic objects on a plastic board; small drawers open and close, handles can be turned and a small car can be moved horizontally. Some of the gadgets make noise and some cause color changes or pictures to move. Heather reacts cuddling or praise with a smile, laughter or a look of satisfaction. Holding appears to soothe her if she has been crying.

The parents and author felt that the most appropriate and most easy to carry out positive reward would be holding, cuddling and praise.

The parents said that they did say "no" to Heather, but had not consistently disciplined her. For a negative, reward, we chose slapping her hand and saying "no". We hoped later to get a response to the verbal discipline without slapping her hand.

The Parents agreed to work consistently with Heather during the week when I was not there.

Behavior to be Rewarded

Self-protection

Skill to be learned:

We hoped to teach Heather to get off a couch or bed without falling.

Description of initial behavior:

If sitting on a couch or bed with the parents, Heather would lean forward to get off the couch. In leaning forward, she would topple headfirst. However, very seldom have her parents failed to catch her before she reached the floor. If the parents were not near, Heather usually did not attempt to get to the floor. The parents reported only a few times Heather had fallen when they were not present. These were when she had awakened from a nap and the parents were busy in another portion of the house.

Method of extinguishing undesirable behavior and replacing it with desirable behavior:

First Heather had to be given the opportunity to learn that she could fall and that someone else would not always catch her. Here we were trying to establish a need: the need to get to the floor without hurting herself; and we were trying to extinguish dependency on someone to put her on the floor or to catch her.

Since Mr. W. is very protective toward Heather, Mrs. W. decided it would be better to work toward this objective while Mr. W. was at work until some improvement, if any, could be shown to him.

It was decided to move hard objects away from the couch and place a pillow on the floor. With these alterations in the environment, Mrs. W. could let Heather fall without a great fear that Heather would be hurt.

Next we planned to turn Heather with her back to the outside of the couch and move her legs, one at a time, until she felt the floor. This, we hoped, would show her a way to the floor without going headfirst. This was to be done when the mother was on the couch with Heather, but not when Heather was trying to get down. We wanted her to learn this alternate idea but we also wanted her to realize that someone would not help her when she decided to depend upon them to catch her.

In this case, falling was to be utilized as a negative reward, and praise as well as the satisfaction of reaching the floor unharmed were to be utilized as positive rewards.

Self-protection and discipline:

Skill to be learned:

We hoped to teach Heather to stay away from dangerous household articles, and to move away or stop her activity around dangerous objects when the word "no" was used.

Description of present behavior:

Specifically, Mr. and Mrs. W. wanted Heather to keep away from a hard wooden chest, the table cloth, knickknacks on a shelf behind the couch and a television set.

Previously they have removed her bodily when they felt she would break something or hurt herself.

Method of extinguishing undesirable behavior and replacing it with desirable behavior:

In order to extinguish the behavior, consistency of discipline seemed to be the best answer. Mr. and Mrs. W. agreed to use the word "no" with Heather only when they really meant it. Rather than just removing her from the situation, we chose slapping her hand and saying "no"

before removing her. As well as protection for herself and for household articles, we hoped that by the time the new baby arrived, Heather would be prepared sufficiently to at least draw away if she was endangering the baby and the mother only had time to say "no" before reaching the children.

Feeding

Skill to be learned:

Since Heather apparently had the ability to hold a cup in her hands, we hoped to improve her ability to drink from the cup.

Description of present behavior:

Heather would open her mouth as if to drink from the cup, but would push the cup away from her face in an imitative manner as her mother had pushed the cup toward her for so many years. Her drinking cup has an enclosed top with a small spout to drink from. Apparently she knew what this spout was for because she would attempt to get it into her mouth when her mother would place the cup in her hands and put it up to her mouth.

Method of extinguishing undesirable behavior and replacing it with desirable behavior:

In order to get progress we needed to change the mother's position when helping Heather to drink. Rather than sitting in front of her all of the time we felt that the mother should sit to one side of Heather. By doing this, the mother would bring the vessel toward Heather and herself rather than push it away from herself toward Heather. We felt that this was a longer-range goal than the others chosen for Heather but since there was some evidence that she knew what the glass was for and would attempt to hold it, we were hopeful that improvement could be

made. Our goal, then, was to get Heather to pull the glass toward herself rather than pushing it away. Her reward was to be the liquid contained in the glass.

March 17, 1966

Heather is more active than she was on my first visits. She had several seizures on my first visits, making it impossible to do anything with her. Where I previously had the opportunity only to listen to the parents and make plans with them, I now had more of an opportunity to see Heather as she was most of the time. Her functioning levels as described by her parents seemed to be accurate (see Figure I).

Heather had fallen from the couch to the pillow on the floor several times with no physical injury. The mother states that she is not leaning forward so frequently to the point that she falls. Mrs. W. says that Heather now looks at the floor, then looks toward her with almost questioning expression as if wondering "will I be caught". When turned around so that her feet are off the edge of the couch, Heather can get to the floor without falling. This feat takes her approximately three or four minutes until she gets her feet and arms situated properly to let herself down. At this time, the author was interested in seeing Heather crawl in order to help determine her physical ability to turn herself around and get off the couch alone. Heather crawls very slowly. Her arms are held straight and seem to be stronger than her legs. When on her knees and hands, Heather wobbles from side to side and frontwards and backwards. Her hands and legs move alternately together, but she must take time between each step forward to balance herself.

The family plans to give Heather the opportunity to crawl and pull

herself up on furniture that will not hurt her. Hopefully, this will strengthen her muscles and improve her coordination.

When slapped on the hand and told "no", Heather will go back to the original activity. However, the mother feels that she does not go back to these forbidden objects or activities as regularly as she did before. As far as seeing real progress, we must wait until further improvement is made.

Heather is still having difficulty drinking from a cup. Little if any progress was noted by the mother at this time.

The family seems more encouraged about working with Heather. Although little progress can be seen as yet, Mr. and Mrs. W. feel that there have been small changes. "I can't really put my finger on it," Mrs. W. stated, "but she just seems more aware or something."

April 9, 1966

Mrs. W. feels that Heather is not exploring as much. Previously, Mrs. W. would slap her hand and say "no" in relation to the wooden chest and the television set in the living room. Now the mother reports that Heather moves more in those areas where she has not been reprimanded. She now almost completely ignores some of the objects she has been disciplined about.

Physicall, Mr. and Mrs. W. feel that Heather is stronger. She still appears to crawl in much the same manner as she previously did, but has started pulling herself up to her feet and holding onto the couch. She has not yet learned to get off the couch by herself, but her movements after being turned around to get down appear more definite and now take only one to two minutes.

Although I had never seen Heather drink from a cup, Mrs. W. states that Heather seems to be pushing the cup away from herself less and bringing it toward herself more. Although she sometimes spills the cup's contents, Mrs. W. feels that she is making progress. Heather's cup has a handle on one side which she grasps and holds the other side of the cup with her other hand. Watching her with a cup this time, she seemed pitifully slow, but since I had not seen her before, I could only hope that the mother's evaluation of improvement was true. With help from Mrs. W., Heather does manage to bring the glass toward herself. As far as drinking from it by herself, she could not possibly accomplish this task yet.

April 17, 1966

Heather is beginning to get off the couch without falling. Today she laid her head in my lap, moved one arm under her body and turned her back to the floor. Slowly, she untangled her feet until she seemed prepared. Then instead of sliding off with her legs straight as I had expected her to do, she pulled herself to her knees by holding on to the back of the couch. Carefully balancing herself, Heather placed her straightest leg, the right one, over the edge of the couch. She moved backward very deliberately until this foot was on the floor. The left foot followed more quickly. Heather proceeded then to get to her knees, turn, fall forward and catch herself with her hands.

Heather is responding more to "no". Although she may continue the activity, she stops for a short while when "no" is said, even without the accompanying slap. She is only slapped on the hand if she continues or goes back to the activity she has been told not to do. She still goes to and explores the forbidden territories of furniture set up by

the family. However, she plays more in the acceptable areas of play and when she invades the forbidden territory will frequently just turn away when told "no".

When Heather gets her cup to her mouth she seems to know that the cup must be turned upward in order to get anything out of it. Improvement is so slow it is difficult to see any change.

May 21, 1966

This was to be the author's final visit. Although visits were made between April 17 and May 21, improvement can be seen more readily by leaving out the intervening visits.

Both Mr. and Mrs. W. now allow Heather to get down from the couch by herself. Although it might be easier just to pick her up and move her, they can see the importance of requiring Heather to perform tasks without getting constant help. She reportedly must have gotten off the bed without falling also. After a nap the parents found her quietly playing on the floor. The author does not mean to say here that the child's ability to get down from the couch is perfect. She still falls and it still takes her approximately five minutes to turn herself around and get down.

Heather's response to "no" is still not perfect either. She does, however, show that she understands its meaning by stopping her activity when it is said. Since Mrs. W. had a baby and brought it home only a few weeks ago, Heather has not had the constant attention to learning that she previously had. However, she has continued to improve. The parents reportedly can use the verbal discipline more now than the physical reprimand.

