



1980

Behavior Modification and Intensive Interpersonal Involvement in the Treatment of an Autistic Child

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BEHAVIOR MODIFICATION AND INTENSIVE INTERPERSONAL
INVOLVEMENT IN THE TREATMENT OF AN AUTISTIC CHILD

by

David P. Helm

A Dissertation Submitted to the Faculty of the Graduate School
of Loyola University of Chicago in Partial Fulfillment
of the Requirements for the Degree of
Doctor of Philosophy

November

1980

ACKNOWLEDGMENTS

The author would like to gratefully acknowledge the guidance and help of Dissertation Director Dr. John Shack and Committee Members Drs. Alan DeWolfe, Jeanne Foley, and J. Clifford Kaspar. Grateful thanks are offered to committee members for their consistent support and thoughtful critiques of this work. Special thanks are due Committee Chairman Dr. John Shack for the major contribution of time, advice, and support that he provided throughout the several years that the study was in progress.

Thanks are also due to Dr. Patricia Barger, who provided support and counsel during the initial years of the project, and to Master Teacher Nancy Buckler who offered important guidance and support throughout the course of the work.

The larger part of the training accorded the autistic child who is the subject of this case study was provided by student volunteers and the contribution of these workers to the improved functioning of the child under study was invaluable. Special credit and thanks are due to Sylvia Garcia, Terrence Smith, Ross Kosinski and Barbara Rajkowski who made major investments of time and self over a period of several years.

A number of graduate students in clinical psychology and

education donated their time and efforts in providing periodic assessments of the child under study and their contributions are gratefully acknowledged.

Grateful acknowledgment is made to Ms. Susan T. Mulhern, Clinical Supervisor of the Speech and Language Clinic of Northwestern University for major contributions to the work reported here. Thanks are also offered to Ms. Jane Deiderich, Director of Speech Pathology and Audiology at the Foster G. McGaw Hospital of Loyola University of Chicago for her contribution to this study.

Most importantly, grateful thanks are offered to Mr. and Mrs. Michael Egan for the privilege of working with their son, Terry, and with them, in a mutual effort to help Terry grow. Thanks also are due Mr. and Mrs. Egan for their willingness to share this account of Terry in the hope that other autistic children may be benefited.

Finally, profound thanks to Terry, to whom I am indebted in ways beyond recounting.

PREFACE

Autistic children share a number of striking features, especially social withdrawal, language delay and deviance, and insistence on sameness, but most likely there are quite different etiological routes to the syndrome, and quite obviously children within the syndrome differ markedly among themselves with respect to nature and degree of handicap. For this reason it is misleading and inaccurate to think of autistic children as a homogeneous group. No given autistic child may be considered as somehow representative of all such children, and it is never safe to assume that findings relative to child A are going to be applicable to child B. No other child will be exactly like the child considered in this study--genetic or intellectual endowment, constitution, particular pattern of impairments and dysfunctions, perceptual responses, personality traits, family, specific early experiences and training--or respond exactly as he did to therapeutic intervention. An attempt has been made to provide sufficiently detailed information about the child under study so that other workers may be in a position to assess the findings of the present study and consider their potential applicability to their own work.

It is perhaps well to briefly consider the role of the case

study in clinical research, and note the limitations of the work presented here. In the present instance no hypotheses were posited for confirmation or rejection. No statistical tests were performed, making it impossible to assign a probability statement to observed changes. Against these important limitations may be placed in balance some advantages peculiar to the case study. A strong case for these advantages is presented by Lazarus and Davison (1971):

The general trend in clinical research is in the direction of greater specificity. Broad questions such as "Is psychotherapy effective?" are now considered quite meaningless and have been replaced by the standard scientific question: "What specific therapeutic interventions produce specific changes in specific patients under specific conditions?" (Strupp & Bergin, 1969). Yet, when aiming for specificity, the major drawback of extensive statistical designs is the fact that they yield only group norms and probabilities, and do not tell us very much about a given individual in the group. Only case studies permit one to relate therapeutic effect to specific contingent patient-characteristics. (p. 209)

Observations made during the course of a case study may lead to fresh insights or hypotheses. Findings may be informative and valuable and suggest fruitful clinical directions to pursue. The more detailed presentation of therapist-client interaction possible in a case study may illuminate important variables that would otherwise be obscure.

As the study itself makes abundantly clear, work with the child--Terry--was a major project involving the concerted efforts of a large number of persons. Terry's parents and siblings, staff

and students of the Loyola Day School and Guidance Center, and student volunteer teacher-aides all joined their energies to provide the concerted, sustained effort that was crucial to the gains that Terry made. In this regard the present report unavoidably underrepresents many of the critical contributions of the many different persons who worked intensively with Terry during the 4 years of the study, as well as neglecting the important contributions of persons who worked with Terry when he was younger. Although I have presented considerable detail about my own relationship with Terry, my personal involvement with him was but a single strand in the network of relationships that he shared with significant others and must be understood within that larger perspective.

Finally, it should be noted that this study was not designed to test any particular hypothesis or hypotheses. It grew out of the effort made to help one particular autistic boy. It chronicles the modest successes and the failures, and tries to highlight both those factors that contributed to, and limited, success. It is hoped that this account may be of some value to other persons who are trying to help autistic persons toward a happier, more productive life.

VITA

The author, David P. Helm, was born April 29, 1938, in a rural area on the periphery of Kansas City, Kansas.

He attended Ward High School in Kansas City, Kansas where he graduated in 1956. In September, 1956, he entered the University of Chicago and received the degree of Bachelor of Arts with a major in psychology in September, 1961. He obtained graduate training in clinical psychology at the University of California at Berkeley from September, 1961 to August, 1964 and received a Master of Arts in Psychology in September, 1968. In September, 1974, he entered a doctoral program of graduate study in clinical psychology at Loyola University of Chicago and was advanced to candidacy in April, 1976.

Predoctoral internships in clinical psychology were served at Napa State Hospital, Napa, California (January, 1963 to September, 1963), the Alameda County Probation Guidance Center, San Leandro, California (September, 1963 to August, 1964), the Loyola University Guidance Center and Day School, Chicago, Illinois (September, 1975 to July, 1979), and the San Diego County Department of Mental Health, San Diego, California (September, 1979 to August, 1980). Between May, 1970 and July, 1974 the author served as Senior Clinical Psychologist with the Middlesex County Mental Health Clinic, New Brunswick, New Jersey.

A previous publication, "Psychodynamic and Behavior Modification Approaches to the Treatment of Infantile Autism: Empirical Similarities" appeared in the Journal of Autism and Childhood Schizophrenia, 1976, Volume 6, pages 27 to 41.

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CHAPTER I

INTRODUCTION

The following report considers in some detail the development of an autistic child between the ages of 10 and 13--a period during which the child was the subject of a particularly intensive program of therapeutic intervention.

The report may have a degree of special interest and usefulness inasmuch as the child in question was the eponymous subject at age 8 of the CBS television documentary of 1973, entitled "A Boy Named Terry Egan."¹

At the time this study began, October of 1974, Terry was attending the Loyola Day School. The school is in session from 9 A.M. to 3 P.M., Monday through Friday and operates 44 weeks of the year. At that time the school was located in a converted

¹The American Medical Association judged this presentation the best television documentary of 1973. A 16mm motion picture film copy is available for rent from a variety of educational facilities, e.g., New York University Films Library, Washington Square, New York, New York, and University of California Extension Media Center, Berkeley, California 94720.

private home. A total of 30 children age 4 to 12, afflicted with various developmental disabilities, and/or serious emotional and behavioral problems, attended the school. Children were roughly grouped according to broad overall development in their assignment to one or another of five different classrooms. Four children occupied the lowest level functioning classroom, while eight were assigned to the highest level room. At the time that the present study began, Terry was assigned to the classroom with the highest functioning children--the Blue Room--largely on the basis of his ability to sight read, write, and do simple arithmetic.

The principal of the Loyola Day School--Master Teacher Nancy Buckler--was stationed in the Blue Room. Two graduate students in clinical psychology (called Classroom Coordinators) shared responsibility under Ms. Buckler's supervision for lesson planning, teaching, and the training and supervision of volunteer teacher aides.

The volunteer teacher aides--for the most part Loyola University of Chicago undergraduates--played an important role in the functioning of the school, providing a great deal of the intensive one-to-one involvement that many of the children required. As many as 15 volunteers might be assigned to any one room, with each volunteer working 6 hours a week in addition to attending a weekly room conference.

The school was within a special division of Loyola University

of Chicago and was funded in part by the University, and in part by city and state funds. It was located on the periphery of the University campus next door to the Guidance Center. (In 1977 the school was relocated in two prefabricated classroom units which were placed in the center of the campus.) Play areas were afforded by a small backyard, the campus proper, a park across the street, and--on good days--the beach of Lake Michigan, a half-block away.

The general orientation of the Day School is psychoeducational, emphasizing both treatment and education in its approach to students. Developmental play therapy--a technique in which extensive playful physical contact is used as an aid to establishing affective contact between the child and adult worker--is extensively employed with children of the lowest developmental level. Equal attention, however, is given to helping these children to develop basic self-help skills and achieving appropriate social behavior, and many techniques drawn from principles of behavior modification are employed to this end. Children of higher developmental levels are provided with more traditional forms of individual child therapy as well as being provided a classroom experience in a therapeutic milieu. Techniques of intervention drawn from both psychodynamic considerations and learning theory (behavior modification) are employed as seems appropriate.

Terry was a student at the Loyola Day School from its inception in 1970 (Terry was then age 5) until his "graduation"

at age 13. The period covered in the present study is a somewhat arbitrary one, which boundaries are determined by the author's appearance at the school, on the one hand, and Terry's departure from the school, on the other.

Between October, 1974 and August, 1975 I served as a volunteer at the Loyola Day School while attending my first year in the doctoral program in clinical psychology at Loyola University of Chicago. Although volunteers were typically assigned to a room and worked with all of the children in that room, Nancy Buckler had assigned me to work exclusively with Terry. I began working with Terry, then age 10-3, 3 hours a week and in a matter of months was seeing him 10 hours a week: time was spent playing with him and helping him to learn a variety of academic and nonacademic skills. By the summer of 1975, Terry had made important social/emotional changes. About that time the possibility of doing a case study of Terry occurred to me. (I had been keeping an informal, occasional log of my contacts with Terry since I had begun to work with him.) I undertook a very broad psychoeducational assessment both to provide a basis for planning further interventions and to serve as a base against which future change might be measured.

In September of 1975 I became employed at the Loyola Day School and Guidance Center as a psychology intern and was assigned as a Classroom Coordinator to the Blue Room, and was further assigned to Terry as his individual therapist. In my new role as

Blue Room Coordinator I was given responsibility for the total planning of Terry's program at the school and the training and supervision of volunteers assigned to him. In addition, as Terry's therapist, I spent at least 6 hours a week in individual work with him.

The present study seeks to provide a chronicle and documentation of Terry's development during the period in which I knew him, first as volunteer, and later as classroom coordinator and therapist. The study also attempts to illustrate the impact of some of the therapeutic and educational interventions which were undertaken. Inasmuch as a large number of persons were working with Terry at the school at all times, to say nothing of the multitude of experiences which Terry had away from school, the establishment of definitive casual relationships between intervention and effect is simply not possible. However, observations of Terry made over time in many different situations, in combination with repeated broad formal assessments of his psychoeducational functioning, combine to provide a suggestive clinical picture of Terry's response to a variety of therapeutic interventions.

In my work with Terry emphasis was placed both on psychodynamic variables and behavioral training techniques. First importance was placed on establishing a strong affective bond with Terry, and this relationship was then used as a ground on which to establish and implement an intensive training program which encompassed

virtually every aspect of Terry's development. Both formal and informal assessments of change were employed. Significant improvement in sociability and language was documented, as well as stringent limitations to the extent of that improvement.

Much of the descriptive material relating to Terry's development which is presented in this report is drawn from or depends upon an informal log which I maintained over the years that I worked with him. This report reflects the log's contents in a way that is accurate and representative, but avoids redundancy.

It is my assumption that Terry's emotional growth proceeded in important part through our relationship and that my own emotional involvement and reactions were fundamental to the nature of the relationship between us that developed. For this reason and in the interest of providing a fuller account of this aspect of treatment, some of my own intrapsychic process is at times described. Further, in engaging with Terry I often attended to my own feelings, gut reactions, and intuitions. An autistic child often does not provide clear, direct, unambiguous messages about his needs and may indeed deliberately give signals that are directly opposite his deepest feelings. A worker with such a child often feels as if he is flying in the dark, with his only instrument being his own internal sense of what the child is likely experiencing. If, in describing my "sense" of what Terry was experiencing or feeling, I sometimes go beyond the observable facts--the data--in this report,

I am merely recording what is an inevitable aspect of working with an autistic child. In any given instance, my "understanding" might be wrong, although if I acted on my interpretation and Terry responded in a fashion that I anticipated, it lent some credence to my intuition. The point is that I did have feelings which guided me in my work with Terry and which influenced the course of our experience together. For this reason, some report of what I thought Terry was feeling or thinking or trying to do is as necessary to this account as is the more objective descriptions of his behavior.

While statistical tests are not provided, in the present study Terry served as his own control. His achievement in the areas of language, cognition, and perception was assessed at age 11 and provided an estimate of his rate of development prior to the introduction of intensive training. Reassessments at age 12 and 13 provided evidence of highly accelerated growth. Also, two time-series analyses provide further evidence of the specific contribution of the intensive training to his demonstrated gains. The question remains whether such improvement was peculiar to Terry or if it reflected idiosyncracies of intervention which were not appreciated or reported upon. Whether some other autistic children may similarly benefit from the kind of experiences that were brought to Terry is an empirical question that can only be adequately answered by other workers.

CHAPTER II

THE AUTISTIC CHILD: A BRIEF OVERVIEW

In 1943 Leo Kanner described a number of children whose condition differed markedly and uniquely from anything previously reported in the psychiatric literature. The outstanding feature of these children was their inability to relate themselves in an ordinary way to people and situations in life. Their parents described them as "being in a shell"; indifferent to other people; happiest when left alone. The autistic aloneness of these children seemed to be present from earliest infancy; parents reported that the children failed to assume at any time an anticipatory posture preparatory to being picked up. The children actively avoided interaction with other persons, did not look in people's faces, and, if some dealing with another person became inevitable, would form a temporary relationship with the person's hand or foot as a definitely detached object, but not with the person himself. If anything, these children related even less to other children than they did to adults.

The children were either mute or used language in a strikingly peculiar manner. None of the children routinely used language to communicate to others. Words, phrases and sentences were sometimes parroted immediately after the child had heard them spoken;

sometimes they were apparently "stored" by the child and uttered at a later date in a kind of delayed echolalia. The children tended not to use the word "yes" but instead indicated affirmation by repeating a portion of the question they were asked. Language was used in an extremely literal fashion with little evidence of an awareness of its subtleties and nuances. Personal pronouns were repeated by the child as he had heard them, producing a pronomial reversal with respect to ordinary language usage. Thus, a child might say, "Now I will give you your milk" when he is requesting milk for himself, or say, "You fall down" when referring to his own tumble. Language is used sparingly, and a set, not-to-be-changed phrasing is consistently used for specific purposes.

Highly characteristic of these children is an anxiously obsessive desire for the maintenance of sameness in the environment. This extends to placement of articles in the environment, the routine or manner in which everyday acts are carried out, the precise wording that the child or adult uses in an exchange. Changes in the environment or routine can precipitate acute distress. Along with the insistence upon sameness, there is a sharp limitation in the child's variety of spontaneous activity and a failure to play imaginatively. The child may use and enjoy objects, but tends not to use them functionally.

Many of the children experienced early feeding difficulties, and displayed antipathy to loud noises and moving objects. In

contrast to their strikingly aberrant behavior, the children were physically normal, typically had excellent rote memories, and their appearance and facial expression suggested intelligence and good cognitive potential.

Kanner's fine description of the children he had encountered served to identify and largely define a syndrome now known as "autism." There is much general agreement among present-day workers that the prime identifying elements of this condition include a) early onset (before 30 months of age); b) severe language delay and deviance; c) failure to relate to other persons; and d) an insistence upon sameness. Most workers today do not limit the diagnosis of autism to children of presumed normal intelligence and neurological integrity. That is, the diagnosis may also be applied to children who are clearly retarded or brain damaged if these children meet other diagnostic criteria for the syndrome.

Many--though by no means all--autistic children share in a variety of other behavioral peculiarities, e.g., reliance on proximal rather than distal receptors; self-injury; and unusual body movement such as handflapping. A fuller picture of the autistic syndrome may be arrived at by considering the typical developmental course of childhood autism.

Developmental Course

The first year. The child is often described as extremely placid and undemanding or, conversely, as irritable (Ornitz, 1973;

Wing, 1976a). Erratic patterns of sleeping, and feeding problems, are frequently noted. There may be prolonged body rocking and frequent headbanging. The child shows little curiosity and is typically indifferent to toys. There may be gaze aversion, failure to orient to the sound of a person approaching, no anticipatory posture when about to be picked up, and either rigid stiffness or "dishrag" limpness when being held. The child may show inexplicable fears of common objects or show abnormal fascination with flickering lights, particular objects, or the fluttering of his own fingers before his eyes. Vocalizations are delayed or deviant.

Two to 3 years. Children of this age are apt to use persons as objects, attempting to move them about to meet the child's needs without relating to them as persons. The children seem insensitive or indifferent to other persons' feelings. Eye contact is usually avoided. Interactions with other persons are typically shunned, but the child may respond with pleasure to boisterous tickling, and look virtually normal while the roughhouse play is going on. Peculiarities of bodily movement are often shown, such as arm flapping, toe walking, whirling, and hopping up and down when excited. Headbanging, handbiting, and body rocking may become more prominent. There appears to be greater reliance on proximal than distal sense; the children typically like to touch, stroke, and smell objects, and seem to register less information through vision and hearing. Occasionally, the child is initially mistakenly assumed to be deaf or blind. There is little or no interest in toys, and no imaginative

play. "Play" consists largely of some simple, repetitious activity. The child may develop rituals of behavior which he compulsively repeats. Language is either not present or markedly delayed and deviant. Most children display an extraordinary willfulness, stubbornness, and powerful insistence that their demands be met. Everything is to be--must be--exactly as the child wants it. Fierce, prolonged temper tantrums, often including self-destructive behavior, are displayed if the child's demand is not met.

Four to 5 years. Much of the behavior described previously continues during this period. The child may be destructive and living with the child can be extremely stressful for all family members. Some speech may be emerging but it is typically sparse, noncommunicative, and with characteristic deviances such as immediate and delayed echolalia and pronomial reversal. Grammatical structure, as it emerges, is immature. Words are used in a stereotyped way, and with abnormal tone, pitch, and rhythm in a manner that projects a flat, mechanical quality. Facial expression may be blank and gesture, absent. The children seldom spontaneously imitate adults and, indeed, exhibit considerable difficulty in doing so. For all their aloofness and the difficulties they are able to occasion through temper tantrums, the children are usually physically attractive, even beautiful, and project an appealing air of vulnerable innocence.

Middle childhood. Although the course of later development is

quite variable, many children display less bizarre behavior as they get older. Some degree of socialization usually takes place, although this tends to be limited. Language, for those children who develop it, typically continues to be used in a primitive, deviant, and limited fashion.