Just as she has improved her response to discipline, Heather has had a correlating response to discipline in relation to the forbidden furniture in the home. She may still approach it, but verbal discipline can be used.

Heather can sometimes get her cup to her mouth, although she needs constant help and supervision in order to drink. Mrs. W. is encouraged, however, and plans to keep working on this.

Summary:

Although no true scientific tests were used to judge change in Heather's behavior, it is the author's opinion that improvement was made not only in helping Heather to learn, but in helping discouraged parents. Reportedly, the parents felt that previously they could do nothing but watch their child move steadily downward with no hope for any type of improvement. Now they state that friends, relatives and the public health nurse who visits them can see a great change in Heather. Not only has she accomplished the tasks set for her, but she appears to be more active physically and more alert to her surroundings.

Case Study 2: Pamela

Pamela, a white female, the third of four children, was born December 9, 1960 and was five years two months old when first visited.

Pamela has a brother, Michael, approximately one and one-half years older than she who was admitted to Boulder, the state hospital for retarded children, in June 1965. The following clinical evaluation and recommendations were made March 4, 1965 by the Montana Center for Cerebral Palsy and Handicapped Children, Billings, Montana:

"Diagnosis: Mental retardation, possibly familial type.

"Pediatric Exam: This 4½-year-old white female is brought here today because of her mental retardation. She is the product of a pregnancy complicated by spotting in the first trimester. She has been known to be retarded for several years. She was worked up by Dr. McVey about two years ago who said that 'There was a peculiar color reaction' on the Phenistix test although the Guthrie test for bacillus subtilis inhibition is reported as 'normal'.

Physical examination reveals a chubby little girl who is relatively inactive although she walks with a shuffling unsteady gait. She demonstrated no speech during the examination and her behavior was entirely appropriate for a child of 1 to 1½ years. Physical examination, including neurological and funduscopic examination is not remarkable.

"Impression: Mental retardation, possibly a familial type.

"Recommend:

1) A buccal smear, urinary-amino acid determination, a urinary ferric chloride test, a routine urinalysis, a serum cholesterol and a fasting blood sugar can be done in Dr. Steele's laboratory in Bozeman.
2) That the parents compile a listing of all members of their family with information regarding their mental and physical status.
3) The parents were instructed to request Dr. Pallister to send all of the electroencephalograms on Michael to the Center or Dr. Hartman when he has his next EEG.
4) Continue Pamela in school.
5) The parents were advised that after completion of the above and other studies that seem necessary, they will be contacted and we will make arrangements to discuss the findings with them.

"Psychological Evaluation: On the basis of her reponses to the Cattrell Infant Intelligence Scale, Pam's mental age was estimated at 14 months, with a resultant I. Q. of 27. In accord with this score she did appear slightly brighter than her brother. She was somewhat more curious and attentive than he.

Although Pam may imitate her brother's behavior through her close association with him, her mental ability is certainly severely retarded. It is not felt that there is anything worthwhile to be gained by separating the two. Eventually, Pam, like her brother, will probably profit from entry into Boulder.

"Speech and Hearing Evaluation:

"Oral Peripheral: No significant gross abnormalities were noted.

"Hearing: Pam seemed to respond to free field speech stimulation between 15 and 20 db. I would anticipate that hearing is normal but attention to stimulation is the problem.

"Speech: Pam says mama, down, eat, Mike, baby, juice. There are no word combinations. Mrs. B. reports that Pamela understands simple instructions--'put it away'; 'shut the door', etc. She reportedly understands and attends better when Michael isn't around. Pamela's speech and language behavior falls between 14 and 18 months.

Mrs. B. posed the question of how much Michael should be influencing Pam's behavior. Pam seemed to exercise more curiosity in the testing room opening doors, etc., although the only meaningful play noted was that she hugged a doll.

"On June 3, 1965 a follow-up conference with Mrs. B. regarding the clinic evaluation March 5, 1965 was held. The following is a summarizing of this interview in relation to both Pamela and her brother Michael:

"Mrs. B. attended the interview in the company of the public health nurse from Bozeman. Mr. B. was unable to come.

It was explained to Mrs. B. that the urines of both children showed by single dimensional paper chromatography an abnormal substance, probably an amino acid which we are unable to identify further here in Billings. We told Mrs. B. that we will attempt to obtain the funds for sending further urine specimens to the Bio-science Laboratories in California for column chromatography and full identification of the abnormal substance in the urine.

Mrs. B. reported that she has a list at home describing multiple relatives on the father's side of the family who have convulsions and are retarded. She further reported that investigation has revealed that her grandfather and her husband's grandfather were cousins and were related in Russia. Michael will be admitted to Boulder in July 1965.

"Recommendations:

1) Mrs. B. will forward to us the family tree which she has constructed.
2) An attempt will be made to secure funds for the column chromotography on the urine of at least one of the children.
3) Pamela should be seen here again in two years for a repeat evaluation."[21]

Pamela has an eight-year-old brother and a one-and-one-half-year-old sister, both of whom appear to be normal.

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[21]Excerpts taken from the records of the Montana Center for Cerebral Palsy and Handicapped Children, Billings, Montana.

Home Visits

February 26, 1966

Pamela is a large, obese five-year-old (see Figure IV). She is able to walk but seems somewhat uncoordinated. She appears to walk flat-footed and stumbles easily. She runs with a somewhat stiff-legged effect, with her arms outstretched slightly to either side. Mrs. B., Pamela's mother, states that Pam started walking at age 2½ years. Although she is able to walk upstairs one step at a time without alternating her feet, she is unable to walk downstairs.

Pamela uses her hands almost constantly: gesturing, throwing toys and other things around the house. She is unable to button or unbutton clothing but does put her arms into sleeves and lifts her legs slightly when being dressed.

Communication is limited mainly to grunts, screams and gestures. Her only intelligible words are yah, mama, Casey (her brother's name), baby and uh-oh. She appears to try verbalizing but most of her efforts cannot be interpreted without accompanying gestures. She will point to the cupboard and scream or holler, which is interpreted by her mother as a desire for crackers or cookies. Mrs. B. states that this is extremely difficult to handle when guests are present. "Pam knows she can have her own way when I have company," Mrs. B. stated. "Then she runs around and takes crackers away from the other children when I give them to everyone."

Mrs. B. says that Pam eats constantly if given the opportunity, but refuses carrots, celery and orange sections. "All she wants are cookies, candy, crackers or something else fattening. I know she's too heavy but sometimes I just give in so she will be quiet. She is a strain on me

sometimes." Pam drinks from a glass by herself.

Pamela is partially toilet trained although she doesn't seem to be able to communicate the need to go to the bathroom. Mrs. B. states that she just puts Pamela on the toilet periodically and she knows how to use it. If she becomes overly excited or is not taken to the bathroom soon enough, accidents do occur.

Mrs. B. states that the problems she needs the most help with are feeding, keeping Pam out of drawers and making Pam more socially acceptable when guests are visiting.

Pam will throw all of the clothes in a drawer on the floor. With much resistance and hollering she will help her mother pick them up and put them back in the drawer.

Pamela is on the waiting list to be admitted to Boulder, but until then Mrs. B. hopes that we can improve Pam's behavior.

Initally the mother and I chose the following objectives for Pamela:

1. Feeding
    A. Learning to eat less fattening foods at regular meals.
    B. Learning not to steal food from other children when guests were present.
2. Toilet training
    A. Learning a sound or word in relation to the need to use the toilet.
3. Discipline
    A. Learning the meaning of "no", especially in relation to feeding and getting into drawers.
4. Dressing and undressing
    A. Learning to put on clothing with no fasteners.

B. Learning to leave her shoes and clothing on.

Next we tried to determine positive rewards to motivate Pamela. Mrs. B. felt that Pamela loved food more than anything else but that it would be improbable to feed her throughout the day and expect her to lose weight. We attempted to discover any preference in toys or colors but could find none. Although she would show an interest in toys it was sporadic and changing. She apparently knows what "good girl" means and reacts favorably to cuddling.

Mrs. B. and the author felt that the most appropriate positive rewards would be food during meal times and cuddling and praise the rest of the day.

Pamela apparently knows the meaning of "no" but will continue her activity when "no" is said unless Mrs. B. gets her ruler and either threatens to spank her or actually does spank her. For a negative reward, we chose slapping her hand or using the ruler when saying "no". We hoped later to extinguish resistance and get a response to the verbal command alone.

Mrs. B. was uncertain about her ability to consistently work with Pamela throughout the week since much of her time was taken up with the other two children and since it was difficult for her to carry out discipline when guests were in the house.

Behavior to be Rewarded

Feeding and discipline

Skill to be learned:

We hoped to change Pamela's eating habits by using less fattening foods and diminishing between-meal snacks.

Description of behavior to be extinguished:

Pamela stands in front of the cupboard, especially when guests are present, and screams until Mrs. B. gives her a cookie or cracker. If Mrs. B. attempts to give her vegetables or fruits in place of these carbohydrates, Pamela will throw them on the floor, return to the cupboard and resume her screaming. If other children are given cookies or crackers, Pamela will steal them and push them into her mouth as fast as she can before her mother has a chance to punish her or take them away.

Method of extinguishing undesirable behavior and replacing it with desirable behavior:

Pamela is actually receiving rewards for screaming when her mother finally gives her a cookie or cracker to quiet her or to prevent her from stealing food from other children. Here we want to extinguish both her unpleasant scream and her poor eating habits. In order to do this, she must not be given food when she screams. Through consistency, Pamela should learn that she will not gain anything by screaming. If she steals from other children a negative reward should be utilized. Here Mrs. B. and I decided to slap her hands, remove as much of the stolen food from her mouth as possible, and seat her in a chair away from the other children. Since Pamela has learned to sit in a chair in the trainable classroom she attended, we felt that for a brief period of time Mrs. B. could make her sit in the chair. Besides utilizing this when Mrs. B. felt it necessary to give other children food in Pamela's presence, we felt that it would be better if Pamela was not actually punished by seeing others eat when she could not. Therefore, Mrs. B. planned to try giving the other children pieces of fruit or vegetables. Then if Pamela steals them, she will be getting a food she does not like.

At this time Pamela could be given the same type of food the other children received although she might throw it on the floor.

Pamela's parents clear the table immediately after a meal and put all food away to prevent Pamela from eating all that is left after supper. This will continue since it prevents Pamela from being tempted. At meal times, she is to be limited to the amount an average child her age would receive. She is to punished physically and verbally commanded "no" if she attempts to steal food from anyone else's plate.

Toilet training

Skill to be learned:

We hoped to teach Pamela to verbalize the need to use the toilet.

Description of present behavior:

Pamela apparently knows what the toilet is for and will use it when her mother periodically sets her on it. However, Pamela does have accidents and apparently has no verbal or physical form of communicating a need to use the bathroom. If she has accidentally wet or soiled her pants she will come to her mother and attempt to put her arms around her and hug her. When Mrs. B. notices Pamela's wet pants, points to them and asks "What did you do?" Pamela says "Uh-oh" and runs. Sometimes Mrs. B. spanks her once or twice with her hand and takes her into the bathroom and sometimes she just changes her pants. We wished in this case to find some form of communication for Pamela to use in relation to the bathroom. We hoped to extinguish accidents.

Method of extinguishing undesirable behavior and replacing it with desirable behavior:

First it became necessary to determine an easy word or sound for Pamela to make in relation to toilet training. We chose a low grunt-

ing noise to be used for both voiding and bowel movements.

Next we needed to find a form of reward for using the toilet. After an effort to relate toilet training to a toy or colored object we finally decided that praise and cuddling were our best alternatives. Each time Mrs. B. took Pamela to the bathroom she planned to make this grunting noise in an effort to get Pamela to imitate her.

Discipline

Skill to be learned:

Besides utilizing discipline to extinguish improper feeding habits, we wished to utilize it consistently in all areas which the parents felt that Pamela's behavior was undesirable.

Specifically, Mrs. B. wished to teach Pamela to stay out of drawers unless she was putting something into the drawer.

Description of behavior to be extinguished:

Pamela grabs silverware from the drawer or from the compartment in the drying dish rack and throws it on the floor, puts it into a hole in the back of the television set, puts it in the trash or some other interesting place, or she may just run with it. Since she may pick up a butcher knife and run she is dangerous to herself. When Mrs. B. tries to take the silverware away, Pamela pulls away and fights to keep it. Although this is apparently a very enjoyable game to Pamela, it is dangerous not only to herself but to the rest of the family.

At times, Pamela will pull clothes from a chest of drawers and spread them all over the room before her mother catches her.

We wished then to keep her from pulling things out of drawers or the dish rack. However, we felt that she could help Mrs. B. put clothing in drawers.

Method of extinguishing undesirable behavior and replacing it with desirable behavior:

We decided to utilize physical punishment and "no" every time Pamela got into drawers or the dish rack. Through consistency, we hoped to get a response later from the verbal command without utilizing physical punishment. This punishment was to be either hand-slapping or the use of the ruler according to the family's wishes.

Through praise we hoped to encourage Pamela to place clothing in her drawers when Mrs. B. was present.

Dressing and Undressing

Skill to be learned:

We hoped to teach Pamela to leave her clothing on, once she was dressed, and we hoped to teach her to pull up panties with elastic tops and no fasteners. Also, we hoped to teach her to put her arms in sleeves and be more helpful when being dressed.

Description of behavior to be extinguished:

Pamela frequently takes her shoes off and hides them or just leaves them lying around the house. On occasion she will pull her shirt up over her head. However, she does not help when being undressed.

When being dressed, Pamela would occasionally hold her arm toward the opening in a sleeve or lift her foot when her pants were being put on. She did not attempt to put anything on by herself.

Method of extinguishing undesirable behavior and replacing it with desirable behavior:

In an effort to extinguish the behavior of removing her shoes, we decided to slap her hand when she removed them, make her pick up the

shoe and bring it to her mother. At the same time Mrs. B. slapped the child's hand, she was to say "no".

To promote learning to dress herself, we endeavored to give Pamela the opportunity to put her own arm in a sleeve and her own feet through a pant leg. Rather than immediately placing her hand or foot where it belonged, we wished to give her the opportunity to attempt this for herself. If she did behave as we wished her to, she would be praised and cuddled.

March 5 through March 22, 1966

Progress toward goals:

Mrs. B. has been unable, as she had feared, to work consistently with Pamela. Pamela may be responding more to "no" without physical reinforcement, but this is difficult to determine.

At this time, Mrs. B. and the author were both discouraged. The author was unable to carry out plans for Pamela in the limited time available to her. Mrs. B. was unable to carry out consistent plans with Pamela and meet the needs of the rest of the family. At this time Mrs. B. could see no progress and felt that she was unable to let Pam scream. She wished to drop her from the study.

April 7, 1966

The author attended a lecture by Dr. Baer, University of Canada. Dr. Baer's lecture included a portion on teaching imitation to retarded children by using food at mealtimes for reinforcement. Behavior to be imitated began with simple tasks. For example, the child would be rewarded when the experimenter said "do this", patted his head three times and the child did pat her head three times. To gain an initial response

the experimenter would say "do this" and pat his head three times for nine consecutive times. If he had not elicited a response by then, he would repeat "do this", pat his head, pat the child's head with her hand and promptly reward her with food. After the child learned to imitate simple tasks, more difficult tasks were initiated and a carry-over of imitation skill was elicited. Eventually, the child even learned to imitate a few easy verbalizations.[22]

Since little if any progress was being made with Pamela and since Mrs. B. felt that she could no longer consistently work with Pamela, the author decided to try to teach Pamela to imitate. Through imitation, the author hoped that Pamela could learn at a later date some verbal and motor skills that so far had seemed impossible.

Still hoping to have a consistent routine for learning, the author discussed Dr. Baer's lecture with Mrs. B. Mrs. B. was to work at all meals with Pamela just as Dr. Baer had done, beginning with head patting, and moving if possible to table patting, chest patting, etc.

April 17, 1966

Mrs. B. feels that Pamela can pat her head or whatever she wants to pat without a reward. Evidently Mrs. B. did not understand the importance of eliciting the exact imitative behavior from Pamela that she has performed. "Pamela is stubborn: If she wants to pat something, she will; if she doesn't, she won't. I just can't do this with her. I need the time with the rest of my family.

Rather than stop working altogether with Pamela, the author decided to work personally with her towards imitative behavior. In this respect

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[22]Dr. Donald M. Baer, "The Use if Imitation to Develop Language in Mute Retarded Children," lecture, Bozeman, Montana, April 1966.

the author hoped for little response since she could be present to work with Pamela only one meal a day three days a week. The author realized that with the brief period of time the only progress that might be seen would be to show that Pamela could learn imitative behavior through rewards.

April 18, 1966

The imitative skill to be learned was patting her head. The author would say "Pamela, do this," pat herself on the head three times every thirty seconds, consecutively for nine times. On the tenth time she would repeat the procedure, then take Pamela's hand, pat her head with it, and promptly reward her with whatever food Mrs. B. had prepared for the meal.

Twice Pamela tried patting the author's head and twice she tried patting the table. Pamela had two correct responses without the author's intervention.

The only negative reward was replacing Pamela in her chair if she tried to get up and run away. She cried much of the time during this session, and voided.

April 22, 1966

Pamela became quite upset when the author sat down across from her and kept the food out of her reach. She would pat her head only when the author held her arm above her head. She reached for cookies, milk and her sandwich at different intervals but was not allowed to have them unless she made a correct response either with or without the author's intervention. When offered the food as a reward for behaving

properly, Pamela would throw it on the floor. Again Pamela cried most of the session though no tears could be seen in her eyes.