Differential Diagnosis

While autism may be associated with mental retardation and/or neurological impairment, the diagnosis implies impairments which are not necessarily, or typically, associated with these conditions. Autism also may be usefully distinguished from childhood schizophrenia, developmental aphasia, and other conditions which may share some behavioral features with it.

Psychosocial deprivation. Although infants subject to severe psychosocial deprivation display adverse effects with respect to developmental rate, language, and relating, the nature of symptoms they develop is quite different from those of autistic children (Ornitz, 1971). Developmental rate of the environmentally deprived tends to be uniformly retarded while autistic children display uneven and atypical developmental progressions. Although socially deprived youngsters do not seek out adults, they watch them intently, in contrast to the gaze avoidance of autistic children. Given time and opportunity, deprived children learn to enjoy play with other children. Although language acquisition may be delayed, deprived children do learn to use language to communicate and do

not develop the atonal, disrhythmic vocal quality typical of the autistic child (Ornitz, 1973).

Mental retardation. Wing (1975) found that a quarter of severely retarded children under study displayed many of the elements of the autistic syndrome. All such children had severe deficiencies in ability to communicate, whereas severely retarded children with some ability to communicate did not display autistic behavior. Autism and mental retardation may exist independently or in conjunction with one another.

Organic brain syndromes. Although many severely retarded autists show definite evidence of neurological impairment, that minority of autistic children who are of normal intelligence usually do not. And, clearly, not all persons with organic brain syndromes display autistic features. Many workers believe that neurological dysfunction is the necessary and sufficient condition for the development of autism, and that a variety of different organic brain syndromes may be involved. In this connection it is interesting to note that 8 to 10 percent of children affected by congenital rubella display autistic symptoms (Chess, 1971).

Childhood schizophrenia. Autistic children do not display the delusions and hallucinations that are common in schizophrenia, nor do adult schizophrenics have a history of an autistic syndrome in childhood. While the content of schizophrenic speech may be bizarre, the speech itself is fluent and is not characterized by

the atonality, echolalia, and pronomial reversal associated with autism. Kolvin (1971), in a study comparing children with early onset of psychosis (most of whom fulfilled the criteria for autism) with children whose psychosis began during or after pubescence (most of whom fulfilled the criteria for schizophrenia), found that the two groups differed significantly in terms of social class, family history of schizophrenia, evidence of cerebral dysfunction, symptom patterns, and level of intelligence. These many differences suggest the necessity and value of distinguishing between the two conditions (Rutter, 1972).

Developmental language disorder. Although autism and developmental language disorders share some features in common, there are distinct differences in the patterns of communicative abilities and disabilities displayed. Autistic language disability tends to be more severe, more extensive in that it includes impairment in gesture, facial expression, and tonality, and involves language deviance (echolalia, pronomial reversal, and neologisms) as well as developmental delay. Rutter (1978b) concludes that the differences between the two conditions, even when considered solely in terms of language disability, far outweigh the similarities. Further, children with developmental language disorders do not display the behavioral and perceptual symptoms associated with autism.

Incidence

Although in their "pure" forms autism, childhood schizophrenia,

developmental language disorders, and the other conditions considered above may be distinguished from one another, "mixed" cases can and do exist which do not permit easy and reliable assignment. When a relatively strict set of defining criteria are employed for purpose of diagnosis, the incidence of autism in the general population would seem to be on the order of 2 per 10,000, while a somewhat less stringent standard for inclusion would raise the rate to about 4 to 5 per 10,000 (Lotter, 1966). Most of these children are severely retarded, although a minority function in the normal or dull normal range on nonverbal tests of intelligence. The smaller nuclear group identified in Lotter's study is the group most likely to display the high male to female ratio and to have parents of higher than average socio-economic status, as was noted in Kanner's initial report (Wing, 1976b). Kanner had noted that the parents of the children he had studied were, as a group, persons of higher than average intelligence and accomplishment. It is an anomaly and unexplained mystery that children of parents of higher than average socio-economic status and (presumably) of higher than average intelligence are at somewhat heightened risk for this condition.

Etiology

Over the past two decades a significant change has occurred with respect to the prevailing theories regarding the likely etiology of autism. Many pioneers in the field believed that parental rejection and pathology was the necessary and sufficient cause of the

syndrome (Bettelheim, 1967) or that parental personality characteristics were at least an important contributing factor in the development of the condition (Kanner, 1943). It is probably safe to say that at the present time the bulk of active workers (cf. Menyuk, 1978; Rutter, 1978b; Wing, 1976) in the field believe the primary cause of autism to be biological dysfunction within the central nervous system, and further believe that, on balance, there is little evidence that psychogenic factors (e.g., parental pathology; abnormal child-rearing habits; and so on) play any role in the etiology of autism. Indeed, many workers believe that psychogenic theories (and theorists) have inadvertently done a serious disservice by inducing or exacerbating guilt feelings in parents and by tending to create adversary roles between professionals and parents (Schopler, 1974; Wing, 1977).

The shift in prevailing theories of etiology, from psychogenic to organic causes, grew both from an increasing body of evidence that implicated organic factors in many cases of autism, and by the failure to find substantiating evidence of severe psychogenic stress, parental pathology, or deviant child-rearing practices, in a number of well-designed studies that investigated those factors. Among other findings strongly implicating organic impairment in the etiology of autism is the frequency with which autistic children develop seizures in adolescence (Kanner, 1973; Rutter, 1970), the high incidence of autism among children with congenital rubella (Chess, 1971), and evidence of anatomical pathology of the temporal

horn of the left lateral ventricle found in some autistic children (DeLong, 1978).

Although some studies (Goldfarb, Goldfarb, & Scholl, 1966; Goldfarb, Levy, & Meyer, 1972; King, 1975) have found evidence of pathogenic parent-child interactions, such studies have typically been criticized for a variety of methodological weaknesses (Cantwell, Baker, & Rutter, 1978). Numerous other studies (Cantwell et al., 1978; Cox, Rutter, Newman, & Bartak, 1975; Creak & Ini, 1960; Kolvin, Garside, & Kidd, 1971; Lennox, Callias, & Rutter, 1977; Rutter, Bartak, & Newman, 1971) have failed to find evidence of abnormality of parental personality or of attitude toward or manner of communicating with the afflicted child. In sum, there is incontrovertible evidence of organic damage in many autistic children, while numerous studies have failed to yield evidence supportive of a psychogenic hypothesis. Further, while it is known that gross forms of severe early stress (divorce, death, separation from the family) may be associated with emotional disturbance, the evidence is that autistic children are not at special risk with respect to such trauma (Cox et al., 1975) and that in any case such stress does not typically lead to autism. Similarly, while gross psychosocial neglect, such as is experienced by children raised in large institutions with perfunctory caretaking, gives rise to serious developmental delays, it is not associated with an increased incidence of autism (Rutter, 1978c).

While numerous studies have failed to yield evidence that parental attitudes or behavior have caused autism, it is equally true that other studies have demonstrated that counseling parents regarding how to work with their child can definitely contribute to the child's improved functioning (Hemsley, Howlin, Berger, Hersov, Holbrook, Rutter, & Yale, 1978; Kozloff, 1973; Nordquist & Wahler, 1973; Schopler & Reichler, 1971). Further, interaction between child and environment is reciprocal: the child shapes and influences his environment even as he is shaped and influenced by it (Bell, 1968, 1971, 1974; DesLauriers, 1971). An unresponsive child may affect and detrimentally influence the quality of engagement that the parent offers. Some such process may be responsible for Gardner's (1977) finding that mothers of normal children elicited more cooperative behavior from both normal and autistic children, and were more likely to achieve a mutual facing position with autistic children, than were mothers of autistic children. Finally, lack of supportive evidence cannot, in itself, definitively establish that faulty parenting never is a contributing factor to the genesis of autism in some cases. Mutuality and communication between parent and infant is fashioned out of a multiplicity and variety of physical, direct, sensory, and affective stimulating contacts between the two (DesLauriers, 1971; Ramey, Farran, Campbell, & Finkelstein, 1978; Stern, 1974; Trevarthen, 1979). If an infant who is in some respect neurologically vulnerable is paired with a mother who--for any reason--has major difficulty in responding

sensitively to that child, it is hypothetically possible that autism might result when it might not have under more favorable circumstances. The work of Massie (1975, 1977, 1978a,b) in which analysis is made of home movies of mother-child interaction pre-dating the appearance of autistic symptoms lends support to this hypothesis.

The question of any possible parental contribution to the etiology or subsequent course of development in some cases of autism is, per force, an extremely sensitive and difficult issue. The preponderant evidence is that autistic children are neurologically impaired, and that "parenting" is not implicated in the development of the syndrome. Assumptions to the contrary have been cruel in their unfairness and have contributed, quite understandably, to tense and far from optimally effective working relationships between professionals and parents. As was noted earlier, some workers feel that even to entertain the hypothesis of a psychogenic contribution to the etiology of some cases of autism is seriously harmful to its effects. The position currently favored by most workers in the field would seem to be that many different organic conditions can give rise to the autistic syndrome. The course of development is presumed to reflect both the varying nature and degree of organic impairment, and the quality of environmental interaction and training that the child is privy to.

CHAPTER III

TREATMENT APPROACHES: AN OVERVIEW¹

Most investigators agree that the multiplicity of pathologies which constitute autism, and the heterogeneity of that class of children so diagnosed, do not permit a systematic comparison and evaluation of the results of treatment methods as reported by different workers (Berger, 1971; Currie & Brannigan, 1970; Goldfarb, 1970; Wenar, Ruttenger, Dratman, & Wolf, 1967). Different treatment methods may be compared, however, in the light of the theoretical orientation and means of intervention that particular investigators employ.

The present review will consider treatment approaches to infantile autism based on either psychodynamic or behavior modification theory. Similarities in treatment procedures employed by workers of differing theoretical persuasion suggest that much current

¹The author extends grateful thanks to Plenum Publishing Corporation for permission to freely use material from the following article: Helm, D. Psychodynamic and behavior modification approaches to the treatment of infantile autism: Empirical similarities. Journal of Autism and Childhood Schizophrenia, 1976, 6, 27-41.

practice may have developed out of empirical rather than theoretical considerations. Lending some support to this contention is Lightmer Witmer's (1919-1973) early account of his work with Don, an autistic 2½-year-old boy. Although not clearly influenced by either psychoanalytic or modern learning theory, Witmer's approach has commonality with both:

At one time constraint, at another liberty, will bring the best results. . . . The first task of the teacher and parent is to gain and hold the child's attention by giving him something he can do, and after that something he can't [Don] learned the word "shoe" when his teacher, tossing his shoe in the air, said with great gusto each time she caught it "shoe!" This amused him, but it took ten minutes to get him to follow suit. When he finally gave the word he mimicked her exact tone. . . . His sense of humor could always be appealed to. . . .

I believe that Donnie was at the start dominated by fear, which still plays an important role in his behavior. . . .

Fears and desires are the two greatest motives of mankind. . . . As I understand Donnie now, he had no desires, but many fears. We compelled him to do those things which he feared. As soon as he had done the fearful thing, the fear, in many instances, disappeared and desire took its place (pp. 58-62).

Witmer's report, reprinted as a "surprisingly modern account of [psychodynamic] therapy" (Gianascol, 1973b), can just as legitimately be considered a forerunner of modern behavior modification approaches.

The Psychodynamic Approach

The psychodynamic approach assumes the child has failed in ego development and the development of object relations (interpersonal relations). The therapist seeks to establish a state of

interpersonal trust through offering the child empathic understanding. The therapeutic relationship is used to guide the child to an understanding of the source and nature of his fears. Psychological incorporation of, or identification with, the therapist provides the vehicle needed for the establishment of stable ego functions. The child's parents are often viewed as pathogenic and typically the child is either separated from his parents (e.g., Bettelheim, 1967) or the parents and the child are treated concurrently (Boatman & Szurek, 1960). The work of Bettelheim (1967, 1970, 1974) is prototypic of this approach and will be considered in detail.

For Bettelheim, the autistic anlage is "the conviction that one's own efforts have no power to influence the world" (Bettelheim, 1970, p. 406). Psychic energy is invested in warding off stimuli (Bettelheim, 1967). The therapist must first enter and share the child's experience, and then try to induce the child to feel that the greater world is pleasurable and safe to act upon. "The coming alive of autistic children begins with a freeing of hostility. . . [which must be accepted]" (Bettelheim, 1967, p. 62). Treatment "has to center greatest respect on symptomatic behaviors, because they represent the autistic child's highest ego development from which all further development must flow" (Bettelheim, 1970, p. 409). In the course of treatment earlier established skills may be lost and it is imperative to patiently wait until the child

reestablishes such controls on his own initiative (Bettelheim, 1967).

Bettelheim (1967), along with other dynamically oriented workers (Ekstein, 1966; Loomis, 1960; O'Gorman, 1970), believes autistic speech serves a defensive function, although prolonged autistic isolation is seen as possibly occasioning irreversible language deficit. Bettelheim holds that language development spontaneously follows upon the establishment of a rewarding personal relationship, a view held by Bosch (1970), DesLauriers and Carlson (1969), Ekstein (1966), and, with qualification, Etemad and Szurek (1973).

Bettelheim's emphasis on "respecting" symptoms and waiting until the child spontaneously chooses to display or develop skills has led critics to charge that insufficient stimulation is given the child to develop mastery (Bosch, 1970; Leff, 1971; Lovaas, 1971; O'Gorman, 1970), an understandable criticism, perhaps, in the light of Bettelheim's exposition of the theoretical principles guiding his work. However, Bettelheim's report of actual case studies makes it clear that these principles are not applied blindly or unswervingly.

Bettelheim (1974) recently described the Orthogenic School as exemplifying "common sense, organized" (p. 243). A child awakening from a nightmare is comforted--not offered an interpretation of the

dream. Although in his 1967 work Bettelheim emphasized "valuing" symptomatic behavior, his detailed case histories reveal numerous exceptions to this principle: "We felt it was time to limit and structure the pouring of water, because eternal repetition did not seem to be leading anywhere" (p. 185). "Eventually his weird grin and trembling lips showed that this was another of his dangerous activities, and we declared it out of bounds" (p. 257). As for failing to stimulate a child to mastery, consider: "But when once again challenged to talk by the staff member closest to her, she replied with a clear and decisive 'Not yet!'" (p. 124) (emphasis mine).

The above suggest that there are important aspects of Bettelheim's work which contribute to the results he achieves but which receive scant emphasis in his theoretical presentations. In general, theoreticians tend to have a highly selective vision of their own work, emphasizing those aspects which are of greatest importance in their particular theoretical framework. This observation is not intended to dismiss real differences that exist between psychodynamic and behaviorist practitioners, but to suggest that the extent of these differences may be less than is generally assumed.

Among other psychodynamic workers, Ekstein (1966) places theoretical emphasis on the therapist initially joining the child in the child's world. His case presentation, however, makes it

clear the therapist then becomes active in establishing limits and demands upon the child's behavior. That a therapist's theoretical leanings may color his interpretation of events is also suggested by an account by Gianascol (1973a). A major breakthrough in the treatment of a 10-year-old schizophrenic girl was described as coming about when a staff nurse told the girl that she could "go to hell" before the nurse dressed her, since she was fully capable of doing this herself. The girl then dressed herself for the first time. Gianascol interpreted this event as revealing "the importance of letting the child set the pace in therapy, as well as in all of the milieu's activities. . ." (p. 549).

Ruttenberg (1971) stresses the establishment of a relationship through holding, cuddling, or a similar act, which is then cautiously followed by efforts directed toward the development of impulse control and problem solving. Ruttenberg reflects the psychodynamic position that much of a child's learning stems from his love of, and identification with, an adult. However, consistent attention is explicitly paid to helping the child develop mastery of skills and appropriate behavior. A major contribution of the behavior modification approach is its elucidation of effective techniques in this latter regard.

The Behavior Modification Approach

The last decade has seen a rapidly growing number of reports on the employment of behavior modification techniques with autistic

children. The restricted focus of early studies on specific problem behaviors has been supplemented by programs concerned with more total and global therapeutic change. An early noted problem of failure of "generalization" of training from laboratory to other situations (Hingtgen, Sanders, & DeMyer, 1965; Lovaas, Freitas, Nelson, & Whalen, 1967; Weiss & Born, 1967) has met with increasing success, especially through providing training to parents (e.g., Kozloff, 1973). The marked diversity of studies employing behavior modification techniques can only be suggested by the few representative studies that will be examined below.

Ferster and DeMyer (1961) are generally credited with the introduction of operant conditioning techniques to the study of psychotic children. They found that an autistic child isolated in a room full of vending machines could "be brought under the control of stimuli" (p. 341). In a theoretical article, Ferster (1961) suggested that unresponsive parents might extinguish normal operant behavior, a contention finding some support in the work of Des Lauriers and Carlson (1969) and Kozloff (1973). Ferster (1961) also argued that an autistic child may tantrum largely because of the influence this act may have on the behavior of persons who are near him, although Ferster and DeMyer (1961) had observed that children had tantrumed in the isolation of the experimental room unless great care was taken when reinforcement schedules were shifted.

DeMyer and Ferster (1962) later employed operant techniques in a more flexible fashion with eight autistic children, age 2 to 10, in residential treatment. Pleasure-producing adult-child contact (usually holding, kissing, touching, smiling, and other contacts) was first used to establish the adult as a "reinforcer" and then used to reinforce specific selected behaviors. Much target specific, as well as generalized, behavior improvement was reported. Adults lavished much less holding, cuddling, and kissing, on older children, and these children showed least improvement. Interestingly, for one child the "pleasure-producing" adult contact was holding the child when he hit himself or banged his head. The purpose of this was merely to establish the adult as a positive reinforcing agent--not to modify the behavior. In contrast to what Lovaas (1971), Ferster (1961), or other behaviorists might suggest would be the case, the effect of this kindly adult attention was not to "reinforce" self-injury. Rather a "general" (unplanned-for) improvement was a marked reduction in self-injurious behavior--a finding clearly more directly in accord with psychodynamic theorizing.

Ferster (1971) has suggested that learning theory may best help clinicians apply their "own special knowledge and experience more effectively" (p. 36), a tack exemplified in the work of such dynamically oriented therapists as Jensen and Womack (1967) and Weiland (1971).

Lovaas, Schaeffer, and Simmons (1965) employed electric shock

in an attempt to promote social behavior in autistic children. Theorizing that if a child associates an adult with relief from pain, the adult will acquire secondary reinforcing value, two children received electric shock which was terminated when the child, on command, approached, hugged, or kissed the experimenters. The children learned well. However, "generalization of training" proved a problem. In situations in which the children had not been shocked, "the proportion of the time that Ss embraced, or hugged, and kissed E was extremely low. Rather they withdrew from him. In a situation where they had received shock avoidance training they responded with affection to E and did not withdraw from him" (p. 104). The problem of lack of generalization was finally dealt with by rigging the children with a portable shocking device which delivered a painful shock to their buttocks. Wearing this, the children were responsive to Es demand to "hug me" and "kiss me" even in situations where the children had not previously been shocked. Lovaas et al. concluded that rather than suppressing behavior with shock, it is more efficient to use shock reduction as a way "of making adults meaningful in the sense of becoming rewarding to the child" (p. 108).

Breger (1965) noted that the reported findings of Lovaas et al. (1965) are inconsistent with their conclusions, and DesLauriers and Carlson (1969) suggested that "all that can be learned in such a situation is how to avoid pain, not how to enjoy closeness" (p.