May 8, 1966

Pamela still seems unhappy during our sessions; however, she cries much less than she did during the initial sessions. She now pats her head without the author's intervention on the seventh or eighth request.

May 14, 1966

In an effort to determine imitative skill, the author tried using verbalizations which Pamela already knew. On the first to third time, Pamela would respond. Upon request she would repeat mama, dada, baby, uh-oh and no. Although she does not always respond to the first command to pat her head or the table, she does do it without intervention from the author.

May 21, 1966

Pam still does not enjoy the author's intervention at mealtime and frequently takes her afternoon nap without completing the meal. The author only worked with her until she became unreceptive. By unreceptive behavior, the author means that Pamela would close her eyes, hold them tightly shut and refuse to do anything but sit in the chair.

Summary:

It is the author's opinion that Pamela did make advancement toward imitative behavior. As far as learning new behavior or extinguishing old behavior which would help her parents care for her, it is the author's opinion that no improvement was made.

In this case, the author feels that too many goals were initiated for the mother to consistently carry out plans.

Case Study 3: Anita

Anita, a white female, is an only child born July 3, 1963 and was thirty-one months old when the author first visited her.

The mother, Mrs. R., says the pregnancy was uneventful except for spotting during the second month. The delivery was normal. The baby weighed four pounds thirteen ounces at birth and showed definite signs of mongolism. Soon after birth the baby became blue and showed signs of a heart defect. Mr. and Mrs. R. state that the defect is septal.

Anita had difficulty swallowing and frequently choked. At six months of age, Anita had a severe choking spell which a doctor felt may have been caused by a seizure. The parents feel that Anita did not have seizures but that her choking was caused by difficulty in swallowing. However, at this time Anita was placed on phenobarbital for control of seizures and digitoxin for her heart defect. Anita was given phenobarbital until she was twenty-five months old. At this time another doctor, who felt that she may never have had true seizures, advised the parents to discontinue the phenobarbital. The parents state that Anita had no seizures and seemed to advance much more quickly both in motor and intellectual skills following the discontinuation of this medication.

On February 26, 1966 the author first visited the family. Anita is a small girl (see Figure III). She has many of the characteristic signs of mongolism. Her face is round with oriental-appearing eyes. Her ears are close-set to her head and her tongue is large and frequently protru-

ding. Her muscles appear to be lax and her joints appear to be loose. Frequently she will lie down on her stomach with her buttocks on the floor and her feet and head in a parallel line. Her hands are broad and short with abnormal creases of the palm. Anita has only one joint in her right thumb and her fifth fingers curve inwardly. Her great toe is separated from her others by a large space.

Anita usually moves around the room seated on the floor, pulling herself forward with her legs. She crawls at times. At both activities, she seems quite adept and can move with a great deal of speed if she wants. She has been standing in her playpen alone since December 6, 1965 but as yet does not try to walk. If supported under the arms, in an effort to help her practice walking, Anita will put her legs out straight in front of her body and will not place her feet on the floor.

Anita has very expressive gestures and uses her hands well. She picks up small objects with no difficulty. She will move her parents' hands if she wishes them to do something. For example, she will move her father's hand into his pocket to see if his pen is there if she is unable to find it with her own hand. She will also place her mother's hands on the piano keys if she is sitting on the piano stool with her mother and her mother quits playing.

Anita's vocabulary consists of several words, including pen, shoe, bang, daddy, choo-choo, baby, wow, whee, no, yes, puppy and "bigabe" which means "give it to me". She waves bye-bye unless she does not want someone to leave. Anita appears to understand much of what is said to her and frequently answers questions with her favorite word, "no".

Home Visits

February 26, 1966

Anita has parents who seem to spend a great deal of time working and playing with her. They were interested in improving her behavior and anxious to try any suggestions the author might give them. They expressed a fear of letting Anita cry because of her heart defect. Although they had been advised by a doctor that Anita whould be able to gauge her own activity, they were extremely fearful that she would turn blue if she were allowed to cry more than a few minutes.

Anita is presently being toilet-trained. She sometimes says "potty" when wetting. Although she is not completely toilet-trained, it is the author's opinion that the parents were working well with her and that no assistance was needed at this time.

At this time Mr. and Mrs. R. felt that the areas which would help them most were getting Anita to feed herself, stop her from scratching people, getting her to go to bed without fighting, and getting her to accept a baby-sitter.

The family and I chose the following objectives:

I. Feeding

   A. Learning how to use a spoon to feed herself.

   B. Learning to drink from a cup.

   C. Learning to eat solid foods.

2. Discipline

   A. Learning not to scratch people.

   B. Getting her to go to bed without fighting.

   C. Getting her to accept a baby-sitter.

Next Mr. and Mrs. R. tried to help choose positive rewards to motivate Anita. They felt that she reacted well to verbal praise and liked

to eat graham crackers and junior food peaches.

Behavior to be Rewarded

Feeding

Skill to be learned:

We hoped to teach Anita to eat from a spoon.

Description of present behavior:

Although Anita seems to be able to manipulate her hands well, she has never been given the opportunity to use a spoon. Mr. and Mrs. R. keep Anita and their home very clean. It seems difficult for them to allow Anita to mess up herself or the house.

Method of extinguishing undesirable behavior and replacing it with desirable behavior:

First Anita had to be given the opportunity to try to feed herself. In this case, it was necessary to extinguish parental control. The author discussed this with the parents who readily agreed to give Anita this opportunity. The food in her dish was to be her reward along with praise when she successfully brought the spoon from her dish to her mouth. She was to be given the opportunity to feel the texture of her food and practice with her spoon. Later we planned to use negative rewards if she continued to play in her food. The negative reward was to include moving her hand out of her dish, slapping her hand if she continued and saying "no". If she dropped the spoon it was to be replaced in her hand.

Feeding

Skill to be learned:

We hoped to teach Anita to drink from a cup.

Description of present behavior:

Anita drinks almost completely from a bottle. When she has her bottle in the afternoon, she takes approximately forty-five minutes to drink six ounces. She turns to her free side, throws the bottle, grabs it if possible and pours milk on the floor. The parents feel that at least one bottle a day is necessary because they give her digitalis in one of them and they can be certain that she gets the full dosage when given a bottle. However, during the rest of the day they had no objections to giving Anita a glass. They were fearful, however, that she might not get enough liquid since she apparently doesn't like milk or water very well.

Method of extinguishing undesirable behavior and replacing it with desirable behavior:

A glass or cup with liquid in it was to be offered to Anita every hour to every two hours. The glass was to contain only a small amount of liquid to prevent spilling. The liquid in the glass as well as verbal praise was to be used as a reward. The parents were to help Anita hold the glass and bring it to her mouth.

Feeding

Skill to be learned:

We hoped to teach Anita to eat solid foods.

Description of present behavior:

Anita's diet consists of milk, strained junior foods, graham crackers and other soft foods. Although Mr. and Mrs. R. would like to see Anita eat table food, they have been afraid that she would choke. If offered a small piece of hamburger or potato, she swiftly and deftly

pushes it out of her mouth with her tongue.

Method of extinguishing undesirable behavior and replacing it with desirable behavior:

Since Anita would automatically spit out solid foods without chewing or tasting them, we wanted to extinguish this behavior. In an effort to give her an opportunity to taste these foods, we chose to mix very small pieces of food with her favorite junior foods. The junior foods were to be a positive reward utilized as a motivational force to taste solid foods. Also, in relation to the goal of feeding herself, we hoped that the manipulation of the food might be a positive reward encouraging her to pick up and taste solid foods.

Discipline

Skill to be learned:

We hoped to teach Anita not to scratch people with her fingernails.

Description of present behavior:

Anita will scratch other people's legs, face or arms. This behavior is apparently an attention-getting device, since she does not do it when she is the center of attention.

Method of extinguishing undesirable behavior and replacing it with desirable behavior:

We chose slapping Anita's hand and saying "no" as a negative reward. Also, rather than paying attention to Anita after she had scratched someone, we chose to either sit her on the floor or in her playpen and ignore her for a short period of time. We did not want to reward her behavior by giving her the attention she seemed to be using this behavior to elicit.

Discipline

Skill to be learned:

We hoped to get Anita to go to bed without fighting.

Description of present behavior:

Mrs. R. states that they have been waiting until Anita went to sleep on the floor in the living room before they put her in her own bed. If Anita wakes up when being moved, they have been unable to leave her in her crib because she cries. Therefore, bedtime became a transitional job, with the parents waiting until Anita was sound enough asleep that they could move her without waking her.

Method of extinguishing undesirable behavior and replacing it with desirable behavior:

Again the parents' fear of letting Anita cry was reinforcing her behavior. The negative reward in this case was to consist of ignoring Anita although she did cry. To keep Anita from feeling deserted, Mr. R. planned to stay in the room with her for a few minutes after putting her in her crib. The parents were to choose the hour they wished Anita to go to bed. At this time, they were to take Anita to her crib whether or not she was wide awake. Through consistency of bedtime and consistency of not being rewarded for crying, we hoped to extinguish crying beyond a minimal level and promote the idea that it was time to go to sleep without fighting.

Discipline

Skill to be learned:

We hoped to get Anita to accept a baby-sitter.

Description of present behavior:

The parents report that they have been unable to get a baby-sitter to stay with their daughter, other than one girl who has a retarded brother. They stated that Anita would cry for as long as a half-hour after they left. Mrs. R. stated that she did come back and not even go out because Anita fussed so much. Again, Anita was using her crying and the parents' fear of her crying to her advantage. Also, since Anita would take her bottle from no one but her mother, Mrs. R. was afraid she would not get enough to eat.

Method of extinguishing undesirable behavior and replacing it with desirable behavior:

The author offered her services as a baby-sitter so that she could help improve Anita's behavior. The parents were not to return once they had gone out for the evening. We wished to remove the reward Anita had been receiving for undesirable behavior. Positive reward was to be given by the baby-sitter. The baby-sitter was to play with Anita. We decided to give Anita junior foods before bedtime to alleviate Mrs. R.'s fear that Anita would go to bed hungry.

March 5, 1966

Anita has been using her own spoon for a week now. She manipulates the spoon well. However, sometimes she misses her mouth and pushes the spoon against the side of her face. She reaches into the junior foods and wipes them into her hair if possible. We found it necessary at this time to change her bath schedule to after mealtime. Because of the time and mess involved, the parents decided that they would only allow Anita to feed herself one meal a day. Anita wears a large plastic bib which covers her almost entirely.

Mr. and Mrs. R. have been offering Anita liquid in a glass. However they do not feel comfortable in removing her bottle feedings. Therefore Anita is getting the opportunity to practice drinking from a glass but the use of a bottle is not being extinguished. She is able with help to bring the glass to her mouth, tip it up and drink from it.

Anita is taking some table foods mixed with her junior foods. However she readily spits large lumps out. She pushes table food from her mouth as fast as her parents can replace it in her mouth. However she takes time to taste it, although she will not chew it if she picks it up and puts it into her own mouth.

Before any advancement could be made toward the discipline we had planned for Anita, the author needed an opportunity to observe her physical reaction to crying. The author observed Anita cry for approximately ten minutes. Her fingernails and lips showed no signs of cyanosis. Her cheeks stayed pink. There were no tears seen at any time during this ten-minute observation. The author discussed signs of cyanosis with Mr. and Mrs. R. At this time they were able to observe that Anita was physically able to cry with no adverse reactions.

March 10, 1966

The author baby-sat with Anita this evening. She cried with no tears for approximately fifteen minutes. During this time, the author completely ignored her behavior. When crying stopped, the author played the piano with Anita and talked with her. Anita also did a pretty good job of ignoring the author most of the evening. She was fed junior food as planned, and placed in her crib. The author sang to her for approximately five minutes and left the room. Anita cried for ten minutes and

went to sleep. The parents were amazed and encouraged that Anita was in bed and asleep when they returned home.

March 19, 1966

Anita is somewhat more adept with her spoon. She follows food up her arm with the spoon if she spills it. She is now being punished for reaching her hand into the liquid food on her plate and rubbing it in her hair. Although she doesn't reach into the food as frequently as she did the first two weeks, she still attempts to smear it as much as possible.

She is accepting some table foods but is still more apt to spit them out than swallow them.

Progress in the use of a cup is slow. It is the author's opinion that this could partially be due to the fact that Mr. and Mrs. R. find it more convenient to use the bottle.

Anita no longer scratches people. Mr. and Mrs. R. carried out the plan for improvement of behavior and reported extinction of this habit within a week.

Mr. R. reports that he has been carrying out our plans for getting Anita to go to bed without fighting. He feels that she cries less and he no longer minds letting her cry for a period of time.

April 7, 1966

Anita has begun to push furniture around the house while she is supporting herself in a standing position. After discussing her motor development with her parents, we decided that Anita could practice her motor skills without our intervention other than giving her the opportunity to practice.

April 17, 1966

Anita seems to be at a standstill in improving her feeding habits. However, even with a normal child the ability to feed oneself is not a sudden transition.

Mr. and Mrs. R. report that they are satisfied with the progress they have made toward getting Anita to go to bed without fighting. She now accepts the idea with very little crying and goes to sleep soon after she has been put in her crib.

The parents feel that Anita is accepting a baby-sitter better than she previously did. However, part of the acceptance of a baby-sitter is due to parental change in attitudes. With the understanding that crying will not hurt Anita, they are no longer returning early. Anita cries for a few minutes after her parents leave, but as long as she knows the person who is with her, soon resumes her normal activities.

At this point, we found it necessary to introduce a new objective. For the past four days, Anita has vomited in her playpen when the mother was in another room. The author found a location where she could observe Anita without being observed by Anita. When Mrs. R. disappeared, Anita cried for a few minutes, stuck her finger in her throat and vomited.

Mrs. R. reports that for the past four days she has picked Anita up and cleaned up the mess. Mrs. R. thought that Anita had been crying so hard that she had vomited.

Method of extinguishing undesirable behavior and replacing it with desirable behavior:

We decided that Mrs. R. had been rewarding Anita for vomiting by picking her up each time. In order to extinguish this behavior, we

chose to ignore Anita when she vomited. Ignoring Anita was to be utilized as a negative reward. The mother would clean up the mess but would not look at or speak to Anita.

April 22, 1966

Evidently it took only one day to extinguish Anita's behavior of vomiting. She hasn't stuck her finger down her throat and vomited for a week now. The mother reports that she seems more content now to play in her playpen when Mrs. R. is in another room, especially if Mrs. R. talks to her from the other room.

May 1, 1966

The parents are continuing to give Anita the opportunity to feed herself. She no longer puts her free hand into the dish. It is necessary, however, for Mr. R. to sit in front of Anita and encourage her to eat during the whole meal.

Anita is not drinking much from a glass. The author decided at this time not to encourage any more change of behavior in drinking, since the parents seem to prefer the bottle with Anita.

At this point we found another new objective the parents wished to introduce. Since we had taught Anita to go to bed, they felt that something might be done about her getting up in the morning. Anita has been waking up and crying until her parents pick her up and put her in bed with them in the morning. She goes back to sleep with the parents.

Method of extinguishing undesirable behavior and replacing it with desirable behavior:

Here we chose to eliminate the undesirable behavior of crying

and being placed in the parents' bed. Again we found that her crying was being rewarded and that in an effort to extinguish this behavior the reward would have to be removed. The parents were aware of the fact that her crying would probably keep them awake for a few days or weeks in the morning, but they hoped that eventually Anita would learn that she was not going to get her own way.

May 21, 1966

Anita is eating more solid foods although she still doesn't appear to really like them.

Much progress has been made toward feeding herself although she is still messy. Anita holds the spoon well. She moves it from plate to mouth without turning it upside down. However, she sometimes throws the spoon or if she is not watched closely will push her free hand into the liquid junior food and rub it in her hair. The parents plan to continue working with her. Rather than one-meal sessions, the author suggested that they try five-minute sessions in the morning and at noon and a longer session in the evening.

Anita is now staying in her own bed in the morning. Although she frequently wakes before her parents and sometimes does cry, she seems to be able to go back to sleep by herself or amuse herself until they get up.

Summary:

Mr. and Mrs. R. utilized positive and negative rewards with Anita in other areas that we did not use in this study. They used graham crackers as positive rewards for toilet training and slapping Anita's hand and saying "no" when she reached for ash trays or other articles

they did not want her playing with.

Anita seemed to improve in all areas. It is the author's opinion that much of the change was due to change in parental attitudes and fears. The change in parental attitudes and fears altered the behavior rewarded.

CHAPTER IV

SUMMARY AND CONCLUSIONS

The findings of this study seem to support the hypothesis that the retarded child's ability to care for his own needs will be improved through the use of the reward system. However, with such a small group of children, no generalizations can be made in relation to retarded children in general.

All three children in this study showed improvement in reaching specific objectives. Since there are so many variables involved with each of the children and their families, it is difficult to say that all of the improvement or even any of the improvement was definitely due to the use of positive and negative rewards.

The only conclusion the author can make is that in the eyes of the family, the public health department, friends or the researcher, the three children in this study showed a change in behavior. With one child, Heather, the changes included learning new skills which she had never displayed since her initial retardation was noted. Pamela showed the investigator that she could learn imitative skills, such as patting her head and so forth, although her behavior was not altered to improve her ability to care for her own needs. It was the author's opinion that imitative skills could have been utilized to improve Pamela's ability to care for her own needs if adequate time had been available. Anita showed the author the need parents have to understand the behavior of their retarded children in relation to themselves before they can work effectively to help the child.