166). More recently, Lovaas (1971) reported that the above procedure had been employed to "assure ourselves of an objective study" (p. 137) and was no longer used.

Lovaas et al. (1967) trained 11 autistic or schizophrenic children in nonverbal imitative behaviors using prompting, food reinforcement, and fading of prompts. A starvation level of food deprivation was reported necessary before some children responded, and "serious restrictions on extent of generalized imitation" (p. 180) was found. In contrast, Metz (1965), employing a procedure similar to Lovaas et al. (1967), successfully trained 2 children in nonverbal imitation and additionally reported that the children: (1) showed extensive generalization of trained behavior in new surroundings; (2) displayed strongly positive feeling toward the E; and (3) came to respond even when tokens or food were not proffered. Whether the striking differences in results of the two studies is attributable to differences in subjects or to differences in the fashion in which the investigators engaged themselves with the children, or to other factors, is a moot question.

Lovaas, Berberich, Perloff, and Schaeffer (1971) reported the use of operant conditioning techniques to teach two nonverbal schizophrenic boys imitative (echolalic) speech, and Lovaas (1966) presented a detailed account of the teaching of appropriate use of language to echolalic and formerly nonspeaking children who had been trained in verbal imitative behavior. Parents and ward personnel

were extensively employed to help promote and ensure transfer of training. Regarding the intensive program that was employed, Lovaas noted "It might be more effective to proceed at a less demanding rate and in a more playful manner" (p. 141). He further observed:

We have progressed with some children without the use of aversive stimuli, because such stimuli interfered with that particular child's performance. It is probably of most value to approach the children in an individual, empirical manner, using the program to provide guidelines only (p. 142).

Hewett (1971), in an especially interesting account, reported that a 4-year-old boy's acquisition of speech was spontaneously accompanied by the child's increasing attachment to his parents. Hewett gave explicit recognition to the importance of the teacher-child relationship in motivating the child and it is a moot question as to what degree speech training facilitated the development of attachment to persons and to what degree the development of interpersonal relations facilitated speech.

Graziano and Kean (1971), in an unusual move, introduced formal, structured, training in relaxation to a group of four tense, hyperactive autistic children. Originally intended as a prelude to systematic desensitization, the authors found an unpredicted and marked decrement in generalized excitement response through the whole day, which obviated the need of more systematic desensitization. Further, the children spontaneously practiced and verbalized relaxation procedures throughout the program and at home.

Wolf, Risley, and Mees (1965) and Wolf, Risley, Johnston, Harris, and Allen (1967) report on far-reaching success with an autistic child originally seen at age 3. Tantrum behavior was eliminated through use of a "time-out" procedure. Eyeglass wearing and speech were trained through use of food as a reinforcer. At age 6 the child was making a good adjustment in a special education class in public school.

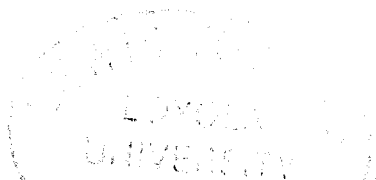
Kozloff (1973) applied reinforcement theory, within a broad context of social exchange theory, to the problem of childhood autism. Kozloff held that the autistic child and his parents had evolved a maladaptive, albeit mutually reinforcing, pattern of interaction with one another. Major effort is placed on helping parents alter their manner of interaction with their child, and Kozloff believes the success of his approach is most dependent upon finding increased means to reinforce parents for the intensive and sustained efforts required to provide their autistic child continued stimulation. Kozloff provided detailed case histories which demonstrate the creative improvisation and flexibility characterizing his approach.

It is rather difficult to make a summary comment on the "behavior modification" approach, given the diversity of practices. In general, the learning theory model focuses attention on environmental variables that "shape" or maintain behavior, and provides a reminder that directly addressing oneself to a specific behavioral

goal may be far more germane than merely providing a "relationship," transference or otherwise, and hoping for the best. Procedures have occasionally been employed in a rigidly mechanistic fashion-- a policy that permits greater opportunity for exact replication by other workers, but which limits the opportunities for flexible adaptation of training methods to the idiosyncrasies of the individual child. The behavior modifier's attention may tend to become fixed on the discrete elements of a training procedure to the exclusion of more subtle nuances of child-trainer interaction. Clearly, however, insensitivity to human feeling and the nuances of interpersonal relationships are in no way necessary, or intrinsic, to the employment of this approach.

Combined Approaches

This section will consider approaches to the treatment of autism in which explicit emphasis is given to both the quality of therapist-child relationship, and to systematic efforts to modify the child's behavior. Both factors are probably involved in every therapeutic effort, and practitioners' theoretical "position statements" probably tend not only to sharpen and highlight differences in approach, but also to exaggerate these differences. Evans (1971) and Hewett (1971), among other behavior modifiers, take explicit cognizance of the role of the developing therapist-child relationship during treatment, and Ruttenger (1971) and O'Gorman (1970), among other dynamically oriented workers, place great



emphasis on actively directing the course of the child's development. It is important to note that these two broad therapeutic concerns are not the exclusive province of, and need not be derived from or based upon, either a psychodynamic or learning theory model of human development. Witmer's atheoretical "surprisingly modern" account of therapy with an autistic child depicted "prompting," "shaping," "limit-setting," and "reinforcement," and also took cognizance of the role of "fears and desires." Donnie was not allowed to be "left alone" as he passionately desired, but the assault on his "empty fortress" (Bettelheim, 1967) was made with care, obvious fondness, and humor.

Jensen and Womack (1967) reported the successful adoption of behavior modification techniques after a year of psychoanalytically oriented milieu and play therapy had failed to ameliorate tantrum and aggressive behavior in an autistic child. Wenar et al. (1967) reported that the success of a psychoanalytically oriented day school in promoting improvement in the quality of interpersonal relating of autistic children did not spontaneously lead to improvement in speech or mastery of skills, and that "each area demands its own special therapeutic thrust" (p. 34). Weiland and Rudnick (1961) offer as a revelation their discovery that endlessly gratifying an autistic child's desires did not effect improvement, and then (Weiland & Rudnick, 1964) systematically visited both gratification and frustration upon their autistic patients. Weiland (1971) later

stated that psychodynamic and behavior modification approaches tend in practice to be highly similar, and that no method tends to produce true recovery.

Schopler and Reichler's (1971, 1972) treatment program for autistic children explicitly incorporates efforts directed at enhanced human relatedness and the employment of selected behavioral management techniques. The autistic child's motivation to acquire competency is fostered through improved relatedness to the therapist and this competence motivation is channeled to encourage the child to explore new developmental tasks. Schopler, Brehm, Kinsbourne, and Reichler (1971) in a study of the effect of treatment structure on development in autistic children found that autistic children need systematic teaching in an ordered environment to achieve maximum gains, a position provided further support by findings obtained in Rutter and Bartak's (1973) comparison of treatment programs. Schopler and Reichler's (1971) Developmental Therapy Program is especially noteworthy for the care and attention that is given to providing parents with information, training, and support, so that parents may successfully assume major treatment responsibility for their child.

DesLauriers and Carlson (1969), while eschewing both the psychoanalytic and behavior modification models, developed a treatment method with strong affinity to both. Emphasis is on establishing strong, positive, affective contact with the child, primarily

through intensive and intrusive pleasurable physical contact, and the introduction of excitement, novelty, and humor into therapist-child interactions. The relationship thus established is used as a base from which to lead the child toward active acquisition of appropriate skills and behavior. As with Kozloff (1973), major emphasis was placed upon reinforcing parents' efforts to meet their child's special need for intensive stimulation and, again like Kozloff, DesLauriers and Carlson (1969) felt that the success of their program was ultimately dependent upon "the availability of [such] reinforcement for the parents" (p. 346). It may be noted that Berlin's (1973) report on the reversed autism of a 20-month-old child through the expedient of increased maternal stimulation also highlights the importance of parental impact on the course of infantile autism, and this without assuming parental psychopathology.

Stuecher (1972) provides a fascinating account of his work with an institutionalized 8-year-old autistic boy in which sensitivity to interpersonal dynamics is artfully combined with flexibly applied behavior modification training. Following the establishment of a strong affective relationship between the therapist and child (employing such unorthodox methods as spending the second week of treatment lying underneath the child's bed, and the third week of treatment playing horse and rider for up to five hours a day), Steucher introduced a behavior modification program to train

the child in a number of specific areas including speech, toilet training, social skills, and academic skills.

Application to Work With Terry

Stuecher's (1972) work is probably closest to the approach that I adopted in my involvement with Terry. As will be developed in detail in ensuing chapters, my initial goal with Terry was to develop a strong positive affective relationship, primarily through playful pleasurable physical contact, and then, as the relationship supported and permitted it, provide Terry with systematic intensive training in a number of specific areas including speech, cognition, motor skills, academic skills, and so on. DesLauriers and Carlson's (1969) emphasis on providing exciting, pleasurable, surprising, and humorous experience as the vehicle for training was incorporated into work with Terry to the maximum extent possible. Principles drawn from the literature on behavior modification contingent reinforcement -- use of physical and verbal prompts; fading of prompts; modeling; adaptation of a piecemeal, step-by-step approximation toward the final goal ("shaping")--were used extensively in the training of specific functions.

CHAPTER IV

LANGUAGE TRAINING

Remediation of the autistic child's language and communication deficits has, per force, become a focal concern of most therapeutic programs. Identification and analysis of cognitive/linguistic/communicative deviance, along with the development of specialized techniques for habilitation, has been the focus of intensive effort over the past 15 years. Remediation efforts--whether concerned with the child's acquisition of concepts, his development of syntax, or his effective communication through verbal or non-verbal means--have typically been subsumed under the heading of "language training." Because of the centrality of such training to work with most autistic children, and to the effort made with Terry in particular, the issues involved will be considered in somewhat greater detail.

Communication Deficits and Peculiarities

While the pattern of strengths and atypicalities of a given child may make his primary diagnostic classification (retardation, autism, childhood schizophrenia, developmental aphasia, severe learning disability, and so on) ambiguous and problematic (Caparulo & Cohen, 1977; Kanner, 1969), there is a strong case to be made that there is indeed an identifiable autistic syndrome which involves a pattern of cognitive/linguistic deficits and anomalies which is

distinguishable from related conditions. Rutter (1978b) argues that the presence of a true inability or incapacity in the field of language, as distinct from an emotional or social block, is evidenced by the unusual yet highly characteristic pattern of Wechsler "performance" subtest scores: near normal on block design and object assembly, with picture arrangement and coding scores in the mentally retarded range. Further, experimental studies (Firth, 1971; Hermelin, 1976; Hermelin & O'Connor, 1970) have demonstrated that the deficit in autism is by no means limited to speech. Rather, a wide range of deficits have been demonstrated in comprehension, coding, and the ability to extract or organize incoming information. Finally, autistic children are not merely delayed in speech but exhibit specific abnormalities--pronomial reversal, echolalia, undue sensitivity to loud noise, and neologisms and "metaphorical speech"--which clearly distinguish them from children with developmental aphasia (Rutter, 1978b).

A number of excellent accounts of the language and communication patterns of autistic children have appeared in the literature (cf. Aug, 1974; Kanner, 1946; Ricks & Wing, 1976). The more prominent among the characteristics which have been identified are listed below.

1. Sing-song or monotonous tone.
2. Wooden expression; can show extreme emotions but not finer nuances or shading.

3. Little use of, or understanding of, gestures.
4. Words, facial expression, tone of voice do not flow together or complement one another as in normal speech.
5. Immediate and delayed echolalia. Immediate echolalia may be used to close off social contact when the child fails to understand (Shapiro, 1977) or as an oppositional response when the child is tired, wishes to tease, or is otherwise disinclined to respond (Hamblin, Buckholdt, Ferritor, Kozloff, & Blackwell, 1971; Weiss & Born, 1967). Delayed echolalia may convey an attitude, mood, or reaction to an event, or occur in cases where the initial utterance was emotion-laden (Caparulo & Cohen, 1977). Indeed, a kind of "functional" echolalia may be employed to signify desire or affirmation (Ricks & Wing, 1976).
6. The use of simple verbal negation as a kind of magic protection against unpleasant occurrences, e.g., "No rain!"
7. Ritualistic use of stereotyped words or phrases.
8. A literalness which cannot accept synonyms or different connotations of the same preposition, and which may not make allowance for different meanings of the same word.
9. Failure to address anyone.
10. Pronomial reversal and other special difficulty with personal pronouns.
11. Prescribing the speech of the other person (by expectantly saying the initial words). Deviation from the script by

the adult leads to agitation and earnest efforts on the child's part to "correct" the sequence.

12. "Irrelevant" utterances which, when traceable, often assume definite meaning.
13. Metaphorical expressions which are rooted in concrete, specific, personal experiences of the child.
14. Grammatical immaturities and anomalies.
15. Enjoyment of simple, obvious jokes with words.
16. Deep-rooted and pervasive difficulties with language comprehension. Deficits range from basic vocabulary to insensitivity to language overtones and undertones.
17. Little evidence of inner language.
18. Extremely sparse, "lazy" use of language: while competence is impaired, performance lags even further behind.
19. Especially limited use of questions (Wolff & Chess, 1965).
20. Sometimes capable of unusually good language performance when under severe emotional stress (Caparulo & Cohen, 1977; O'Gorman, 1970).
21. Failure to acknowledge questions, statements, requests, and so forth, much of the time: responsibility for "normalizing" a conversation typically falls on the adult.

Menyuk (1978) has pointed out that even when a high-functioning autistic child is able to produce syntactically, semantically, and phonologically correct sentences, he is not able to "put it together" in a fashion that permits truly effective communication. It would

seem that the autistic child is not merely delayed in speech, but rather that a broad pattern of cognitive/linguistic/communicative deficits exist, probably due to unique neurological substrates, and that emotional and motivational factors may also play a role in the child's performance. It is not clear whether the autistic child's social/emotional abnormalities are caused by the cognitive deficit, or whether both disorders are different facets of the same disability. Certainly autistic withdrawal and deviance in development of sociolinguistic competence are intimately related: as the child eschews engagement with the world and others, his accumulated fund of experience and learning is continually decreasing in relation to that of his normal peers. His language disorders and social withdrawal may produce effects on the environment which tend to perpetuate the existence of the language impairment: peers may avoid the child, for example, and parents may have difficulty in finding an optimal level of complexity in talking to the child. Further, it is possible that certain aspects of language may only be capable of development before age five or six (Kastein & Trace, 1966) or puberty (Lenneberg, 1967). Thus, in the absence of early effective remediation, the child's communicative disadvantage vis-a-vis normal peers is apt to become progressively worse and less subject to reversal. For this reason, workers in recent years have increasingly stressed the importance and value of beginning intensive work with children at the earliest possible age (DesLauriers & Carlson, 1969; Hamblin et al., 1971; Lovaas et al., 1976).

Treatment Perspectives

The language training of autistic children is a complex task which may fruitfully be considered from a variety of perspectives. Some of the outstanding issues involved are considered in greater detail in the following sections.

Intensive, controlled, systematic auditory stimulation. Schuell (1974) notes that aphasic patients do not recover as a result of the verbal stimulation provided by the unstructured environment. Normal social language flows too fast and freely for the patient to be able to follow it. This occasions frustration and annoyance and aphasic persons learn to shut such language out. According to Schuell the language therapist's primary task is to manipulate and control the auditory stimulus so that it gets in. This basic premise, fundamental to most language training with autistic children, is stated with special clarity by Gray and Fygetakis (1968):

The application of this proposition follows from the assumption that the dysphasic child was initially unable to extract from his normal linguistic environment those significant cues to form his base language structure. This environment in normal situations is complex, ambiguous, filled with distractions, and full of apparent contradictions. Thus, possibly in habilitation if some of these cues were re-presented to him in a highly organized, structured, and controlled environment he could, with the aid of conditioning, acquire the necessary basic and surface language structure and performance.
(p. 265)

While some autistic children might similarly benefit from systematic language stimulation, the marked social avoidance and

oppositional behavior displayed by many such children, as well as their typically low tolerance for frustration, made many autistic children seemingly "impossible" to teach. Principles derived from learning theory, especially reinforcement theory (operant conditioning), have served as the basis for innovative programs designed to establish and modify the speech behavior of autistic children (Hewett, 1971; Lovaas, 1977; Risley & Wolff, 1967). In these programs careful attention is paid to the reinforcing properties of stimuli, the effects of differential reinforcement, and effects following time-out from reinforcement. What is and is not reinforcing to a given child is an empirical matter determined by careful observation. Therapist modeling of desired responses is employed extensively, and the child is systematically reinforced for desired behaviors. Complex behaviors are analyzed into constituent elements and complex speech patterns are developed through a series of successive approximations ("shaping"). The gradual introduction ("fading in") of new stimuli and the gradual withdrawal ("fading out") of prompts has often proved necessary for successful learning. Careful attention paid to the systematic and effective presentation of material, and repeated formal assessments to determine the effects of training, are major hallmarks of the behaviorist approach to language training. Broad introductions to the modification of language behavior are provided by Lovaas (1966), McKenna-Hartung and Hartung (1973), and Risley and Wolff (1967), while Lovaas (1977) provides a detailed account of the many imaginative and far-reaching

language training programs developed at his laboratory. Many investigators (Hamblin et al., 1971; Kozloff, 1973; Marshall & Hegrenes, 1970; Sulzbacher & Costello, 1970) have now reported the successful adaptation of principles drawn from learning theory in the development of language in autistic children.

Role of affect and motivation on language acquisition. While the value of systematic intensive language stimulation in the treatment of autistic children has received increasing recognition in recent years, many workers of very differing theoretical persuasions also place special emphasis on the fact that language acquisition does not develop in a social or emotional vacuum, and is facilitated by the development of close, satisfying interpersonal relationships (Bettelheim, 1967; DesLauriers & Carlson, 1969; Steucher, 1972). The importance of affective and motivational factors in language acquisition has been documented in widely varying instances. Wepman (1951), writing of the adult aphasic, noted that "an understanding of the patient, the ability to establish and maintain rapport, the ability to motivate and to continue motivation--these are believed to be the prime necessities of a good aphasic therapist (p. 117)." More explicitly yet, Wepman (1973) wrote:

Nothing known about language recovery for the aphasic adult is more productive than the forming of close interpersonal relations with people, professional and nonprofessional alike. It should be the role of every member of the team to assist the patient in making these meaningful human contacts. (p. 348)

Another line of evidence for the importance of affect and motivational variables to language acquisition is derived from studies of second language learning. Gardner and Lambert (1972) argue that first and second language learning are similar processes and that adult success in second language learning is related principally to the adoption of requisite motivational and attitudinal characteristics, especially a strong desire to become accepted as a fully functioning member within the foreign culture. Guiora, Brannon, and Dull (1972) found that one of the best predictors of success in learning authentic pronunciation of a second language was empathy, as measured by the Micro-Momentary Expression test. In another study (Guiora, Beit-Hallahmi, Brannon, Dull, & Scovel, 1972) support was obtained for the hypothesis that success in second language learning was related to flexibility of psychic processes or permeability to ego-boundaries, an ability or willingness to "accommodate" to the world of others, and adopt to it. In general, the role of affective and motivational factors in both first and second language learning is receiving increasing recognition and attention (Brown, 1973; Guiora, Paluszny, Beit-Hallahmi, Catford, Colley, & Dull, 1975; Schumann, 1975; Taylor, 1974).

Wepman (1951) wrote that "the recovering aphasic adult. . . learns because his needs are being met, not because he is exposed to a body of knowledge" (p. 115). Reinforcement theory would suggest that in a broad sense that is equally true of the autistic child. The role of the relationship between the worker (and other adults)

and the child would appear to be a very important factor in language acquisition. A hostile or indifferent child might be presumed to learn less effectively than one who delighted in his teacher's company and wanted to please. While the relationship between worker and child would appear to be an important variable, it has not received explicit attention from many workers whose primary theoretical orientation is derived from learning theory. This may be in part reaction to the historical fact that some early psychodynamically oriented workers concerned themselves with relationship variables exclusively, eschewing involvement with training and teaching. Also, "relationship" is too broad, complex, and subtle a factor to be easily described in the particularized, concrete terms preferred by most workers of learning theory orientation. Still, per force, when an adult engages in sustained fashion with an autistic child a relationship of some sort develops. Attending to the nature of that relationship and fostering strong positive attachment could well be as important to the child's ultimate acquisition of language as his involvement in systematic language training per se.

Sociolinguistic influences: Egocentric versus socially effective communication. In recent years increasing attention has been paid to the functional or pragmatic aspects of language, and, as a corollary, to rather specialized training methods which may contribute to the language-handicapped child's more effective communication in social situations. This development is well described by Longhurst and Reichle (1975):

During the late 1960s until the present, we have seen a vast number of operant studies designed to systematically train one specific language skill or another. . . This approach has tended to fragment the language intervention process into hundreds of individual programs to train structure with little attention to the functional aspect of the use of speech and language in interpersonal communication situations. A new emphasis, reflecting both psycholinguistic and sociolinguistic influences, attempts to teach language within an interpersonal context often by using strategies employed by parents to teach language to their normal children. Although many view the operant and psycho-socio-linguistic approaches as opposites, they can be used in conjunction to meet the wide range of type and severity of problems speech and language pathologists face. The operant approach has proven its effectiveness with the severely or moderately handicapped child. The psycho-socio-linguistic approach holds real promise with the less handicapped child, the marginal communicator. . . , and the child whose speech and language skills have been trained and now needs to learn to use language in communication situations. It is with this less handicapped child or the child with "trained language" that the applied communication game will be most effective. (p. 316)

Glucksberg, Krauss, and Higgins (1975) have addressed the issue of effective communication with special reference to referential communication, that is, to situations in which the participants' task is to construct a message that enables someone else to know what that message refers to. "Knowing what the message refers to" can be characterized by being able to identify a target stimulus (the referent) from among a group of alternatives (nonreferents). Referential communication skills have been investigated in the context of children's performance during especially devised communication games. In such games children typically sit opposite each other separated by a cardboard barrier that prevents them from seeing each other. In a representative game both children will have identical arrays of stimulus objects placed before them. One child

will select a stimulus object from the array and will try to give the other child sufficiently precise information so that the other child may successfully identify the matching object within his array. Or, to give a second example, one child will color a complex picture and try to communicate what he is doing in such detail that the other child, working with an identical picture, may successfully reproduce his effort. Glucksberg et al. (1975) note that there are three major component processes underlying communicative performance in such situations:

1. The communicator's sensitivity to critical differences distinguishing the referent object from the nonreferent array;
2. The communicator's sensitivity to characteristics of the listener and the listener's situation;
3. Sensitivity to the listener's behavior (feedback).

Young children, handicapped by markedly egocentric thought and speech, have major difficulties with such a task, as may be illustrated by the following exchange by a pair of normal four-year-olds who could not see one another (Glucksberg et al., 1975):

Speaker: "It's a bird."

Listener: "Is this it?"

Speaker: "No." (p. 321)

Thus, though these young children's language skills, per se, would seem equal to the task, their egocentric thought prevents

effective communication.

Inasmuch as autistic children are markedly self-centered, egocentric, and unempathic, special attention to the bearing of egocentrism on effective communication would seem warranted. This approach would seem further supported by the common finding that emotionally disturbed children are more egocentric than normal peers (Neale, 1966; Simeonsson, 1973) and that deaf children, of normal adjustment, tend to exhibit characteristics of rigidity, egocentricity, and lack of empathy which constitute an additional barrier to effective social interaction and communication (Meadow, 1975). Thus, training which might contribute to the amelioration of egocentric thought or specific training of referential communication skills might well be a helpful component of a language training program for autistic children. Especially promising in this regard would seem to be training in role-taking exercises and the communication games (Flavell, 1966; Flavell, Botkin, Fry, Wright, & Jarvis, 1975)

Chandler, Greenspan, and Barenboim (1974) found that institutionalized emotionally disturbed children gained in both role-taking ability and referential communication skills following role-playing training and participation in communication games, and furthermore, that gains were associated with significant improvements in social adjustment as rated by institutional staff. Longhurst (1972) found that training in referential communication

improved the communicative abilities of retarded children. Detailed descriptions of a variety of communications games are provided by Greenspan, Burka, Zlotiow, and Barenboim (1975) and Longhurst and Reichler (1975). Smilansky (1968) found that disadvantaged preschool children trained in socio-dramatic play displayed increased social interaction and communication, as well as other skills, and provides guidelines for the conduct of role-playing activities. Use of imaginative play and dramatization with autistic children has been reported by Hamblin et al. (1971) and Lovaas (1977) among others.

Communication games and role-playing exercises may be considered specialized techniques that may help to bridge the gulf between more restricted systematic intensive language drill, on the one hand, and effective communication in the natural environment, on the other. A number of such specialized techniques have been developed for use with autistic children (Hamblin et al., 1971; Lovaas, 1977). In recent years workers have stressed that language training with autistic children, in order to be successful, must be effectively a full-time, on-going concern of all persons involved with the child. In this regard, all of a child's activities throughout the course of the day provide opportunity to help the child learn to recognize, label, and describe activities, and events, to identify his own and others' feelings, to ask questions or formulate his thoughts and wants into sentences, and so on. Experience has demonstrated that there is special need to extend such informal

training into the child's home through the agency of his parents, and findings related to parental participation in language training will be briefly considered in the next section.

Parent involvement. There is wide agreement among workers with autistic children that parents must be actively involved in the treatment (Schopler, 1978), although the actual nature and extent of such involvement differs markedly from program to program. The current emphasis on parent involvement is based on the empirical experience of many workers who have found active parent participation to be a critical factor in the treatment process. In a major behavioral program (Lovaas, Koegel, Simmons, & Long, 1973), follow-up measures employed 1 to 4 years after treatment showed that large differences between groups of children depended upon the post-treatment environment (those children whose parents were trained to carry out behavior therapy continued to improve, while children who were institutionalized regressed). This finding prompted a change in treatment procedure from treating inpatients, with the parents as observers, to treating outpatients, with the parents as therapists. Parents are required to commit a major part of their lives to their children, and one of them is expected to work with the child for most of the day for a year. Although the first session with parents and child is held at an outpatient clinic, training is extended to the home situation immediately because, as Lovaas (1978) notes: "We have ample data which show that the child and the mother will not transfer what they learn in the clinic to the

home without explicit training (in the home) in doing so" (p. 373). Parents are provided 10 to 20 hours of student help in training at home each week, but the major burden of treatment remains with the parents. Kozloff (1973) also stresses the necessity of extensive parent training in the home, citing such instances as the case where a father had been successfully trained in the laboratory to manage language exchanges and the mother had been successfully trained both in the laboratory and at lunch at home, but who were found to not otherwise use their new skills.

Lovaas' program has been cited as unrealistically demanding of parents by some workers (DesLauriers & Carlson, 1969; Schopler, 1978) and other programs have successfully involved parents in treatment in less intensive fashion. Hemsley et al. (1978) encourage parents to set aside short periods each day to teach the child specific social and communication skills, making the sessions as pleasurable as possible to both parents and child. Visits to the home varied in frequency from once or twice a week in the early stages of treatment to once a month or less once treatment was well established. Children of treated families showed major behavioral improvement and more effective speech for communication than did children of non-participating families. Longin and Longin (1975) found that severely retarded children involved in an intensive language training program at school displayed only limited gains, but when parents were taught to facilitate language with brief lessons at home, marked improvement took place.

Intensive work with an autistic child is time consuming, energy demanding, and frustrating, and gains may be exquisitely slow, uneven, and marked by regressions. For these reasons it is not surprising that many workers have noted that providing parents with sufficient reinforcement for such a demanding, continuing effort is a major problem which is as yet inadequately resolved. (DesLauriers & Carlson, 1969; Hamblin et al., 1971; Kozloff, 1973). Furthermore, a variety of factors may obtain in individual cases which may make parental participation in effective treatment problematic. Kozloff (1973) cited a number of underlying familial issues which could complicate parental involvement in treatment:

- a) other motives may be prepotent, e.g., wants to spend more time on self, other family members, or other pursuits.
- b) friction or hostility between parents creating a lack of support.
- c) other children may be markedly disruptive/demanding.
- d) parents may have strong behavior patterns or deficiencies which interfere with learning or application of techniques.
- e) there may be negative sentiments toward the child, or a lack of positive sentiments between parents and child so that approval and praise of parent is not particularly rewarding.
- f) parental patterns may have developed and become fixed over the years and such habits may be extremely resistant to change.

Thus, in practice, in any given case, the extent and nature of parental involvement in training will depend upon the particular parents, child, and special familial circumstances.

Application to Work With Terry

The cognitive/linguistic training of Terry will be elaborated in considerable detail later in this report, and only a very brief overview of guiding principles will be presented here. It was assumed that Terry would learn best if he has strong positive relationships with his teachers and great attention was paid to establishing and maintaining such relationships. Terry received extensive systematic cognitive-linguistic training employing both a wide variety of commercially-developed programs, and individually tailored lessons. Care was taken to present lessons in an enjoyable, engaging manner. As his developing language skills permitted it, he was involved in progressively more demanding communication games and role-playing activities. Every effort was made to involve Terry in informal language activities throughout the course of his day. Terry's parents were kept closely informed of work being done at school, and efforts were made to help them more effectively stimulate Terry's language at home.

CHAPTER V

TERRY'S DEVELOPMENT FROM BIRTH TO AGE 10

Terry was born July 1, 1964,¹ the ninth of 10 children. His father is a meat cutter and his mother is a homemaker. Both parents completed high school. Mrs. Egan was severely ill with flu during the fifth month of term and showed spotting (bleeding) during the eighth and ninth months. She was readied for a Caesarian; however, normal delivery was possible after a 3-hour induced labor which was hard and preceded by severe hemorrhaging. Terry was a normal newborn with a birthweight of 6 lbs., 15 ozs. and both mother and baby were discharged after 4 days. Mrs. Egan experienced a postpartum depression.

Terry had trouble sucking and was a slow eater; he was bottle-fed because mother was susceptible to breast abscess after

¹Material in this section was obtained from clinic records, interviews, and from Rimland's Diagnostic Check List for Behavior-Disturbed Children (Form E-2) (Rimland, 1974), which Mrs. Egan completed. Terry's score of 24 on Form E-2 was interpreted by Dr. Rimland's Institute for Child Behavior Research as identifying Terry as being "definitely one of the high scoring, classically autistic cases."

the first baby. As an infant Terry had a bright red rash confined to the diaper area. At three months he was given milk rather than Enfamil and the condition cleared up immediately. He was weaned at 14 mos. without difficulty but returned to bottle feeding at 30 mos., at about the time the youngest sibling was 2 mos. old.

He sat up at about 7½ mos., stood at about 10 mos., and walked at 13 mos. He never crawled. He was kept in a playpen most of the time during his first 2 years because he seemed content there and there were many active children around.

Mrs. Egan reported Terry to never accommodate his body to being held; from birth he was notably stiff and awkward to hold. He never reached out or prepared himself to be held. By 11 mos. he was notably rigid when being held, often arching his body backward.

During his first 12 months he was an unusually quiet and placid child. At about 12 mos. new and definitely deviant behaviors made their appearance. He began to have prolonged crying episodes, consisting of screaming and kicking, which usually lasted 2 to 3½ hours. He was inconsolable during such periods and cried in a monotone. He also began to have frequent periods of prolonged body rocking, and began to frequently bang his head. At night he would bounce and howl (with his head all the way back as a dog would) as often as 3 to 4 nights a week.

During his second and third years, Terry's development was strikingly deviant. He shunned contact with other persons. He avoided looking directly at other people; he would look at them from the corner of his eyes or look "through" them as if they were not there. He disliked physical contact. He appeared to be in a "shell" and seemingly could not be "reached."

He would laugh for no apparent reason; he cried quickly for minor reasons and sometimes for no obvious reason. He whined, made strong demands when he wanted something, and went into a violent, destructive rage if he did not receive what he wanted. Rocking and head banging became prominent features of his behavior. He banged his head against the floor or wall or another person. He broke a pane of glass once with his head, and his forehead bore a permanent bump due to his constant head banging. He often appeared frightened or anxious and was fearful of many harmless objects.

He seemed frightened of the toilet and remained untoilet-trained until age 6: he had bowel movements in a corner or on a chair.

Eating peculiarities developed: he would eat no meat and many other common foods; he especially craved sweets.

He was curious, "got into things," and wanted to be utterly independent in his explorations. When other persons initiated

contact there was either avoidance or a teasing negativism.

He had a dislike of many sounds, and of loud noises, and often covered his ears. He also could, on occasion, completely ignore loud noises and appear deaf. He had a strong antipathy to almost all music but had a few favorite record selections that he greatly enjoyed. He liked flickering lights. He was intensely aware of odors and often held objects to his nose. He examined surfaces with his fingers. He seemingly rarely saw things very far out of reach.

He often lined things up in neat rows. He was upset if, in his judgment, something was not "right," whether this was the location of a piece of furniture or a particular object that was being used for a task. Certain activities had to be carried out in a prescribed manner.

Until 36 mos. Terry never spoke, although he babbled unintelligibly. He gave no sign of any comprehension of language, and did not respond to his name. He never imitated anyone and his behavior appeared purposeless.

At age 3 Terry began to say a few words like "cocoa," "cigarette," and "Mama," and the phrase "don't do it," but said these words without meaningful context.

At about age 2½ he began having fits of violence whenever

his mother left the house or was beyond his range of vision or hearing. If his mother left him he would cry until she returned, and this could last as long as four hours.

Terry was first observed at the Loyola Guidance Center in November of 1967, at age 3½. On psychiatric evaluation he was described as extremely hyperactive, destructive, and nonverbal. He was completely indifferent to the examiner. It was the examiner's impression that there was a strong organic component in the condition. He repeatedly clung to his mother and this suggested to the examiner that there was a degree of relatedness that was not found in a truly autistic child. A neurological examination was recommended and diagnosis was deferred. In what was described as a "quite limited" neurological examination, no definite evidence of an organic component was found.

In the summer of 1968 Terry, age 4, was seen in six individual sessions by Dr. Patricia Barger. In most regards his behavior differed little from that of the initial examination: he still displayed violent upset on separation from his mother, a great deal of head banging, and was typically mute except for crying. Early in 1969 he was placed in a group therapy program for borderline and psychotic preschool children, and attended two sessions weekly.

The methods used in work with Terry incorporated elements of the playful, pleasurable stimulation as pioneered by DesLauriers and Carlson (1969), offering many hugs, kisses, and tickles, in

combination with efforts to teach Terry basic skills and gain some control over his behavior, employing many principles drawn from behavior modification. In October, 1969, at age 5-3, Terry was learning to sit in a chair on request. He had begun, with great reluctance, to whisper a modeled word when that was required for him to obtain some desired object. He had come to greatly enjoy being cuddled and tickled.

On some occasions Terry worked with interest and great cooperation; on most occasions his behavior was at best difficult and at worst, extremely negativistic.

On March 20, 1970, the Loyola Day School was inaugurated and Terry at age 5½ began to attend this 6-hour-a-day, 5-day-a-week program. A progress report made 2 months later (May 15, 1970) notes a number of gains. He could string beads, hold a pencil, use scissors, ride a trike, and play catch. He had begun to say "bathroom" when he needed to go and to say the name of something he wanted (e.g., "record player"). He had begun to eat with utensils and could dress himself completely. He enjoyed cuddling and sitting in an adult's lap. He had developed a crush on a girl in his class and sought her attention eagerly.

Therapy notes and school progress reports reveal that over the next 3 years Terry continued to make limited gains, although there were frequent reversals (head-banging, for example, would

virtually disappear for several months at a time and then recur as high-frequency behavior).

A picture of Terry three years later (June, 1973) at about age 9-0 (half a year after the filming of the television documentary) has been drawn from school staffing reports and is presented below:

Terry is quite able to take care of his own clothing, tie his shoestrings, wash himself, and other age appropriate skills in this area. His eating habits are still strange. He eats very little for lunch, and unless otherwise directed, he throws his remaining lunch away. He has recently begun to take left-over lunch home.

Terry is very agile and graceful. In rhythm exercises he shows a keen sense of timing and rhythm. He does not compete with his peers at any physical activity. He is able to hop, skip, and run fairly skilfully but in no way is he age appropriate in his general motor skills such as ball throwing, batting, running toward a goal. He still has a hopping behavior when he is excited or "in a silly mood." The lump on his head is still pronounced, as well as the callous skin on his hand from repeated biting and banging.

Terry has good receptive language, understands commands and directions and follows them through. It is not as clear that he understands explanations or more subtle verbalizations from others. His expressive language is still monosyllabic, or short phrases. He can say short sentences about object cards and will repeat an expected response. He makes his needs known by physical touch mostly. Terry has a repertoire of words which are only significant to him. These seem to be slogans and captions that have struck his fancy from television commercials, or snatches of overheard conversation, which he repeats in a hollow mechanical tone. He usually responds to questions by echoing what he has been asked. He does not use personal pronouns correctly; he refers to himself as "Terry" or "you."

Terry is an isolate in his play habits. He is increasingly showing affection by kissing and hugging the adult. He will kiss and hug you on request, but there also recently has been some spontaneous demonstration of affection on Terry's part. Terry still spends much of his day spinning

records on his fingers. Records seem to be the great obsession of his life. He holds his ears during rhythm. At the same time he obviously enjoys them. Even though Terry is an isolate he is showing marked progress in his awareness of his environment and the people around him. It has been a long time since Terry has just gone into a corner. Terry still has periods of intense temper and has to be restrained from banging his head about once a month.

Academically, Terry can add and subtract where no carrying or borrowing is involved. He reads and comprehends on a 2nd grade level. Terry does have days where no academic work is possible. On these days he chews pencils and eats crayons excessively. Terry has many compulsive habits such as excessive interest in record players (even though they might be broken), and sharpening his pencil.

A Staffing Report of March, 1974, at age 9½ presents a picture of Terry which is little different from the above, with the exception that Terry is reported as "taking more of an interest in his peers," and that episodes of head-banging and hand-biting had been "diminishing significantly." Both his teachers and his parents were reported to note that Terry very often resisted learning with a stubborn, impressive strength. The learning he did acquire he often hid. Left to his own devices he lacked initiative, content to do next to nothing. At home he would watch television for long periods, preferably with the volume off. He tended to insist on what he wanted, and could fly into a violent rage if thwarted. Still, he was far more tractable and socialized than he had been at age three and a half, when to invite him into a room was to invite destruction.

It was in October of 1974, some 6 months following the period of the above report that I first observed Terry. The following

description of Terry as he was when I first encountered him is drawn from the log notes that I made at that time.