Implications for nursing:

CHAPTER V

RECOMMENDATIONS

If another study were to be done or if someone wanted to utilize the methods described by the author, it would seem advisable for them to choose a more limited number of goals. When a child reaches the goals set for him, then new ones can be set. Too many goals became confusing to parents and were laborious to carry out. It would also be valuable to study one child every day rather than three children two to three times a week, in order to have more opportunity to carry out the objectives set without placing too much reponsibility on thc parents.

It might also be prcfitable to do a study on the parental attitudes in relation to the progress of a retarded child.

A study based on the reward method might be profitable when done in an institution. The institutional environment could be controlled more effectively to rule out many variables. Any study undertaken must provide adequate time for the researcher to work consistently with the children and those adults who give care to them day by day.

APPENDIX

FUNCTIONAL SCREENING TOOL

1. Fill in the identifying information on the functional screening tool composite sheet.

2. Under heading marked "FUNCTIONAL TASKS" in the column provided mark those activities which the child can perform successfully / and those he cannot perform - in each of the eight functional areas. Those that fluctuate indicate by *.

3. Determine the child's function by having the child perform the specific activities when possible or by observing the child; otherwise, ask the mother for information.

4. When objects are needed for testing, use household equipment such as pencils, toys, crayons, etc.

5. When child fails the majority of activities in any one age group of functional tasks, indicate by drawing a heavy line under that age grouping.

6. At the top of the page, in each major area, indicate the child's name and what your estimation of his functional age in that area is.

7. In the "SUGGESTED TASKS" column underline items used and under "OTHER SUGGESTIONS" note any further suggestions which may be helpful in developing the functional ability of the child in that age grouping.

8. Plot functional level in each area on the graph provided in the composite sheet.

This scale was designed to make an assessment of the functional level of the child, particularly when there is a suspicion of deviant development. Information used in compiling this tool was taken from the following sources: Cattell Infant Scale, the Gesell Scales, the Composite Scale by B. M. Caldwell and R. H. Drachman's Scale, the Vineland Social Maturity Scale, M. J. D'Assaro and U. P. John's R-E-P Language Scale. Publications on child growth and development and mental retardation included: Dittman, Gesell, Holtgrewe, Illingworth, Jensen and Spock.

Compiled by: Alize Paulus[23]
University of Washington
School of Nursing
Kathryn Barnard, Faculty Advisor[24]

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[23] This tool was developed relative to fulfilling requirements for Master of Nursing degree, 1965.

[24] Revised, January 1966.

FUNCTIONAL SCREENING TOOL

Composite Sheet

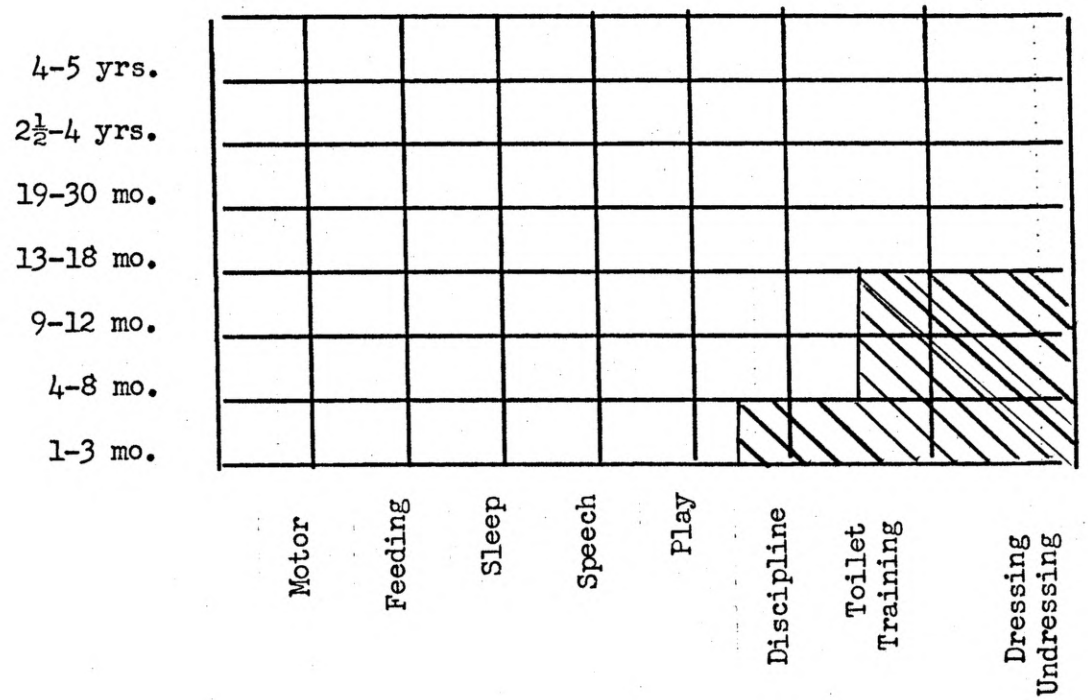
Child's name:_____ Date:_____

Chronological age:_____ Height:_____ Weight:_____

Has child ever been psychologically tested before? Yes_____ No_____

If so, where and when? _____

Plot functional level in each area on the graph below.



Below age level when child should begin these tasks

Functional Screening Tool 1

* Fluctuation
/ Successfully performed
\- Unsuccessfully performed

Name:_____

F. L.:_____

AGE	FUNCTIONAL TASKS	SUGGESTED DEVELOPMENTAL TASKS
	MOTOR DEVELOPMENT:	
1-3 mo.	___1. Holds head up briefly when prone. ___2. Head erect with bobbing when supported in sitting position. ___3. Head erect and steady in sitting position. ___4. Briefly follows bright colored objects. ___5. Follows object through all planes.	Infant placed in prone position periodically. Supported in a sitting position when ready developmentally. Bright colored objects hung in reach across crib; mobiles. Opportunity to observe people or activities in room. Opportunity to observe objects or people while in a sitting position. Infant seat. Other suggestions:
4-8 mo.	___1. Rolls from side to side but not over. ___2. Rolls from supine to prone. ___3. Sits with minimal support, with stable head and back. ___4. Sits alone steadily. ___5. Plays with fingers, manipulates hands which are open most of the time. ___6. Grasps pencil with both hands. ___7. Picks up cube or cup. ___8. Secures M & M in hand. ___9. Transfers toys from one hand to other.	Pull up to sitting position, utilizing grasp reflex. Opportunity to sit, supported and alone when developmentally ready. Bright colored objects hung in reach. Small toys or household objects: rattles, teething ring, cloth animals or dolls, 1" cubes, plastic objects such as cups, rings, and balls. Offer M & M or similar small pellet to improve grasp. Other suggestions:

Functional Screening Tool 2

* Fluctuation
/ Successfully performed
\- Unsuccessfully performed

Name_____

AGE	FUNCTIONAL TASKS	SUGGESTED DEVELOPMENTAL TASKS
	MOTOR DEVELOPMENT (cont.):	
9-12 mo.	___1. Change from lying on abdomen to sitting position. ___2. Creeps and/or crawls. ___3. Pulls to standing position. ___4. Stands alone. ___5. Requires support to walk. ___6. Imitates poking finger into hole. ___7. Marks paper with pencil or crayon. ___8. Finger-thumb grasp developed (pincer grasp).	Playpen may be useful--pulling self to stand. Opportunity and space to practice creeping and crawling. Practice in kneeling position to improve balance prior to walking. Bouncing chair. Can handle larger objects: spoons, plastic bottles and cups, ball, cubes, finger foods, saucepans, and lids. Other suggestions:
13-18 mo.	___1. Walks few steps without support. ___2. Walks well, runs a bit. ___3. Climbs onto large chair. ___4. Walks upstairs with help, creeps downstairs. ___5. Pushes chair and other objects around. ___6. Scribbles spontaneously.	Provide with paper and large crayons. Opportunity to practice walking, climbing stairs with help. Outgrown playpen. Toys: cubes, cups, saucepans, lids, rag dolls and other soft cuddly toys, pull toys. Other suggestions:
19-30 mo.	___1. Runs. ___2. Walks up and down stairs one at a time. ___3. Imitates walking on tiptoe. ___4. Imitates horizontal strokes. ___5. Imitates vertical strokes. ___6. Imitates building tower of 4 or more blocks.	Needs opportunity to develop these activities and opportunities to practice. Provide pattern for child as he watches. Other suggestions:

Functional Screening Tool 3

*Fluctuation
/Successfully performed
-Unsuccessfully performed

Name:_____

AGE	FUNCTIONAL TASKS	SUGGESTED DEVELOPMENTAL TASKS
	MOTOR DEVELOPMENT (cont.):	
2½-4 yrs.	___1. Walks downstairs (alternating feet). ___2. Hops on one foot. ___3. Throws ball overhand. ___4. Rides tricycle. ___5. Swings and climbs. ___6. Performs stunts. ___7. Good balance	Continue with blocks: combining materials and toys--cars and trains. More creative with clay and manipulating material--mud pies. Provide with material. Tricycle or similar pedal toys. Swings and climbing equipment. Other suggestions:
4-5 yrs.	___1. Stands on one foot for a few seconds. ___2. Skips and jumps. ___3. Improved balance and improved coordination.	Games to synchronize hand and foot tapping with music: skipping, hopping, and dancing rythmically to improve coordination. Other suggestions:

Functional Screening Tool 4

* Fluctuating
/ Successfully performed
\- Unsuccessfully performed

Name:_____

F.L.:_____

AGE	FUNCTIONAL TASKS	SUGGESTED DEVELOPMENTAL TASKS
	FEEDING:	
1-3 mo.	___1. Light touch on mouth cause the lipe to close and purse. The lips may make seeking movements. ___2. Sucking motions. ___3. Anticipates feeding by mouth movements. ___4. Introduction of solids.	Make adjustment in nipple opening if there is difficulty sucking. Adequate nursing period to entirely satisfy sucking needs. Introduction of solids; one at a time; small bowled spoon, placed well back on infant's tongue. Other suggestions:
4-8 mo.	___1. May begin to reach for food. ___2. Some hand to mouth motions. ___3. Tongue used more effectively in moving food in the mouth. ___4. Tongue retracts in sucking.	Finger foods to encourage hand to mouth motion--cubes of cheese, raw fruit (apple slices), dry toast, bread crust, cookies. Same foods to develop chewing and exercising gums. Other suggestions:
9-12 mo.	___1. Holds own bottle. ___2. Drinks from cup or glass with assistance. ___3. Finger foods. ___4. Beginning to hold spoon.	Continue with finger foods. Encourage self-help in feeding; use of bite-sized foods. Offer spoon when interest is indicated. Other suggestions:
13-18 mo.	___1. Holds cup with digital grasp--needs supervision. ___2. Lifts own cup and drinks well. ___3. Begins to use spoon--may turn before reaching mouth.	Continue finger foods. Non-tip dishes and cups. Dishes should have sides to facilitate filling of spoon. Opportunity for self-feeding. Fluids between meals rather than filling up on fluids at mealtime.

Functional Screening Tool 5

* Fluctuating
✓ Successfully
- Unsuccessfully performed

Name:_____

AGE	FUNCTIONAL TASKS	SUGGESTED DEVELOPMENTAL TASKS
	FEEDING (cont.):	
13-18 mo.	___4. From poor filling of spoon to filling of spoon. ___5. Difficulty in inserting spoon into mouth.	Other suggestions:
19-30 mo.	___1. Handles cup well. ___2. Holds small glass in hand. ___3. Inserts spoon in mouth correctly. ___4. Distinguishes between food and inedible material. ___5. Plays with food--may refuse food. ___6. May dawdle.	Encourage self-feeding with spoon. Do not rush child. Bland foods, plainly but attractively served. Small servings of food. Other suggestions:
2½-4 yrs.	___1. Pours well from pitchers. ___2. Serves self at table, with little spilling. ___3. Rarely needs assistance. ___4. Interest in setting table.	Encourage self-help. Opportunity for pouring and serving self. Encourage child to help set table. Other suggestions:
4-5 yrs.	___1. Feeds self quite well. ___2. Eats rapidly. ___3. Very social and talkative during meal.	Socialization with child at table. Enjoys helping with preparation: table setting, serving. Other suggestions:

Functional Screening Tool 6

* Fluctuating
/ Successfully performed
\- Unsuccessfully performed

Name: _____

F.L.: _____

AGE	FUNCTIONAL TASKS	SUGGESTED DEVELOPMENTAL TASKS
	SLEEPING:	
1-3 mo.	___1. Night: 4-10 hr. intervals. ___2. Naps: frequent. ___3. Longer periods of wakefulness.	Should not be rushed to sleep. Other suggestions:
4-8 mo.	___1. Night: 10-12 hrs. ___2. Naps: 2-3 (1-4 hrs. duration). ___3. Night awakenings.	Check to determine if there is a cause for awakenings: hunger, teething, pain, cold, wet. Sleeping arrangements may affect sleep--infant should not be in same room with parents. Other suggestions:
9-12 mo.	___1. Night: 12-14 hrs. ___2. Naps: 1-2 (1-4 hrs. duration). ___3. May being refusing morning nap.	Short crying period may be release of tension for child. Other suggestions:
13-18 mo.	___1. Night: 10-12 hrs. ___2. Naps: 1 in p.m. (1-3 hrs. duration). ___3. May awaken during night crying (associated with wetting bed).	"Night terrors" may be terminated by awakening infant and offering reassurance. Other suggestions:
19-30 mo.	___1. Night: 10-12 hrs. ___2. Naps: 1 (1-3 hrs. duration). ___3. Doesn't go to sleep at once--keeps demanding things.	Quiet period of socialization prior to bedtime--reading child book, telling story. Holding child--talking quietly with him. Ritualistic behavior may be

Functional Screening Tool 7

*Fluctuating
/Successfully performed
-Unsuccessfully performed

Name: _____

AGE	FUNCTIONAL TASKS	SUGGESTED DEVELOPMENTAL TASKS
19-30 mo.	___4. May awaken crying to be taken to toilet.	present--should carry out routine, helps child overcome fear of unexpected or fear of dark. Other suggestions:
2½-4 yrs.	___1. Night: 10-12 hrs. ___2. Naps: Beginning to disappear. ___3. Prolongs process of going to bed. ___4. Less dependent on taking toys to bed. ___5. May awaken crying from dreams.	T.V. programs may affect ability to go to sleep. Anxiety about going to bed and desire to stay up with parents needs limits. Regularity and consistency to promote good sleeping habits. Reassurance--night light or leaving door ajar. Other suggestions:
4-5 yrs.	___1. Night: 10-12 hrs. ___2. Naps: rare. ___3. Quieter during sleep.	Do not use "going to bed" as a form of punishment. Other suggestions:

SPEECH: F.L.:_____

Receptive

1-3 mo.	___1. Activity diminishes as sound, e.g. bell, is made close to child. ___2. Smiles when socially stimulated.	Mother vocalizations with infant. Begin pairing tactile and verbal communication. Other suggestions:

Expressive

___1. Small throaty noises.
___2. Crying is different for pain, hunger.

Functional Screening Tool 8

* Fluctuating
/ Successfully performed
\- Unsuccessfully performed

Name: _____

AGE	FUNCTIONAL TASKS	SUGGESTED DEVELOPMENTAL TASKS
4-8 mo.	Receptive ___1. Turns when a voice is heard without other ___2. Responds by raising arms when mother says "come up". ___3. Looks at daddy when he is around. Expressive ___1. Laughs aloud. ___2. Babbles, e.g. ba-ba-ba. ___3. Looks at daddy when he is named. ___4. Says "dada" or "mama" during babbling, but not in relation to parents.	Mother vocalizations with infant. Respond to vocalization of infant. Other suggestions:
9-12 mo.	Receptive ___1. Activity stops when he hears "no-no" or his name. ___2. Gives toy on request accompanied by gesture. Expressive ___1. Says "dada" or an equivalent word appropriately. ___2. Imitates sounds such as lip smacking. ___3. Says 2 words besides "dad" and "mama".	Mother vocalizations with infant. Repitition of sounds. Pattern for infant to imitate. Other suggestions:
13-18 mo.	Receptive ___1. Finds "baby" in picture when requested. ___2. Carries out 2 directions.	Encourage verbalization and expression of wants. Do not talk for infant.

Functional Screening Tool 9

* Fluctuating
/ Successfully performed
\- Unsuccessfully performed

Name: _____

AGE	FUNCTIONAL TASKS	SUGGESTED DEVELOPMENTAL TASKS
13-18 mo. (cont.)	Expressive ___1. Has 4 or 5 words. ___2. Indicates wants by gesture and/or words. ___3. Asks for wants by naming, e.g. cookie.	Repetition of words and sounds. Verbalize names of toys to child while playing. Let child see mouthing of words. Have infant look at mother while speaking. Other suggestions:
19-30 mo.	Receptive ___1. Points to parts of doll on request (19 months--2 parts). ___2. Carries out 4 directions. Expressive ___1. Has approximately 20 words. ___2. Combines 2-3 words to express ideas. ___3. Refers to self by pronoun rather than by name.	Encourage speech by having child express wants. Encourage child to ask questions by prompt, truthful, simple answers. Other suggestions:
2½-4 yrs.	Receptive ___1. Understands taking turns. ___2. Understands two prepositions (in, under, over, on). ___3. Listens to longer stories.	Encourage correct usage of words. Read stories with familiar content but with more detail; nonsense rhymes, humorous stories. Creates own stories. Simple explanations to questions. Other suggestions:

Functional Screening Tool 10

* Fluctuating
✓ Successfully performed
\- Unsuccessfully performed

Name: _____

AGE	FUNCTIONAL TASKS	SUGGESTED DEVELOPMENTAL TASKS
	SPEECH (cont.)	
2½-4 yrs. (cont.)	Expressive ___1. On request, tells what action is going on in pictures. ___2. Uses plurals. ___3. Common expression: "I wanna." ___4. Talkative--tell tales.	
4-5 yrs.	Receptive ___1. Understands and replies appropriately to questions such as "What do you do when you are asleep?" ___2. Can name or point to, on request, a penny, nickel, and dime. ___3. Carries out, in order a command containing 3 parts, e.g. "pick up the ball, put it on the table, and bring me the book".	Socialization with child. Encourage correct usage of words. Encourage child to relate stories or incidents. Help child with printing and writing. Other suggestions:
	Expressive ___1. Counts 3 objects, pointing to each in turn. ___2. Defines simple words (hat, bell). ___3. More meaningful questions.	