Terry at 10-3 seemed very much less lively and engaging than he had appeared when filmed for the TV documentary at age 8. He sat in his seat at the rear of the Blue Room and paid little apparent attention to what went on around him. If someone was not working with him, he tended to occupy his time writing slogans or titles of movies shown on television. He would write either on paper or on a small blackboard immediately behind his desk. Terry masturbated a lot; much of the time his hand was slipped into his pants. He usually had a very distant, and unfocused quality about him--the word "spacy" seems to capture it best. Terry had a large calcified lump on the top of his head from repeated head-banging. He was again banging his head with some frequency--about once every week or two. He often bit the heel of his hand while in apparent anguish. He often spoke aloud to himself, usually repeating something he had heard from TV or a TV movie title he had read in the TV Guide. If spoken to, or asked a question, his most frequent response was to simply repeat in whole or part what the speaker had said. He did not appear to be trying to truly communicate.

Terry sometimes approached Nancy Buckler, apparently for simple human contact. He seldom approached other adults except to enlist their protection if some other child was teasing him. He made no overtures to children in the room and was largely ignored

by them. He did not greet anyone when he arrived in the morning or say goodbye to anyone when he left school for the day.

Terry showed no sign of feeling pain, whether he inflicted injury on himself or had an accident. He would rapidly slap the back of his hand against his forehead when excited, whether happy or disturbed. If he was feeling good, he could move rapidly in a peculiar yet graceful side-stepping "waltz." If really happy, he might bound straight up in the air and, with both feet close together, hop about. He was apt to thrust strange or novel things to his nose. He had a fascination for phonograph records. He loved to watch them turn on the turntable. He had an intense aversion to almost all music and enjoyed his pasttime of "record watching" without sound. He often removed and hid the phonograph needle to insure that he would not be subjected to the sound of music.

Terry at age 10-3 could dress and bathe himself. He had oversized but clear printing. He could "sound out" words in a third grade reader, but his comprehension was very poor. Spelling skills were good, and in arithmetic he was working on carrying and borrowing.

What was most salient about Terry, however, was a quality which is not entirely captured by the objective description of his behavior recounted above. The essence that seemed to epitomize him--to virtually exude from him--was that he appeared to exist in

a God-awful state of isolation and aloneness, an isolation that he fiercely insisted upon and maintained, yet which was deeply painful and lonely.

CHAPTER VI

THE FIRST YEAR: AGE 10-3 TO 11-2 (OCTOBER, 1974 TO AUGUST, 1975)

A Brief Synopsis

In early October of 1974 I began to see Terry as a volunteer at the Loyola Day School, working with him from noon to 3 P.M. each Friday afternoon. As described in the previous section, I found Terry singularly remote and unresponsive. During the hours I spent with him some time was spent on reading and arithmetic, and I also stayed with Terry and played with him during the "free time"-- periods devoted to play or recreation. Master Teacher Nancy Buckler was extremely helpful in providing me with a broad orientation to my work with him. She suggested that I involve Terry in much playful physical contact; help him develop physical skills such as climbing, throwing, catching; try to promote play with other children; encourage and require speech. She alerted me to the fact that he balked at learning but later delighted in his accomplishment. And I soon learned that it was as important to know when to respect his moods and lower or drop demands as it was important to know when to "insist."

My approach to Terry was strongly influenced both by

psychodynamic considerations with a concomitant concern regarding Terry's feelings and the quality of our relationship, and by a goal-oriented perspective which drew heavily on principles drawn from behavior modification. These combined influences will be apparent in the more detailed account to follow.

The months from October through December of 1974 I now view as a personal apprenticeship period. I had never worked with an autistic child before and Terry was nonplussingly different from any other child I had ever encountered. I tried to respond to Terry in an interpersonally sensitive manner that would enhance the establishment of a bond between us. Results were, at best, mixed. On the one hand, after we had spent some time together on a given day Terry could become animatedly engaged with me, especially during play activities. On the other hand, by mid-November Terry still completely ignored my presence when I first arrived to see him.

In an effort to increase my impact on Terry I increased the hours I spent with him to 6 per week in November and 10 per week in December. In January I made another important change in that I began to spend less time in doing academic work with Terry and much more time in physical play, especially play on a mat which involved much physical contact, tickling and clowning.

By February, Terry began to display marked change and entered

a period in which he displayed some new gain in social or emotional responsiveness almost daily. He began to greet and say goodbye to persons, and inquire after me in my absence--behavior quite unknown previously. Around this same time complex issues revolving about Terry's autonomy and oppositional versus cooperative/acquiescent behavior were at the forefront of Terry's and my mutual engagement.

Terry continued to make striking improvement in social/emotional functioning through the spring and summer of 1975. I had indeed become important to him and he was unabashed in displaying his attachment: he solicited hugs and kisses from me and sometimes spontaneously gave me a hug or kiss or told me that he loved me.

By late spring of 1975 Terry had become far more cooperative and "workable" than he had been the preceding fall, and an increasingly large portion of our time was spent on work activities.

By the beginning of summer Terry had virtually stopped using immediate echolalia as a routine response to an adult's question or comment directed at him and seemed more willing to try to communicate. However, communicative expressive language remained so poor as to be virtually non-existent, limited for the most part to a few two- or three-word demands. I undertook an extensive psychoeducational assessment to help more exactly determine the nature of Terry's deficits and strengths to use as a guide for a

program of intervention to be introduced at the beginning of the new school year in September.

In the summer of 1974 I met with Terry's parents for the first time and we began to work together to facilitate change in Terry.

Therapeutic Engagement and Social/Emotional Change

October through December, 1974. When I met him, Terry appeared to be a child who was gravely emotionally disturbed. He seemed very unhappy, withdrawn, "spacy." For the most part he kept entirely to himself, and seemed to prefer it that way. He avoided eye contact but even more striking was the extent to which he failed to acknowledge other persons' presence in any way. For the most part he acted as if he were quite oblivious to people around him. For myself, I can report that I found it a somewhat unsettling experience to try and engage with a child who totally ignored my presence.

During the early months of my work with Terry he yielded few overt cues that he was emotionally needy, that I did or might come to mean anything to him. It was as if he were determined to give no hint to me that I mattered. He avoided using my name--indeed, refused to use it. (On one occasion as Terry climbed on a carousel and said, "Push me" I said, "Terry, when are you really going to thrill me and say, 'Push me, David'"? Terry responded, thoughtfully,

"Push me. . . please." He got his push.)

Still, I read his deep withdrawal as a self-protective device against disappointment and hurt, and felt a powerful, unspoken and unself-acknowledged longing for human connection. Perhaps it can be said more simply thus: For all of his active avoidance and studied coolness toward me (and others) I sensed a great loneliness in Terry, and a great longing. Too, on several occasions during the first few weeks that I saw him, Terry displayed an interest in and readiness for relationship that was very uncharacteristic, yet supported my intuitions and feelings. These incidents bear recounting not because they typify Terry's behavior at the time--they do not--but because they contributed to what became a sustaining belief on my part that Terry, in his depths, wanted human connectedness.

10/3/74 Terry went up to Nancy who was standing by the door. He said "Bathroom." Nancy laughed, "Oh, no. I'm on to your tricks." Terry broke into a big smile and nuzzled her affectionately. He rested his head on her breast. Nancy ruffled his hair. There was a warm, affectionate closeness. Terry turned and started back to his seat which I was sitting beside. Our eyes met and held. He approached, maintaining his gaze. He stopped, his face only a foot from mine, his eyes calmly looking into mine. He softly felt and fingered my beard for a minute, his eyes continuing to look directly into my own. It was as if he had moved on a wave of softness and intimacy directly from Nancy to me. The experience was deeply moving. It had felt as if Terry had entered into me, exploring and looking around inside me, seeing what within me might answer him.

10/10/74 The two of us were standing quietly by ourselves on rocks at the edge of the Lake. I spoke: "Terry, do you know who I like?" Terry looked at me directly: "Who do

you like?" "I like you, Terry." Terry looked away, down at the ground, a big smile spread across his face. He maintained silence for a minute, then still looking down, he repeated, "Who do you like?"

"Terry, you heard me. I know you heard me. But I am happy to repeat it: I like you."

10/4/74 I came to join Terry when he and the other children were in the park. He was lying by himself on the ground on his side, in a loosely curled fetal position. I plopped down on the ground facing him in a parallel position and commented that he chose strange places to lie down. Terry, bright eyes watching me intently, spoke preemptively:

"Break the spell! Break the spell!"

"Are you under a spell?"

"Kiss me and break the spell."

"If I kiss you, will that break the spell?"

"Yes."

"Shall I kiss you?"

He abruptly turned away. His speech came in shards and snatches of phrases: "a prince. . . a princess. . . the wicked witch. . . the prince lies down. . . the princess is asleep. . ." His staccato ramblings suggested a confusion between masculinity and femininity, between activity and passivity, and uncertainty about where he himself fit into all this. He had cut me out. The abruptness with which this happened suggested that my question about kissing had threatened him. Time to make amends; it was my turn to be preemptory. I broke in:

"Will it break the spell if I touch the tip of your nose with a finger?"

"Yes."

Terry had turned immediately and looked directly at me as he spoke.

I performed the magic act. He sat up, said conversationally, "Now I'm awake."

"That's nice."

I suggested we go down to the lake. The now lively Terry and I walked along the shore. He scrambled on the rocks ahead of me. Repeatedly, he would pretend to skip and call out: "Help! Save me!" Rescue was prompt, and consisted of a friendly hug from behind, and my assurance that it was a pleasure to be of service.

Other incidents in my first few weeks with Terry were of a less lyrical nature.

10/10/74 I pressed Terry to read. He read one line and wanted to quit. I persisted. He put the book on the floor. I got it. I suggested I would read to him. "No!" I started to anyway. Terry slowly stood up in his desk, tilted his head back, and screamed. Then he plunged downward and drove his forehead into the desktop with incredible violence.

Terry's action had taken me entirely by surprise. My stomach lurched and I was momentarily stunned by what I had witnessed. I made a silent vow not to precipitate such an event again. The incident informed me forcefully that Terry's emotional responses and behavior patterns were still largely unknown to me and that I must proceed with great care.

Earlier in the same day of the head slamming incident, I had another encounter with Terry that involved violence. At noon when I had arrived at school to work with him I had casually, and too quickly, put an arm around him. He hit me hard in the face with his fist. He then struck his forehead with the back of his hand. My instinctive response was to quietly tell Terry that I was sorry that I had startled him, and that he hit hard. I commented on the force of his blow not to inspire guilt, but to offer testimony to his strength.

I am not a masochist by nature and do not believe that "accepting" a painful blow from a child, autistic or otherwise, is inherently or necessarily therapeutic. More usually it is very much the contrary. But without any reflection, spontaneously, I had adopted an extreme posture of acceptance.

Later I spoke with Nancy about the incident and she told me that in the past couple of weeks, for the first time ever to her knowledge, Terry had violently struck another person--herself. She had responded as I had, with complete acceptance. Nancy explained that Terry had turned his anger against himself all of his life, especially in the form of severe head-banding, and had never directed aggression at another person even in the face of severe provocation. For the first time Terry was directing aggression toward another person rather than himself when he was upset. She felt that for Terry this was important positive change. And she felt that the change was still very tentative and fragile. She was concerned that if she rebuked him he might lose this newly budding capacity for asserting himself toward others. Later, if need be, the aggressive response could be modulated. Nancy also felt that Terry's choice of targets represented a particular level of trust, that he would not be likely to indiscriminately attack other adults or children.

Our talk was very helpful. What Nancy said made sense to me and provided a rationale for my intuitive reaction. Also time proved correct Nancy's prediction that Terry would not promiscuously attack other adults and children. In those early weeks Terry hit me hard on the face on one other occasion. Over the next few years Terry would, on rare occasions, slap me if I were "pushing" him too hard. But it always proved much more of a problem to promote healthy assertiveness and aggressiveness in Terry than to contain it.

During the first few months that I met with him, Terry often made it clear that he wanted nothing to do with me and attempted to send me on my way. He was not subtle or civil when so informing me: a typical log entry notes that when I first approached Terry on the playground he slapped my face lightly and said "Going home," e.g., "Be on your way." In those early days I did not go away under such circumstances but would tell Terry that I was sorry but that he would have to put up with me. Much more often than not Terry would begin enjoying my company after a few minutes. At a later period, when we had gotten to know each other well, I would sometimes honor Terry's desire not to have my company.

By the end of October a typical afternoon with Terry might go something like this: I would enter Terry's classroom and be greeted by other children in the room--but not by Terry. Terry would be sitting at his desk apparently oblivious to everything around him, and most certainly oblivious to my presence. I would draw up a chair and sit beside his desk and greet him. No response. Terry would usually have writing sheets at his desk and might be writing the titles of movies being shown on TV. I would comment on them. Shortly after I arrived, he would start saying aloud some of these titles or other "nonsense." I would imitate and repeat the things he said, much as I might with an infant. Gradually--within about 5 minutes--Terry would begin to display some awareness of my presence. He would alter his own rhythms or stress or tone

to, in effect, start "playing off" my vocal responses. He would sneak a look at me. In this tacit way he would begin to acknowledge and accept my presence.

Terry played with words and took delight when I played with him. He might, for example, write the words LONE RANGER. I would repeat that in one inflection or another. I kept my responses on a word-play basis. I did not try in more conventional terms to talk with Terry about the Lone Ranger. (He adamantly resisted such efforts.) After I had said "Lone Ranger" Terry might write "Lone Rangest." I would playfully protest that there was no "Lone Rangest," and Terry would giggle. He might next write silv and, if I did not respond quickly enough, make it clear through some nonverbal means that I was to say the word aloud. I would. Terry would repeat this operation with silver and then go on to silvest. I would again mock protest: "The Lone Ranger says 'Hi Yo, Silver!' There is no silvest!" I adopted the mistrustful and slightly scornful tone a kid might use when he feels an adult is trying to put something over on him. And Terry would giggle some more.

After we were definitely engaged I would work with Terry on arithmetic or reading. Usually Terry wanted to read Plays for Echo Reading (Durrell & DeMilia, 1970), a series of brief two-person dramas. Terry knew these plays so well that he probably could have said his part without looking at the book. He had a preferred role in each play and insisted on always taking his preferred role. It

was unlikely that there was didactic value in working with Terry in this fashion. However, Terry was extremely resistant to any new task and play-reading provided an entree into the province of doing work with Terry. Also, he truly enjoyed the activity. It presented no difficulty and he approached it with zest.

After a period of work at the desk, the remainder of the afternoon would be given over to play at the playground, a walk to the beach a block away, or a trip to a shopping area two blocks away. Whatever we might be doing, I constantly spoke to Terry. I felt he needed such verbal "bombardment" both to convey my presence and as a stimulus to his own vocalizations. I repeated things that Terry said--nonsense phrases or whatever--as my way of keeping up our "dialogue," much as a parent might babble back to a baby. [Such adult imitation of child vocalizations has been employed by many workers (Goldfarb, Braustein, & Lorge, 1956; Lovaas, 1977; Stuecher, 1972).]

When we were playing together--as, for example, I was pushing Terry on a swing--he looked virtually normal. He would laugh and his whole being would be animated. But left to his own devices, Terry seemed to "run down" instantly, and would be content to squat and pick at dirt for hours on end in the playground rather than use any of the equipment.

In mid-November it was still the case that Terry did not acknowledge my presence when I joined him. I had never had such

an experience with a child and found it troubling. I sought out Terry's therapist at the School and related my sorry tale. He put my plight in perspective: "I've seen Terry for 2 years and he still acts like I'm invisible when I go to see him. I feel like I should introduce myself anew each time: 'Hello, Terry, remember me?' Every Thursday morning at 10 o'clock for the past 2 years?"

The talk with his therapist helped. I now knew that Terry's reaction was not something peculiar to me. Nevertheless, Terry's reaction remained a source of deep discontent to me. A deep personal investment in Terry had grown in me and I badly wanted to break past his studied air of indifference. I wanted to become important to him, so important that he would freely acknowledge and express his feeling. I felt that it was crucial to Terry's healthy development that he have such a relationship and Terry's well-being had become of major personal moment to me. I judged the most promising route to having greater impact on Terry was simply to spend more time with him. I began to see him three times a week for a total of six hours, and in December began to see him two hours a day, five days a week.

By December I was becoming more comfortable in my work with Terry and found myself engaging with him in a way that in two respects was very different than any of my previous work with children. These differences involved the degree of physical contact and my personal emotional expressiveness. Both issues bear

some discussion.

By December, the time that I spent with Terry came to involve more and more play, especially physical play: touching, tickling, piggyback rides, "horsey," and so on. There were a variety of factors that contributed to my moving in this direction: I was extremely impressed with, and influenced by, DesLauriers and Carlson's book Your Child is Asleep; in my own experience it seemed that Terry was most "alive" and responsive in such play; the Guidance Center and Day School itself espoused the value of such contact, under the rubric "developmental play therapy"; and lastly, I personally enjoyed it hugely, at least after I lost my fears of it.

Initially, I was not very comfortable with other than fairly minimal physical contact, and I approached this aspect of engaging with Terry gingerly. There is a sensual quality to sustained playful physical contact involving stroking, tickling, hugging, and so on, and the issue arises: Does such activity sexually stimulate the child and, if so, is it not contraindicated? (I have heard other new volunteers and interns advance this same question, especially regarding older children.) These issues seemed all the more regnant because during the fall Terry often--even usually--displayed some degree of sexual excitement, often openly masturbating with his hand thrust inside his pants.

In a sense, Terry's heightened and virtually constant sexual

excitement finally became a liberating factor. It became clear to me that far from having to be concerned that my touch might "excite" Terry, that if I merely waited to touch him on those occasions when he did not already appear to be stimulated, the effect of such a policy would be--in practical terms--to forgo touch at all. And so, I decided to give up watching and waiting for the "right" opportunity. I took it for granted that at this period of his life Terry would often be feeling "sexy," whether he was going down a slide, or playing on a teeter-totter, or sitting at his desk--or being tickled on a mat. I gave up any lingering assumption that being sexually aroused was ipso facto a bad or harmful state for him to be in. I developed some personal rules of thumb: I would not permit Terry to masturbate during the course of our physical play. I avoided touching Terry in any ways that seemed to have an especially erogenous effect. If, despite my care, Terry seemed to be beginning to get especially excited in a way that carried increasingly strong sexual overtones, I would stop the physical contact for a bit. If, on the other hand, evidence of Terry's sexual feeling seemed to be no different than his usual fairly high state, then I would treat it as an "epiphenomenon" and ignore it.

I came to feel more and more personally at ease in physical play with Terry. Periods of physical contact were clearly the occasion of Terry's greatest emotional responsiveness and the

abandonment of such interaction was very obviously not in Terry's interest. (I might note here that Terry's hypersexual period waned about a year after I first began working with him.)

Another way in which my work with Terry proved to be very different than any of my previous experience as a therapist was with respect to the degree of my emotional openness and expressiveness. At one point in December, Terry, upset, was repeatedly slapping his face. I took Terry's hand, kissed his face where he had been hitting himself, and told him very gently that I did not want him to hurt himself. Terry relaxed immediately--the incident was over. On another occasion that same month, when I came to see Terry I saw by the bruised evidence of his forehead that he had recently banged his head. I told him that I loved him and that I did not want him to hurt himself. Terry looked at me in a "deep" way that he has and seemed to be taking in what I said with grave seriousness.

Both of these things happened when Terry and I were alone. Perhaps I would not have responded as I did if we had not been in private. I later pondered what I had done. Giving Terry a kiss--telling him that I loved him--seemed the right thing for Terry. But it was far afield from anything I had ever done previously with a client. For a couple of months I kept my own counsel. I did not tell Nancy immediately for fear that she might tell me to stop doing something I felt was importantly right for Terry. As I got

to know Nancy better, it became increasingly important to me that I be open with her. I took it to her and we discussed it. I found that Nancy shared my belief that this kind of emotional openness and expressiveness--in the contexts and manner in which I had done it--was therapeutically good for Terry. I felt wondersully supported.

In sum, my experience with Terry was having major impact on me and my notions as to what was "O.K." to do in the course of therapy.

There was at this early point only minimal evidence, however, that our time together was having any impact on Terry. He still remained obstensibly oblivious to my presence for the first few minutes when I came to see him. He refused to use my name. When we were together he could be responsive, yet he seemed determined, at some deep inner level, not to give me evidence that I mattered to him. For the months of October through December I had to act out of an inner conviction that my experiences with Terry had to affect him.

On December 20th, the last day before the Christmas vacation, an event took place that, in effect, blew his cover. The children were having a Christmas party and Terry had gone off by himself on the enclosed porch. I found him there when I came, and sat beside him. As usual, he ignored me. I had been with him about 5 minutes --still without eliciting any response--when another child, J_____

came out to the porch and sought my attention. Previously I had made it a point to give Terry my exclusive attention, but, in the spirit of the party, I started chatting with J____. J____ was delighted to be getting some of my time and climbed astraddle my shoulders. At this point Terry--who had been sitting in stony stillness--erupted. He made harsh, animal sounds and in a frenzy began tearing paper and shoving it in his mouth. I quickly disengaged from J____ and gave my full attention back to Terry. It was as if a fissure had momentarily appeared and permitted me a glimpse of some of what Terry was feeling.

The afternoon of December 20th was notable for one other event. Terry, for the first time, told one of his teachers "good-bye" as he left the school.

January through April, 1975. During January I began spending much of my 10 hours a week with Terry in a separate room, Room F. This room had a mat and afforded privacy and quiet. I also began to teach Terry to play catch. I started with a Nerf ball. Initially, Terry would blandly let the ball bounce off his chest, not deigning to show the slightest sign of participation. Like an over-enthusiastic camp social director I cheerfully got the ball and tossed it again. Faced with this persistence, after a few more of my tosses Terry caught the ball and quite deliberately threw it away from me. "Good catch!" I cried and went and shagged the ball, "But I'm over here. I'm not in the corner." The next few throws

Terry continued to catch the ball and perversely throw it any place but to me. But after a couple of such sessions he began to toss it back. My sense was that Terry was terribly jealous of his independence and did not want to be "too" responsive or cooperative.

But my cheerfulness, warmth, and persistence wore him down. Or--it might be better put--at some point it was as if he felt I had paid my dues and he could feel "O.K." about giving me something I wanted.

After the success with the Nerf ball, I tried to graduate to a football. Terry reverted back to his bounce-off-the-chest routine. He remained implacable and would not so much as accept the football if I tried to hand it to him. I got around this impasse by tying the game of catch into one of Terry's most preferred activities--being pushed on a swing. After I had pushed Terry a little, I let the swing stop and then let Terry know that to get some more pushing he had to catch the football which I held a foot from him. Terry permitted this bit of blackmail and appeared amused by it. Between short periods of swinging I gradually upped the ante: I moved back a little further, and then Terry had to throw the ball back to me. After a few days Terry would play catch with the football for a few minutes upon request.

I began to involve Terry in play with other children, especially S____. I had introduced Terry to play on the see-saw. He enjoyed it. Next I sat behind Terry with my arm around him while

S___ sat opposite us. Although Terry was afraid, my presence was sufficiently reassuring so that he did not try to leave. I gradually removed my arm from around him and, after a while, moved further back of him so I was not touching him, although I kept up chatter so that he would feel my presence. Next, I got off the see-saw but remained crouching close by his side. Finally, I gradually moved further away. Terry was playing with another child and enjoying it. I was delighted. After Terry and S___ had played on the see-saw together several times, and were very comfortable with one another, I introduced a game of catch while they were using the see-saw. I tossed the football to Terry. He caught it and threw it back. Repeated. I tossed it to S___. She threw it back. I tossed it to Terry and asked him to toss it to S___. He did. Gradually we worked into a 10-minute session both on and off the see-saw of tossing the ball back and forth among the three of us in any combination.

During January for the first time Terry showed numerous small signs of "movement." He began to tell adults at the school "good-bye" with some regularity. Twice in January when I arrived at the Blue Room Terry briefly glanced at me as I crossed the threshold, and, most striking of all, on one occasion in January when I arrived he actually got out of his desk and came toward me.

In February the trickle of change became a flood. Terry began greeting persons by name when he arrived at the school and, on his

own initiative, telling them good-bye when he left. It became common for him to be looking forward to my arrival, and he often greeted me enthusiastically. He gave me a spontaneous kiss and told me "I love you." There was a pervasive change in Terry's manner and mien: he seemed happier, more relaxed, more spontaneous, more playful. He began interacting more with adults and children. He began displaying flashes of a goofy, Harpo Marx-like sense of humor. One instance of this new insouciant, playful attitude is recounted below:

2/3/75 I took Terry to get a dish of ice-cream in a neighborhood restaurant. There was a small candle in a bowl on the table which Terry indicated he wanted me to light. I did so. Terry stared into my eyes and intoned, "Jack be nimble." To keep up my part of the conversation I replied in an equally grave manner, "Jack be quick." In a swift sweeping motion Terry brought the lighted candle from the table to the floor by his feet, and stood. "Jack jumped over the candlestick" he announced, suiting action to his words.

The following log notes for four consecutive days in mid-February provide a window on the nature of work with Terry at that time.

2/12/75 During the last week I introduced Terry to several new physical "exercises": using his body to bridge backwards, and holding his feet while he was a "wheelbarrow." Today Terry delighted in holding his arms stiff at his sides while I lifted him. Several times when I assisted Terry with a backward somersault he managed to maintain his balance and land on his feet. I demonstrated this once and Terry was delighted. Terry finished a reader today. He was quite eager to do so. I congratulated him. He repeated the word and seemed quite proud of himself. Terry did 10 sit-ups and 10 push-ups. I got him on his toes for push-ups the first time today. (He has been resting on his knees.)

Terry locked himself in the bathroom for ten minutes. I became angry at him and expressed it.

2/13/75 Terry had arrived at school very upset; he repeatedly said the word "stageshow" and kept wanting to get into anybody's car and leave. On the way to school he had pulled the bus driver's hair. He hit a coordinator a series of quick blows on her chest with his fist. He became angry at K____. Nancy told him that if he wanted to, to hit her. He did, hard, in the face. Noone had any idea why Terry was acting in such an extraordinary way. He saw his therapist who later told me that Terry sat in the sandbox and said "I'm an island" and then went and sat in the therapist's lap. I saw Terry immediately after the session. He wrote on his blackboard: fury crack fury halt. He was extremely tense. Then he loosened, wrote playful words, and relaxed. I swung him. He laughed gleefully. I left. Later in the day he became upset again.

2/14/75 Valentines Day. Terry came up to the desk which I was sitting by and silently laid a bundle of envelopes down in one pile and a separate envelope beside them by itself. My valentine. He wanted me to deliver the rest of his valentines to the other children. I insisted he hand deliver them but went along with him for moral support. Offering some recognition to Terry of the grudging manner in which he delivered his valentines, I later told him that he was my valentine, like it or not. In Room F I built a tower of blocks. Terry smashed it with a basketball. He then built a tower himself and smashed it. Back in the Blue Room I sat beside Terry at his desk. On impulse I lay the side of my face down on the back of Terry's hand which was resting on the desk. He slipped his hand out from beneath my head and gently explored my face with it for some time. Finally, he put his little finger in my ear, turned it back and forth, then put his finger in his mouth. Ready for me to move, he gave my head a brusque shove.

When S____ gave Terry a Valentine I suggested Terry kiss her. Instead, Terry kissed me.

2/15/75 I was 15 minutes late, the first such occasion in the 4½ months that I had been seeing Terry. S____ commented on it as I walked in. I came up to Terry at his desk. He turned around. I apologized. He wrote "Bad boy" on the board. I suggested I was the "bad boy" because I was late. Terry seemed to nod agreement. He erased and write it again. I had missed the opportunity to be with Terry in the back room. Terry and I began to read. We read about two boys talking about taking a hike. Terry pointed to one

boy's dialog and then at the other's as he said several times "Terry" and "Dave." I asked Terry if he was saying he would like it if he and I took a hike together. "Yes." In Room F Terry resisted doing exercises. Finally, he consented to enter into contracts with me: 10 sit-ups and 10 push-ups for one backflip each. Terry did half of the multiplication tables with me. He then wanted to go for a walk. It ended with me carrying Terry piggyback to the lake and back. Back in the room, Terry wrote "Son of Lassie" on the blackboard (a title of a movie that had been shown on TV Sunday). I asked, "Did you see it? Did you like it?" No response. I then asked him if he liked his new short haircut. He wrote "Halt" on the blackboard and simultaneously said "Please stop."

Terry's inexplicable upset on the 13th was a not uncommon situation, that is, it was not uncommon for Terry to be upset without anyone knowing why. Sometimes the disturbance seemed to generate from within, as if Terry had had a fleeting thought or memory that brought him anguish. Sometimes his upset related to something that had happened to him a little earlier or that had gone unobserved by adults. Terry's ability and/or willingness to discuss what was upsetting him was virtually nil.

Terry seemed to chronically harbor a great deal of barely suppressed anger. He often wrote the word FURY as is recounted in the log of the 13th. He many times asked me to "draw 'fury'"--I gave him various renditions: an exploding volcano, Roman gladiator, etc. He often took delight in knocking down or destroying things, sometimes in a socially acceptable way as in knocking a tower of blocks over in play, sometimes in socially unacceptable ways as when he threw lightbulbs (stored in a bathroom cabinet) out the window to the cement below. This stored anger was, I believe, one

very important component in the highly oppositional behavior that Terry often displayed (e.g., refusal to work at a lesson, refusal to put a request into a simple sentence, refusal to make eye contact, refusal ad nauseam).

Terry's negativism, interestingly, became more pronounced, more persistent, more of a real challenge during the "break through" period of January and February. That is, just as Terry was becoming more openly warm and responsive to me, he simultaneously began offering a new, even more stubborn resistance to my requests for work. It was as if his emotional economy would not permit him to give too much to me at a given time. If he displayed pleasure at my presence, it was as if he must resist my demand that he work. Clashes between us became both more frequent and sharper. I sensed that Terry and I were heading toward some kind of "show-down," and the outcome was as yet very much undecided. Increasingly we were clashing, and spending our time together in unproductive ways. An issue of power was coming ever more sharply into focus. It was as if in a tacit way Terry was trying to make the point that if there was ever any real difference of opinion between us about what he should do, that the issue would always be settled on his terms. If he really felt strongly about something it was to be his way. And, just as determinedly, I was responding, "No. Not necessarily. Not always." I think both of us felt that the issue, and the way it was determined, was critical. We were caught in a struggle that neither of us could or would avoid. But both of us

also had some dread of it.

The issue finally came to a head on the occasion recounted below:

2/20/75 When I arrived at the Blue Room I learned that Terry had not wanted to come to school today. As soon as I entered the room--or just immediately before--Terry began saying "Home" and went to the blackboard and wrote "Want to go home." On my entrance into the room Terry neither avoided me or showed any pleasure. The children were starting to prepare to go outdoors for a recess period. It was a bright and, for February, unseasonably warm day. Recess typically was Terry's favorite period of the day, but, on this day, Terry said "No." Nancy, as was her practice, had turned Terry over to me upon my arrival. I was to see that Terry got his coat on, etc., to accompany the class outside. Terry, thank you, wasn't having any of it. He told me "no," told Nancy "no", told the coordinator "no." Nancy left it to me to bring Terry.

My feeling was that the showdown had arrived. The class was to go out. This was something that under usual circumstances Terry most enjoyed. Terry refused. There was a flagrant whimsicality about his refusal, a kind of "purity" about the "test case" he was presenting. He would do what he would do. Did I want to make anything of it?

I asked Terry to get his coat on. Then I insisted. Then I told him that since he would not put it on, I would put it on him.

My insistence precipitated our first flat-out protracted fight. Terry kicked and pulled my hair. He cried bitterly. He tried to slam his head but I prevented it. For a number of minutes we were on the floor, Terry doing everything he could to bang his head, while I held him and prevented it. It took all of my strength. Instinct told me that what I was doing was right and necessary, that when this scene was over and behind us, Terry and I would still have a deeply good relationship. But, in his own way, Terry was screaming denial of that possibility. In his own way he was telling me it was the end.

Terry tired. I wrestled him into his coat, out the door, across the street. Terry finally walked on his own. When we arrived at the park he dropped to the ground. He lay there, red-eyed. After a minute or two he spoke: "Mom. Home."

Telephone." He got up and crossed the park to where Nancy was. He sat in her lap. I sat beside them. Nancy offered him the comfort of being held, but made no comment on the struggle that she had (in part) witnessed. Nancy told him that he would have to stay in school but that if he wanted to call his mother on the telephone after we returned to the school from recess that that was alright.

At the end of the free period Nancy and Terry went to meet his therapist. I don't know if a call was made. I left on a personal errand. When I returned an hour later Terry was at his desk. When he saw me he got up and went to the front porch. No one else was out there. I joined him. I stood quietly before him. I had nothing to say. There could be no apology. I had done what I needed to do. I cared for him. We had to go forward. I did not press him. I waited. Slowly we made up. Terry rested in my lap. Finally he wanted to see-saw. He got up on my piggyback, and I carried him to the back room. Terry's lingering pique at me turned playful: he "booped" me.

At the end of the school day two volunteers said good-bye to Terry and he said good-bye to them by name. I walked with Terry to the bus. "Good-bye, Terry." "Good-bye, Dave." It was the first time Terry had addressed me by name since the first month after I had met him.

On the following day Terry was good-natured and cooperative during our time together. While our contest of the day before did not thereby resolve or remove the issue of oppositional behavior it did seem to somehow reframe it. In part, it simply helped to "clear the air" for a while--Terry much reduced his testing and balking for a few weeks. More crucially, in some subtle yet important sense I felt that I had not merely assumed authority over Terry, but that he had yielded it--that is, in some inner recess within himself he personally accepted the legitimacy of my making demands upon him. Or, to put it another way, he had finally acceded to me a limited authority over him: I was not simply a tyrant to be resisted.

Testing, teasing and oppositional behavior remained an occasional and sometimes trying problem with Terry throughout the years I worked with him, although, in general, Terry grew increasingly cooperative over time. A month after the confrontation described above, Terry and I had another clash of wills that was in its own way troubling to both of us. For about a week Terry began spending increasingly longer periods in the bathroom during what was supposed to be our work time. While in part this was to avoid doing work (never Terry's favorite pasttime) I felt that, in fact, he was largely doing it to needle me. It did "get my goat." My annoyance was evident and Terry seemed to find this highly rewarding. His retreat into the bathroom was resulting in the waste of increasingly larger amounts of the time that we had to spend together and I felt I had to break the pattern for that reason if for no other. When other attempts at remedy failed, I decided to take the course of telling Terry through the bathroom door that I would leave for the day if he did not come out--and then do it. I took the measure with some trepidation. I was fearful of the consequences of my walking away and leaving Terry. For all the fact that he was hugely enjoying frustrating me, I knew that Terry very much enjoyed and valued the time we spent together. I felt that no matter how clearly and emphatically I said it, Terry would not actually believe that I would go away and leave him. When he did finally realize that I had left it would be a shock. And a deep hurt. I was fearful of the consequences of that hurt. Terry had permitted me to enter his

heart and life with such grudging care. Would he cast me out? I did not think so, yet still I was troubled and Terry was much on my mind that afternoon after I invoked the consequence and left him.

The events of the day following my "walkout" and the manner in which we worked through some of Terry's feelings resulting from it are recounted in the log entry below:

3/14/75 Early today, before I was to go the Blue Room to work with Terry I passed him on the campus by chance when the Blue Room kids were on an outing. I waved and said "hi," and Terry offered not the slightest sign of recognition. It has been some time since that happened. By the time the period to see Terry had arrived I was quite worried.

At the Day School Terry seemed much less responsive to me initially. I may have been feeling anxious about leaving Terry yesterday, but my definite impression was that he was much withdrawn from me. Usually we start with reading. That seemed both impossible and inadvisable. I played with Terry while he sat on the radiator. He continued to stay "out of it." For the first time since I met him I saw a new definite autistic mannerism. Terry moved his hands and wrists in an East Indian dance-like movement. Also, his right hand went to his left shoulder and made a motion as if he were throwing a pinch of salt over his shoulder. In the course of five minutes he repeated both of these new tics several times. I carried Terry from the radiator and put him on the mat and tickled him. He "came alive." We got some work done. He did the hand motions once or twice more. He asked to go to the bathroom. I said, "You must be kidding." Terry laughed.

At another point Terry said "Shirley Temple in Invitation To a Gunfighter." He then said "Shirley Temple in The Maltese Falcon." He was obviously making a joke, suggesting that a child movie star be in a highly incongruous picture. I said, in my you-can't-put-something-over-on-me tone, "That's silly," and Terry laughed.

I spoke with Terry about his ignoring me when he saw me on the campus. In a playful way I told him that when he saw me he was to say "David! It is so good to see you!" and give me a big hug. I wrapped Terry's arms around me as I said this. Terry laughed.

While it is simply not possible to know with certainty, I believe that the appearance of Terry's new autistic mannerisms was the direct result of the scare and hurt that he had experienced when he had emerged from the bathroom the previous day and had found that I had indeed left. Nothing in our previous history had prepared Terry for that experience. And I believe that it shook his inner security and trust in the relationship. Terry's new autistic mannerisms were observed a few times over the ensuing week and then disappeared. Following this episode Terry never again locked himself for prolonged periods in the bathroom, and would always come out on request.

In late February and early March Terry and I co-invented two games involving physical contact that brought Terry great delight for many months. The games figured so prominently and often in our time spent together that they merit introduction in some detail. The first--which came to be known as "Oven" had its genesis in the session recounted below.

2/24/75 Really good day. Terry got on the see-saw with K_____ for a while. We went to read. Terry worked steadily for a $\frac{1}{2}$ hour. Rest of the afternoon was given to exercises and phantasy play. Terry did all exercises. Rode me like a horse for a while. Most of the play involved me being a spider-mother. I captured Terry as Sunday lunch for my children. I buttered Terry, salt and peppered him, tucked in olives, parsley, and garlic. I popped Terry into the oven and went to sleep. I would "wake up" to find Terry had gotten out of the oven. I would scold Terry: did he have no compassion for my hungry children? I would scold my children for not watching. I would re-prepare Terry and pop him into the oven. Then I would pretend to nap and the entire cycle would be repeated. Terry was insatiable for this.