Functional Screening Tool 11

* Fluctuating
/ Successfully performed
\- Unsuccessfully performed

Name: _____

F.L.: _____

AGE	FUNCTIONAL TASKS	SUGGESTED DEVELOPMENTAL TASKS
	TOILET TRAINING	
13-18 mo.	___1. Cooperative toilet response for bowel movements. ___2. Indicates wet pants. ___3. Toilet regulated to both bowel and bladder control.	Sit on potty chair at regular intervals for short periods of time throughout day. Flushing toilet may frighten child Other suggestions:
19-30 mo.	___1. Beginning to tell needs. ___2. Some word for both functions. ___3. Daytime control (occasional accident). ___4. Reminding necessary. ___5. Requires assistance.	Continue regular intervals of pottying. Reward success. Simple clothing that child can manage. Remind occasionally. Take to bathroom once during night. Other suggestions:
2½-4 yrs.	___1. Takes responsibility for toilet--if clothes are simple. ___2. Continues to verbalize need to go; apt to hold out too long. ___3. Needs help with wiping. ___4. Shows excessive interest in bowel movements.	May still need reminding. Simple clothing that child can manage. Other suggestions:
4-5 yrs.	___1. General independence.	

Functional Screening Tool 12

* Fluctuating
/ Successfully performed
\- Unsuccessfully performed

Name: _____

F.L.: _____

AGE	FUNCTIONAL TASKS	SUGGESTED DEVELOPMENTAL TASKS
	PLAY	
1-3 mo.	___1. Quieted when picked up. ___2. Smiles when socially stimulated.	Mother-infant bodily contact. Other suggestions:
4-8 mo.	___1. Amuses self for short intervals. ___2. Likes to look at self in mirror. ___3. Holds small toys. ___4. Differentiates strangers from family.	Short intervals for solitary play activity. Opportunity to sit in front of mirror. Mother-infant bodily contact. Other suggestions:
9-12 mo.	___1. Banging toys or objects together. ___2. Puts objects in and out of containers. ___3. Examines objects held in hands. ___4. Mother-infant games (pat-a-cake, peek-a-boo). ___5. Extends toy to other person without releasing.	Mother-infant games. Opportunity to place objects in containers and pour out. Large and small objects with which to play. Other suggestions:
13-18 mo.	___1. Solitary level of play. ___2. May have preferred toys. ___3. Endless exercise of walking activities. ___4. Throws and picks up objects, throws again. ___5. Pulls toys. ___6. Imitates many things such as reading newspaper, sweeping.	Introduction to other children although child will not play with them. Attends to familiar objects in books, children's books, magazines. Music: child responds rhythmically, improves balance and coordination.

Functional Screening Tool 13

*Fluctuating
/Successfully performed
-Unsuccessfully performed

Name: _____

AGE	FUNCTIONAL TASKS	SUGGESTED DEVELOPMENTAL TASKS
	PLAY (cont.)	
13-18 mo. (cont.)	___7. Imitates placing one object in bottle and spilling it out.	Encourage helping with dusting, sweeping, stirring. Other suggestions:
19-30 mo.	___1. Parallel play predominates. ___2. Does not ask for help. ___3. Plays with large and small toys. ___4. Rough-tumble play. ___5. Less rapid shifts in attention. ___6. Interest in dawdling and manipulating play materials. ___7. Enjoys rhymes and singing phrases of songs.	Provide with new materials for manipulating and feeling--finger paints, clay, sand, stones, water and soap. Wooden toys--cars and animals. Building blocks of various sizes, crayons and paper. Rhythmical tunes and equipment-swings, rocking chair, rocking horse. Children's books--short simple stories with repetition and familiar objects, enjoys simple pictures brightly colored. Guide child's hand to actively participating with specific activities; i.e. using crayons, hammering, etc. Other suggestions:
2½-4 yrs.	___1. Beginning cooperative play; shares toys, takes turns. ___2. Dramatization and imagination. ___3. Combining playthings--increase in constructive use of materials. ___4. Draws person with 2-4 parts. ___5. Puts away toys. ___6. Prefers 2-3 children, may have special friend.	Enjoys participating in play with small groups of children. Encourage imaginative and dramatic play activities. Music: enjoys singing, experimenting with musical instruments. Group participation in rhymes, dancing by hopping or jumping. Drawing and painting but seldom recognizable. Expresses pride in product.

Functional Screening Tool 14

* Fluctuating
/ Successfully performed
\- Unsuccessfully performed

Name: _____

AGE	FUNCTIONAL TASKS	SUGGESTED DEVELOPMENTAL TASKS
	PLAY (cont.)	
2½-4 yrs. (cont.)		Imitates cross and circle, designs and crude letters. Other suggestions:
4-5 yrs.	___1. Capable of completing activities. ___2. Very fond of cutting and pasting. ___3. Dramatic play and interest in going on excursions. ___4. Draws a person with 6-8 parts. ___5. Counts 4 objects. ___6. Copies a square (1 out of 3 trials).	Painting: knows colors, drawing houses, people, boats, trains--out of proportion. Details that are most important to child are drawn largest. Encourage printing of numbers and letters. Clay: making recognizable objects. Cutting and pasting. Provide with materials for building sturdy structures with boxes, chairs, barrels, etc. Other suggestions:
	DISCIPLINE	F.L.: _____
4-8 mo.	___1. Begins to respond to "no-no".	Firmness, friendliness, and consistency in disciplining. Other suggestions:
9-12 mo.	___1. Can follow simple commands (i.e., pick up the ball or put the toy in the box.	Simple commands, one at a time, Other suggestions:

Functional Screening Tool 15

* Fluctuating
/ Successfully performed
\- Unsuccessfully performed

Name: _____

F.L.: _____

DISCIPLINE (cont.)

13-18 mo.	___1. Understands simple commands and requests.	Bodily removal may be necessary. A substitute object offered to accomplish diversion. Other suggestions:
19-30 mo.	___1. Attention span increasing. ___2. Begin simple reasoning, answering question "shy?" ___3. Child may lack physical control.	Continue simple commands, one at a time. Simple explanations. Other suggestions:
2½-4 yrs.	___1. Interest in conforming. ___2. Understands explanations and reasoning. ___3. Simple commands such as putting away toys, running short errands.	Consistency in parents' behavior and demands. Provide an opportunity for child to run short errands. Simple explanations. Other suggestions:
4-5 yrs.	___1. Can be given 2-3 assignments at one time, will carry out in order. ___2. Complies readily with requirements. ___3. Understands reasoning.	Opportunity to be more independent and is more dependable. Send on short errands. Simple explanations and reasoning. Other suggestions:

Functional Screening Tool 16

* Fluctuating
/ Successfully performed
\- Unsuccessfully performed

Name: _____

F.L.: _____

AGE	FUNCTIONAL TASKS	SUGGESTED DEVELOPMENTAL TASKS
	DRESSING - UNDRESSING	
13-18 mo.	___1. Cooperates in dressing by extending arm or leg. ___2. Removes socks, hat, mittens. ___3. Can unzip zippers. ___4. Tries to put shoes on.	Encourage child to remove socks, etc. Do not rush child. Practice with large buttons and zippers. Other suggestions:
19-30 mo.	___1. Tries to wash hands and brush teeth. ___2. Can remove shoes if laces are untied. ___3. Helps dress and undress self. ___4. Pulls on simple clothes. ___5. Tries to unbutton. ___6. Removes coat or jacket when unfastened.	Encourage and allow opportunity for self-help in getting drink, removing clothes with help, hand washing, unbuttoning, etc. Simple clothing. Other suggestions:
2½-4 yrs.	___1. Greater interest and ability. ___2. Intent on lacing shoes (usually does incorrectly). ___3. Does not know back from front. ___4. Washes and dries hands, brushes teeth.	Simple garments--encourage self-help. Do not rush child. Large buttons, zippers, slip-over clothing. Self handwashing, help with brushing teeth. Other suggestions:
4-5 yrs.	___1. Dresses and undresses with care except for tying shoes, belts. ___2. May learn to tie shoes. ___3. Combs hair with assistance.	Continue with simple clothing. Encourage self-help in dressing and undressing. Other suggestions:

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