The game of "Oven" that was introduced on this day became a staple part of Terry's and my interaction for the next few months, and was called for by Terry on occasion over the next few years. As I recall, the phantasy was initiated because Terry spontaneously began reciting "Little Miss Muffet" and acting out the verse. Or I might have introduced the verse, because acting out nursery rhymes was one of the things that I often did with Terry. In any case, Terry had chosen the Muffet role and I was the spider. In some way that was a joint product of the two of us, the phantasy of the spider-mother preparing Terry for supper evolved. The thing that made it a special delight for Terry was that as each condiment or additional ingredient was added to the "stew," it was accompanied by a particular physical manipulation or stimulation. For example, if were to add some "chicken" to Terry, I would use my fingertips and with heavy, rapid pressure run my hands from his ankles up his legs, along either side of his body and end around his pectorals and underarms, all the while cackling and clucking wildly and loudly. "Indian corn" was a very vigorous and deep rub of both sides of Terry's body with the knuckles of my closed fist, while I made "Indian-like" sounds. For "salt and pepper" I ran my fingers lightly over Terry's entire body, as I moved them rapidly, making a "shushing" sound while I did so. (Throughout this Terry was lying on this back on the mat.) Most of the physical touch involved fairly heavy pressure. I tried to vary the specific physical manipulations and sound effects as much as possible to provide

variety and novelty. However, I always did the same thing for each specific food or seasoning named. Soon Terry was calling out what was to be added to the stew, in effect prescribing his own stimulation. Not long after this game was introduced all references to a "spider mother" or "hungry children," etc. were abandoned. Instead, Terry would initiate the game by merely saying "Oven" or by the title of the particular activity he wanted first, e.g., "Turkey." While Terry's preferred posture, when he was really getting fully into the spirit of the game was lying on his back, he would often call for a quick "pick-me-up" so to speak, when he was standing or seated. It was not at all unusual, for example, for Terry to stop in the middle of a walk we were taking and say "Chicken" or some such thing. I would oblige him on the spot. In this play I often used massage movements that were heavy to the point of pain with Terry. Although he might squirm and yell it was clear from his total reaction to such experience that he found it importantly good. [George von Hilsheimer (1974) provides valuable guidelines for the use of such heavy body manipulation.]

The second game--which Terry would call for by saying "Give me Trouble" or simply "Trouble"--came into being as follows:

3/5/75 While we were doing the reading lesson Terry planted himself on my lap. I had been tickling him because he had stopped reading. I tickled Terry while he was in my lap and he had a great high time. He arched his back and slid down on the floor while he legs remained on my lap. I continued tickling Terry. "You may give Nancy trouble, you may give Sim trouble, you may give Pat trouble, you may give your Mom and Dad trouble, but you will Never, Never, Never,

Never, Never, Never give David trouble." Terry was in seventh heaven. Following this Terry did a good reading lesson and all of the exercises. Then we had "Elephant," "Horse," and "Oven." Terry said, "Good-bye, Dave."

It is worth noting that following the tickling and play described above, Terry resumed work and completed all of his lessons. There was an implicit quid pro quo between us and the ebb and flow of work and play was something that was jointly determined--that we both had input upon and jointly shaped. Ignoring Terry's needs for play, rest, and refreshment would have been disastrous, and I often took my cue as to when to have a break from him. I often had most success with Terry in the first year that I worked with him by cajoling him outrageously. On the other hand, Terry would have accomplished very little work, indeed, if I had simply followed his inclinations and agreed to stop every time he signaled that he wanted to. Somehow sessions had to be shaped to meet both his needs for pleasure and to offer opportunity for learning and new accomplishment. By late spring and summer increasingly longer amounts of time were devoted to work with a concomitant decrease in time spent in play.

Finding ways to motivate Terry, to engage his interest and seize his attention, was a perennial occupation. I simply gave my imagination free reign and improvised to the moment. The entry below recounts Terry's metamorphosis from bored, unresponsive withdrawal to active, enthusiastic participation on one afternoon:

3/3/75 I found Terry on the porch and we had a short game of catch with a tennis ball. Terry grew bored and ignored me. I began nudging him, telling him that I could push him around.

I would arrange Terry's legs "to my satisfaction" arbitrarily crossing or uncrossing them, or sticking one out on a chair, etc. Terry shortly responded in the way that I had anticipated he would: by "thwarting" me. He became very involved, making sure that his legs did not stay the way I "wanted" them. He was delighted. He grinned like mad. After this we had a good work session with reading and physical exercises. Terry had worked on his English workbook on his own (He had written in one word). Played "Horse," "Oven," and "Elephant."

The following three log entries provide a further picture of our engagement together during the latter part of the spring.

4/17/75 To the park. More and more I am insisting that Terry not only put requests into a sentence but will also require that Terry make it a "good" sentence and ask him to repeat himself, if necessary, three or four times until a clear, well-phrased sentence is spoken. I also may, even if Terry has said an acceptable sentence, require that he repeat it while looking me in the eye. Terry is "going along" with these increased demands. Once while we were sitting at the table in Room F, Terry was adamantly refusing to look at me and kept his eyes cast down toward the table. Finally, I placed my face against the table at the place his eyes were directed and looked up at Terry from that position. Terry didn't avert or change his gaze but looked me directly in the eye, and began laughing.

4/18/75 A birthday party was going on as I entered. Terry sat at his desk, ignoring me. I put my hand on his shoulder. He picked it off. "You want me not to put my hand there?" "Yes." Terry got some cake. He gave it to me--then swiped the icing off. He then got out his books: "Work." We went to F. As we entered the building, a coordinator offered Terry an ice cream stick. He took it and started away. I said, "Young man!" Terry called over his shoulder, without turning around, "Thank you!" Inside F Terry said, "Give me Trouble." He had sat atop the high radiator and, as usual, was waiting for me to lift him down to the mat. As I held him in my arms I said, "You know, when I give you trouble it is really a way to show and express the love I have for you." Terry shivered with pleasure. "But I think that is something you know." I gave Terry "Trouble," followed by "Oven." Terry read and did good printing. We did physical exercises, "Oven," and left for a very short walk to the park. In the park Terry put a foot on each of two adjacent play horses and, wanting me to help him maintain balance, said, "Give me a hand." Later

he asked to go to a restaurant. "No." "Wednesday?" "What day is today?" "Tuesday." He was clearly trying to set up an appointment for the next day. I gave Terry the option of going to the restaurant either Wednesday or Friday of the following week. He chose Wednesday. When we got back to the school the bus was there and Terry headed for it. As he boarded I called good-bye. Terry stopped, turned, waved, said, "Good-bye, Dave."

4/31/75 Terry saw me right off as I entered the room. He immediately got up from his desk and started getting out his books. (Nancy told me that earlier Terry had asked several persons, "Where's David?"). Terry wanted a piggyback ride. As he was on my back I asked, "Have you said 'Hello' yet, Terry?" "Hello, David." Room F: "Trouble" and "Oven". Terry echoed "I love you" after I said it to him. But Terry in fact was looking at me lovingly. Short lesson. I read sentences with different words stressed to convey different meanings. Terry mimicked me very well. He really got into it and said the sentences with considerable emphasis and expression. I warmly praised him. He is beginning to get the rudiments of telling time. Terry then said, "Exercises". (On several occasions recently he has called for them. Previously he has had to be wheedled, bribed, urged, etc.) He was happy doing the exercises. As he turned to do the push-ups he said, "I love him." We went to the restaurant. Terry had ice cream. "Guitar." "Shall I bring my guitar again, some time?" "Yes." Then we went on a short walk. I told Terry, "Good-bye." He drank it up, but didn't return it.

May Through August, 1975. Late spring and summer saw a continuation and expansion in Terry's growth in warmth, readiness to relate, and zest in living. He typically appeared relaxed, happy, and confident. He became very affectionate to me and clearly delighted in our relationship. He displayed a few hints of a degree of generosity or thoughtfulness toward another. He began to take obvious pride in some of his new accomplishments: shortly after learning to dribble a basketball he was observed showing off his new skill to another child.

Many new activities were introduced during this period-- basketball, bowling, hiking in the woods, running on a track, use of paint and clay, among others. I undertook a broad psychoeducational assessment of Terry over the summer, and he seemed fascinated by the variety of tasks to which he was exposed. Interestingly, Terry never displayed oppositional or negativistic behavior during the administration of a test. It was as if it was personally important to him to do just as well as possible when he was being formally evaluated.

The two log entries below suggest the tenor of much of our interaction.

6/17/75 Terry had been set wailing when a reference was made to "dentist." Later, he was sitting in the bathroom. He popped right out when I let him know I was here. He wanted to work immediately. We did. Did "Trouble" and "Oven." Worked on two wood puzzles that I had brought in. Terry did them immediately. He worked with a wood block frame which held four equal-sized squares. I stressed equality of size, halves, quarters and fourths. Terry much likes handling the things. I will get more puzzles for him. Worked on telling time. Terry and I finished one book; then he and I sang Dr. Seuss' ABC book. He really seemed to take pleasure in this. Short walk: library and Damen Hall elevators. On the street Terry peered into shops repeatedly. We played "Rebound," a television-type ping-pong game. Terry looked longingly at a hockey-type game in a bar. He is clearly very ready for this kind of activity. Before it was opened, I asked Terry for a sip of his coke. He said, "O.K." It was the first time Terry has ever agreed to give me some of his coke before he had made quite sure that he himself did not want any more.

6/20/75 Terry was working when I arrived. When he finished he greeted me with "Kiss." "Oh, it's a kiss, is it?" "Give me kiss!" "I'll give you a kiss. You give me a 'hello'." I kissed Terry. He said, "Hello, Dave." It was a lovely morning. We didn't work but walked up to Columbia beach. A couple of days ago Terry and I played an electronic ping-pong

game called "Rebound" which he hugely enjoyed. On our walk today, Terry walked up to a corner mailbox (letter drop) and asked me for a quarter. "Why do you want a quarter, Terry?" "Rebound." I pointed out that it was not a "Rebound" game but a mailbox.

On the instance described immediately above Terry seemed to be completely serious in this fairly bizarre confusion of objects. Certainly Terry could generally be expected to have absolutely no difficulty in distinguishing between a mailbox and a "Rebound" game; in point of fact, the only real similarity between the two is that they are grossly similar in size and shape. But sometimes Terry's needs seemed to completely overwhelm his perceptual processes. In this instance Terry's behavior reminded me of the scene in Charlie Chaplin's Gold Rush where "the little tramp," snowbound and starving in a cabin, saw his cabinmate change into a turkey. On occasion, primary process seemed regnant in Terry.

In many ways Terry's new happier, more responsive self tended to some degree to mask or obscure the serious emotional immaturity and disturbance that lay just beneath the surface. The moves toward health that Terry was making were tenuous and fragile and Terry could change in a flash from an apparently happy child to a distraught, virtually inconsolable one. Whenever interacting with him it was necessary to attend him and his reactions very closely. On one occasion, for example, I had insisted that Terry join a game of Red Rover that he very much did not want to. He yielded, joined the game with me. I got caught up in the activity and my attention

wandered from Terry--I did not keep an eye on him. He dealt with his frustration of being indefinitely stuck in a game that he did not want to play by abruptly screaming and virtually having a "fit." If I had been attending him (as I should have) I could have headed the explosion off, given him a short, concrete number of minutes to play, or so forth.

During the summer Terry began to spontaneously imitate both myself and other children that he observed. (Example: On a walk I stopped to tie my shoe and propped my foot on a post. He carefully observed me, placed his own foot on an adjoining post, calmly untied his shoe--and then proceeded to tie it.)

Terry's hypersexuality and virtually constant masturbation seen in the previous fall and early spring largely disappeared. Terry did not seem so ridden or driven by his sexual feeling, or whatever psychic component that had occasioned the compulsive masturbation. On the other hand, on one occasion Terry's warmth and loving feeling toward me was accompanied by a sexual gesture:

6/25/75 Terry and I were quietly standing facing one another in Room R. We were close, looking into each other's eyes, and there was a strong, almost palpable feeling of closeness and intimacy. It was as if we had found ourselves in a loving space, and we simply stood there, still, to share it. Terry reached out and gently put his cupped hand around my genitals. I said quietly, "No, Terry. That's not considered an O.K. thing to do." I gently removed his hand. Our eyes continued to meet and we remained some moments longer in that "space" of special closeness.

Terry's gesture seemed very much of a piece with the special

experience of emotional intimacy and warmth that we were sharing. I handled it with great gentleness and care for two reasons: first, out of respect for Terry's feelings, and secondly, because approaching another for sexual contact or sexual closeness was behavior that I did not want to extinguish. This was the only time that Terry made such a gesture to me. Although Terry entered pubescence about this time, he never again displayed the almost constant sexual excitement and masturbation that had characterized him earlier.

One other aspect of my approach to work with Terry might be noted. I had observed that Terry would be very put out if I were at all late, and be unresponsive and cold if I had had to miss a session. Initially, I was extremely punctilious in timing my arrival to work with Terry. I feel that this early consistency was important in helping establish that I was a person that could be relied upon, and contributed importantly to the investment that he began to make in me. However, I was concerned with the rigidity with which Terry dealt with any deviations from perfect punctuality. DesLauriers (1962) presented a forceful argument for a therapist with schizophrenic children to first establish a strong presence through highly reliable keeping of appointments, and then for the therapist to carefully yet deliberately disturb the schedule of meetings with the patient so that it could be made clear to the child that the essential features of the relationship remained constant under a variety of time conditions. This approach made a great deal of sense to me in relationship with Terry, and I began

to introduce some novelty and ambiguity in my timing: I might arrive early, or a little late, or be deliberately indefinite about exactly when I would next come, or tell Terry it would be during some broad time interval. Although Terry showed some signs of wear at first, he came to be able to accept such variation with equanimity within a month or so.

Although the summer was largely characterized by halcyon days, inevitably there were some moments of conflict and this report would not be representative without some mention of them.

7/1/75 I had become angry at Terry because he had left the bathroom and had gone off somewhere and didn't answer me when I went looking for him and calling him. I became fearful he had wandered off the premises entirely. When I finally found him I swatted his seat. Terry tried to cover his seat with his hands: "Don't laugh at me!" he cried, grinning in a bizarre manner. He continued with a grotesque mixture of verbal responses suggesting a mental melange of every occasion when someone had become angry at Terry. I felt that I had thrust Terry into something that was hurtful and meaningless to him. I desisted.

7/10/75 Terry didn't have his new watch that he had received for his birthday. He told me it was in his pocket (it wasn't); upstairs in the Red Room (it wasn't); at home (it wasn't-- I called). I had become increasingly angry as Terry had sent me on one wild goose chase after another. Finally, I became very angry--swore--slammed my fist into the table. Terry gayly laughed and mocked me--words and action. He gave a good imitation and was clearly very pleased with himself. He regarded me as cheerfully as if swearing were the lesson for the day and he had just given an outstanding performance for which he was to be congratulated. I stared into that and gave up on anger. Finally I said we were just going to sit at the table, and not do anything else. We sat a couple of minutes. Terry said, "Desk." "Is your watch in your desk?" "Yes." It was.

Still, most times during this summer were very good times.

Two occasions of special joy for Terry were his first trip to a woods and an excursion to a carnival.

7/15/75 Took Terry to LeBaugh Woods. He really enjoyed it. It was the first time he had ever been to a woods. He kept saying "Forest" as we drove to it. A little way into the woods Terry said "Jungle" and then beat on his chest and made a Tarzan-like "uh-uh-uh" call. Terry delighted in the woods. He stopped several times for a goodly spell just to look into the moving river. On one such occasion I sat with him watching the river. He brought my arm around him and he repeatedly asked me to sing various songs, especially Shenandoah. He had me sing Shenandoah clear through several times.

7/20/75 I had made arrangements to come by the Egan home in the evening to take Terry to the carnival. He was dressed really nicely and looked very sharp. He was standing waiting on the front porch with his mother and started hopping in happiness when he saw me. Mrs. Egan said as I came up, "He could hardly wait." We went galumping off. Terry asked for bits and pieces of "Oven" on the way. Terry was enthralled with the rides. He led me racing from one to another. We took one "Bomb-Pop" refreshment break, but spent most of two hours on rides. Terry much enjoyed himself. I walked him back home. He called for bits of "Oven" on the way. We said good-bye.

Language, Communicative Ability, and Cognition

During the first year that I worked with Terry, there were a number of changes in the way he communicated: there seemed to be far less immediate (but not delayed) echolalia, increased eye contact, an increase in spontaneous sentences, and greater willingness to use a sentence when requested to. (No formal measures were employed which would document such change.) Terry was actively, repeatedly urged to make eye contact as he spoke, and to use complete sentences, and he seemed to respond positively to this informal training. To offer a concrete example: Terry would typically say "Bathroom" when

he wanted to use the toilet. With prompting and encouragement (and with permission to go contingent upon compliance) he would elaborate his request to "Please may I use the bathroom?" Finally, he was told that he would have to initiate the request with a full sentence before he would be permitted to go--he would have to wait 5 minutes and try again if he first broached the matter by saying the single word.

The decrease in immediate echolalia was a spontaneous phenomena. By around June Terry no longer routinely repeated the exact words that someone had spoken to him and it became increasingly apparent when he did do so that it was either teasing behavior or a deliberately hostile "distancing" act. (With Terry this distinction was not always clear or meaningful.) The kind of difficulty Terry could--and often did--create is illustrated by the following dialogue:

4/29/75 Johanna gave Terry two caramels. I prompted Terry to say thank you.

Terry: "Thank you. You're welcome."

David: "No, Terry, you don't say the 'you're welcome.' Just say 'Thank you.'"

Terry: "Just say thank you."

David: "No, say 'thank you.'"

Terry: "Say thank you."

I took one of the caramels out of Terry's hand.

David: "Terry, if you want this caramel back you better figure out the right way to say it."

Terry: "Thank you!"

Terry's negativism could display itself in his use of language in other ways than echolalia. Deliberate, persistent error was a

favorite technique:

4/25/75 Terry often deliberately "plays dumb." If I tell him, "Say 'Hello' to me" he may answer, "Hello to me." From Terry's usual use of language at this point, and the relative paucity of immediate echolalia, it is clear that when Terry does something like this--especially when he persists in it--that his failure to comply is intentional. Also, there is a special blandness about Terry's expression and manner on such occasions that suggests the deadpan expression of the "silent screen" comedian. Today Terry kept insisting that a story about a dog was about a cat until I told him that since he apparently had not understood, he would just have to re-read the story. He then instantly corrected himself.

To compound the matter, Terry apparently often experienced genuine confusion regarding the most elementary aspects of language. He sometimes, for example, seemed genuinely unable to retrieve from memory the name of someone or something he saw daily. On frequent occasions when working with Terry his verbal responses were an unholy mixture of genuine confusion--disability--and deliberate provocative error. Such occasions could be extremely frustrating and trying. Humor sometimes helped: once when Terry refused to meet my eyes but remained with his gaze fixed on the table before him, I lay my face on the table and looked up at him. Terry laughed and the battle was over. Positive or negative reinforcement sometimes helped: a tickle, cajoling, the promise of a favored activity when the lesson was satisfactorily completed, or, on the negative side, a timeout period, a slap, threatened withdrawal of a privilege. I might simply sit and wait Terry out. He might change his behavior in response to a quiet, "Please, Terry." Sometimes an empathic insight or hunch paved the way: once Terry was refusing to simultaneously

look me in the eye and use a complete sentence to ask to go to the bathroom. It occurred to me that Terry might be feeling demeaned, unduly put upon. I thought that if I did for him what I was asking him to do for me his attitude might change. I said to Terry, "Look, I will show you how I want you to ask." He looked into my eyes immediately. I asked him for permission in a full sentence. He maintained eye contact and gave me the full sentence I wanted. While many different tacts could be effective, none was reliably so. And sometimes nothing worked. Terry's deliberate persistence in error was most pronounced when he was fatigued, or angry, or not feeling well, or upset for some reason. Wisdom dictated withdrawal from the lesson at such times. Infrequently I became caught up in the struggle and so intent on the lesson that I angrily persisted to the point that Terry became distraught. Such instances, however, were uncommon. On most days, during most lessons we managed to work together productively, and happily.

Both the psychodiagnostic test results and the experience of working with Terry, especially the experience with language training which took place in the next two years, convinced me that he had a major disability in the linguistic/cognitive areas, i.e., that his ability to learn to use language and to employ certain kinds of thought was grossly defective. In addition to a linguistic/cognitive impairment, however, Terry's thought processes seemed further impaired by emotional disturbance of psychotic proportions. During the first 6 months that I worked with Terry, he often confused the

names of persons that he knew very well. It seemed more that he had not clearly sorted the persons out or differentiated them, than a memory problem per se. This kind of confusion took place far less often as Terry began to really respond to and relate to persons around him. Terry's inner needs often seemed to take priority over his cognitive and perceptual processes and his behavior might become quite irrational as a result. The occasion in which he stood before a mailbox asking for a quarter to drop into it so that he could play "Rebound" is a particularly striking example of how removed from reality Terry's internal process could bring him.

In the first year of my experience with Terry I undertook no systematic language training, but much of what we did I hoped would contribute to his communicative ability. Initially I repeated things that he said, either in exact mimicry or with a different inflection. I spoke most of the time I was with him. Terry came to initiate and greatly enjoy a large variety of simple verbal games. These might consist of his merely telling me to sing the title of a song or a movie, or banter in some other nonsense way. This sort of verbal babble was clearly greatly valued by Terry and constantly initiated by him.

In reading lessons I often asked Terry to imitate me as I read a short phrase with exaggerated expressiveness. He often was able to do this quite successfully, although his own initial reading

would be atonal and mechanical sounding. Indeed, most of Terry's speech had a robot-like flatness, or a sing-song quality, and I would sometimes model more expressive speech and ask Terry to imitate me.

We often acted out fairy tales or Aesop's fables. Typically we would first read the story together. Then we would choose roles and I would act as stage director. I wanted to give Terry experience in pretending, in engaging in imaginative play, in having the experience of being dramatically expressive. If he were a lion, for example, he was to be a loud lion, a fearsome lion, and move like a lion. After initial resistance, Terry came to enjoy such play a great deal, although he displayed only limited spontaneity or originality.

Although there seemed to be some general improvement in Terry's communicative ability, really notable change was limited to a decrease of immediate echolalia and an increased willingness to try to communicate. Improvement in the use of expressive language seemed minimal. Terry's increasing cooperativeness also made it clear as never before that his comprehension of language was actually extremely poor, that behavior of his which at one time might have been interpreted or understood as "oppositional" was, in fact, often merely a reflection of Terry's complete confusion about what he was being asked to do. In sum, in the year I had spent working with him, Terry seemed to show greatest improvement in the emotional

and social areas, and least improvement in his use of language. It was this observation that led to the decision to do an extensive psychodiagnostic evaluation over the summer, and the findings of that evaluation led to an extensive program of language training which was to be the major focus of work with Terry in the following two years.

Academic Work

Academic work, per se, constituted a relatively small but significant part of the time that I spent with Terry. We often spent some time with the Plays for Echo Reading (Durrell & DeMilia, 1970) or a Programmed Reading book (Sullivan & Buchanan, 1968). I would occasionally work with Terry on arithmetic. I spent considerable time with Terry helping him to tell time. Especially useful was having Terry set the hands of a Judy Clock to correspond with announcements in the TV Guide of the hours that movies came on and went off the air. (Perusing the movie section of TV Guide was a favorite pasttime of Terry's.) While I was helping Terry to learn to read a clock I was also trying to help him develop a sense of time by letting him know that we would go to Damen Hall (a favorite activity) in 15 minutes, for example, or setting up a special treat for a day set in the future, and so on. I taught Terry to identify coins and add them in the context of his getting change that he needed to operate a machine to get a treat. I wanted Terry to have a strong sense of his own body and would touch him and name the body part or have him name it. I had him practice drawing a human figure.

We worked on right/left.

Finally, I worked with Terry on giving his name, age, address, and telephone number, in the hopes that he would identify himself if he wandered off (as he occasionally did).

Physical Education

Initially Terry was extremely weak physically. He was not an active child, and left to his own devices at recreational "free time" he would often merely sit or hunker on the ground and sift dirt through his hands. I began a systematic, progressively more demanding physical program. There were three major goals: development of Terry's physical strength and stamina; development of some skill and competency in the gross motor games children typically play; and development of physical confidence and adventurousness.

Terry was physically weak, grossly deficient vis-a-vis normal children in his ability to throw, catch, kick, and so on, and also extremely physically fearful and timid. I worked with Terry in a wide variety of ways: I would sometimes mock wrestle and playfight with him, trying to encourage him to have a sense of his own physical strength. I would have shoulder bumping contests as we walked down the street, taking care that he did not feel overpowered, but instead came to feel his own power. I would tease him into extending himself, model for him, challenge him, and applaud him. Often, the first efforts of a new endeavor were accomplished only by fiat: I insisted that Terry do a push-up or sit-up, or play catch, and

would not take "no" for an answer. Terry would typically offer some small gesture and I would accept it--and push for more on a subsequent occasion. Walks were always enjoyed by Terry, and I simply made it a point to go on progressively longer ones. Initially, Terry tired after a few blocks. By the end of the summer he could comfortably walk four miles. In physical activities, as in so many others, Terry's first reaction to anything new was usually strong resistance, although after a period of time he would very often begin to greatly enjoy the activity and spontaneously initiate it. It was a real pleasure to see Terry call for "Exercise!" or start up a game of catch, given the great resistance with which these activities had originally been met.

Terry was extremely fearful and timid physically. He was afraid to jump from even short heights, to climb, to catch. I think some of his resistance to play with other children stemmed from his physical fearfulness. (Terry could be physically dominated and chased by a child half his size.) Accordingly, I continually encouraged Terry to do more "daring" activities, eliciting and supporting them in every way I could. Terry did show definite improvement and got to the point where he might do something a little "adventurous" on his own initiative, such as walking atop a fallen tree trunk. Terry never approached the norm in these areas of physical activity, but there was substantial improvement, and Terry delighted in his new skills. In common with most autistic children, Terry displayed little physical competitiveness. It was

impossible to have a game of tag. Terry's attitude seemed to be that if you really did not want to be tagged, he did not want to tag you, and if you wanted to tag him, that was "O.K." However, Terry could really get into a chasing game when I pretended to be a goose: I would make loud "honking" sounds and form my hands into a large "duck's bill" which threatened to peck at him. Terry would delightedly run away from me. (At a later point he would also come to enjoy "turning the tables" occasionally and chasing me.) Even in this play, however, Terry performed as if in slow motion. There was not the quick darting and sharp turns that characterize normal children at such play.

I have absolutely no way of knowing this, but, for what it is worth, I think that Terry's growth in physical strength, skills, stamina, and confidence contributed very importantly to the happier, more relaxed state that he increasingly exhibited over the course of the year.

Music

Terry had a most unusual relationship to music. For the most part he acted as if it literally caused him pain. We might, for example, enter the Student Union and Terry's hands would go up to his ears to cut off the sound while he cried, "No music!" The piped music that was playing might be so soft that I had to stop, listen, and actively attend before I was aware of it. On the other hand, Terry had some favorite records and a few favorite songs. Also,

he showed a curious ambivalence about musical instruments, alternately approaching and withdrawing from them as if they both fascinated and frightened him.

I tried to give Terry gentle nudges on the positive side of this ambivalence. I often felt like singing when I walked with Terry and he inevitably cut me off after the first bar or two. Then it occurred to me to try singing Terry's name to him. I used my own improvised melody and sang Terry Egan Egan Egan Terry and so on. Terry, bless him, listened raptly. He came in time to request me to sing the titles of songs and movie titles, and, rarely, an entire song. We started to sing together using, at first, Dr. Seuss' ABC book. I brought musical instruments to Terry and brought Terry to musical instruments. Work on helping Terry to develop more positive feelings toward music was to continue for the next two years.

New Experience

I tried to broaden Terry's range of experience. I took him to his first movie (a qualified success) and introduced him to the woods (he was enchanted). Bowling, pinball, carnivals, buildings to explore, and so on were introduced to add variety and pleasure to Terry's life.

Social Development

As has been noted earlier, beginning about February Terry displayed a heightened and ever-increasing awareness of, and responsiveness toward, the adult workers at the Day School. He

began spontaneously greeting them, telling them goodbye, asking about them in their absence, and so on. There was also heightened awareness of the comings and goings of other children, and some increase in interaction with them. Terry's parents reported much heightened interaction at home, both with family members, and with neighborhood children.

Coordination of Efforts With Terry's Family

I first met with Mr. and Mrs. Egan in June, 1975. I would have met with them much sooner, except for my status as volunteer worker at the Day School. While the Day School used student volunteers extensively in work at the school with the children, involvement with parents was the prerogative of staff members. Hence, I chose to wait until I had worked with Terry a considerable period, and had had time to establish that I was undertaking my work with real seriousness of purpose, before I asked to meet with Mr. and Mrs. Egan. When I did ask, permission was readily granted.

In meeting with Terry's parents, I had several goals in mind: I wished to share with them the nature of the work that was being done with Terry at school; I wanted to learn of Terry's progress at home; I wanted to make suggestions about things that might be done at home to complement and support the efforts undertaken at school. These goals remained largely the same throughout the several years that I worked with Terry.

In retrospect, I recognize that my efforts with Terry's parents

were needlessly limited because I did not spend time working with Terry and themselves in the Egan home. My failure to do so was the product of my own total lack of experience in taking such an approach in clinical work and a lack of understanding, at the time, of the potential usefulness and importance of in-the-home involvement. Recent studies (Hemsley et al., 1978; Lovaas, 1978) have provided powerful demonstrations of the efficacy of work with parents and children undertaken in the family home, and such an approach, I believe, would have offered important advantages in the present instance.

During our initial meeting I informed Terry's parents of the kinds of things that I had been doing with Terry and changes that he had shown. I made a number of simple concrete suggestions about engaging with Terry at home. The suggestions included: touch Terry before and as you speak to him to seize his attention; introduce Terry to doing simple household chores and do not fetch and carry and pick-up after him--require him to assume ever greater personal responsibility; insist on complete sentences--do not accept one word or short phrase utterances; use prompts to help Terry achieve fuller communication; demand that Terry meet your eyes; have Terry close the bathroom door when he uses the toilet; take him on walks in the neighborhood; introduce him to simple household crafts, like using a hammer and nails.

In subsequent meetings over the summer I received feedback

on the success or problems encountered in carrying out my suggestions, and offered new ideas as seemed appropriate. Mr. and Mrs. Egan also had the opportunity to observe Terry and myself as we engaged in various work and play activities, and to join us in some of the activities.

I encouraged Mrs. Egan to develop her own style of physical play with Terry. Initially, I had had her observe through a one-way mirror as I played with Terry, and then observed from behind a mirror as she played with him. This proved an awkward and unhelpful arrangement: it maximized Mrs. Egan's self-consciousness and minimized my opportunity for immediate, on-the-spot coaching. I quickly discarded this modus operandi in favor of having the three of us interacting together. I would begin some vigorous body play with Terry, invite Mrs. Egan to join us and offer whatever coaching might be needed, and then gradually withdraw. This arrangement was comfortable and fun for all of us, and Mrs. Egan developed her own manner of playing with Terry that was a source of mutual delight. Prior to this, Terry had largely related to his mother through teasing and stubborn opposition, and their new capacity for giving and sharing high pleasure was of major importance to them both. At home, Terry came to often approach his mother for loving play. This was new and wonderful. In addition to the many short, playful interactions that Terry initiated, Mrs. Egan also began to set aside two 15-minute periods each day in which she devoted her attention exclusively to loving, playful interaction with Terry.

I often first taught Terry to do something at school, and then introduced the activity in joint session with Mr. and Mrs. Egan. This was the case, for example, with playing catch. While it had been a matter of months before Terry could be counted on to play catch on request, transfer of this activity to one that could be played at home with his father was accomplished through a single session at the Guidance Center. I simply began a game of catch with Terry, brought Mr. Egan into it, and, when the activity was well established, withdrew. Mr. Egan later informed me that he could engage Terry in a game of catch at home.

When I first discussed Terry's poor performance on the tests of language comprehension that I had given him, Mr. and Mrs. Egan found it difficult to believe that his understanding of language was as primitive as I depicted it. As a way of communicating more clearly the nature of Terry's problem, I administered the first half of Form B of the Boehm Test of Basic Concepts to Terry while they observed. (Normal children know virtually all of the concepts by age 6 or 7.) As he had on Form A, previously administered, Terry performed at a chance level. I also gave Terry a series of instructions about placing a pencil in, on, under, behind, and beside a plastic tumbler. When I intentionally eliminated all extralinguistic cues, Terry was at a loss to proceed, trying first one arrangement and then another as he studied my impassive face. When I repeated the instructions but added nods, smiles, "uh-uh's," and so on, he managed to use these cues to successfully perform many

of the instructions. This demonstration helped provide Terry's parents with a much better understanding of the severity of Terry's language deficit.

Toward the end of the summer an issue arose which caused strain in my relationship to Terry's parents and which proved to require continuing attention and discussion throughout the period of 4 years that I worked with Terry. I had, indeed, become important to Terry. He broadcast it. As Mrs. Egan told me, "The only one from school he talks about is 'David'." The child who had during most of his lifetime impassively ignored other persons was now a youngster who had stood on his front porch impatiently awaiting the arrival of "David," and who bounded into the air in his excitement when he saw his friend coming. Terry's robust investment in me was so striking--and such a radical departure from his earlier usual mode of behavior--that it gave Mr. Egan, especially, much serious concern: "Terry doesn't talk about Nancy Buckler or Bob O'Connor anymore. I think his investment in you has caused him to withdraw from others at school. I don't think that is good. And what will happen to Terry when you go?"

I offered my answer: that to bring Terry to take zest in the world you had to become important to him--that there was no way Terry could get better without someone being very important to him--that his intense attachment to me was a temporary but necessary phase--that the more Terry invested in me, the more he could and

would invest in others as well--that he was far more responsive already to other persons both at home and at school than he had been --that I would handle my leaving with care. I said my answers. But Mr. and Mrs. Egan's concerns remained real and deep.

Psychological Evaluation I (Summer, 1975)

Identifying data and purpose of assessment. Client: Terry Egan, born July 1, 1964. Purpose: Assessment of cognitive, linguistic, perceptual, and motoric functioning to aid in curriculum planning for academic year 1975-1976. Examiner: David Helm.

Dates examined and tests administered

5-12-75	Draw a Person
6-3-75	Peabody Picture Vocabulary Test
6-9-75	Wide Range Achievement Test
6-9-75	Wepman Auditory Discrimination Test
6-24-75	Raven Progressive Matrices (Colored)
6-26-75	Bender Gestalt
7-1-75	Auditory Perception-Sound Discrimination
7-2-75	Vineland Social Maturity Scale
7-10-75	Leiter International Performance Scale
7-14-75	Auditory Perception-Sound Discrimination-Complex
7-25-75	Gross Motor Coordination
8-11-75	Illinois Test of Psycholinguistic Ability
8-12-75	Wechsler Intelligence Scale for Children-Revised
8-26-75	Northwestern Syntax Screening Test
8-28-75	Engelmann-Basic Concept Inventory

8-29-75 Utah Test of Language Development
9-2-75 Frostig Developmental Test of Visual Perception
9-4-75 Test for Auditory Comprehension of Language
9-10-75 Boehm Test of Basic Concepts
10-29-75 Peabody Individual Achievement Test-Reading
Comprehension

Behavioral observations. Most examination dates fell within the approximately three-month period dating between June 3, 1975 and September 9, 1975, that is, within the month prior to and two months following Terry's eleventh birthday. Terry, a handsome, fair-skinned boy of medium build and height has previously been accorded diagnoses of "autism," "pseudo-autism," and "psychosis of childhood." The examiner had worked intensively with Terry since October, 1974. By the date of initial testing Terry had developed a strong positive relationship with the examiner and had come to typically work in a cooperative and serious manner on a variety of academic tasks. During testing also, Terry consistently worked in a sober, deliberate, and cooperative fashion, and clearly tried to do his best. Indeed, his efforts in this regard were so earnest that the examiner had to be constantly on guard against providing inadvertent cues through facial expression, direction of gaze, verbal praise, etc.

Test results

Intellectual functioning

1) Raven Progressive Matrices (Colored)

Raw Score: 24 Percentile: 25 I.Q.: 89

2) Leiter International Performance Scale

M.A.: 7-0 years I.Q.: 63 Adjusted I.Q.: 68

3) Wechsler Intelligence Scale for Children-Revised (WISC-R)

	Raw Score	Scale Score		Raw Score	Scale Score
Information	4	1	Picture Completion	16	7
Similarities	0	1	Picture Arrangement	16	6
Arithmetic	3	1	Block Design	25	9
Vocabulary	2	1	Object Assembly	21	9
Comprehension	0	1	Coding	20	2
(Digit Span)	9	(7) ^a	(Mazes)	7	(3) ^a

^aScore not used in computation of I.Q.

	<u>Scale Score</u>	<u>I.Q.</u>
Verbal	5	45
Performance	33	77
Full Scale	38	57

4) Peabody Picture Vocabulary Test, Form A (PPVT)

Raw Score: 54 Percentile: 1st M.A.: 5-9 I.Q.: 57

The range found between the various estimates of intellectual functioning is quite extraordinary. It is the examiner's opinion that these differences in test performance probably reliably estimate a differential capacity for coping with different kinds of intellectual challenge. Terry's performances on those tasks that do not require language tend to fall in the Borderline to Dull Normal range. His strongest performances were on the Raven and on the Block Design and Object Assembly subtests of the WISC-R. Picture Completion and

picture Arrangement require some social awareness for success and here Terry was relatively less successful. Terry's performance on Coding suffered because of an extreme concern to be both correct and neat--he worked exceedingly slowly. His poor performance on the mazes may have resulted from misunderstanding of the "rules," or a refusal to conform to them. His efforts on the mazes seemed atypically impulsive.

Terry's effort on the verbal subscales of the WISC-R was an almost unmitigated disaster. He appeared to be "trying," but also seemed to be at a total loss as to what he should be doing most of the time. The bizarre quality of many of Terry's responses may have appeared, in part, from his strong desire to say something--to try--even though he appeared not to have the slightest notion of what he was being asked to do. Many responses did, however, suggest a strong autistic quality, e.g., "Join the princess; I got rhythm" offered in answer to a request to say what "join" means. Terry's comparatively better performance on the Peabody Picture Vocabulary Test (vis-a-vis the Verbal subscales of the WISC) is probably due to the fact that success on this test is achieved through simple recognition or identification of a single verbal label (word). The linguistic testing described below revealed that to the extent that Terry has a linguistic strength, it lies in his vocabulary of nouns, verbs and adjectives.

Linguistic functioning

1) Northwestern Syntax Screening Test (NSST)

Receptive Language Score: 17^a Expressive Language Score:
10^b

^a10th percentile for children age 3-0 to 3-11

^bless than the 10th percentile for children age 3-0
to 3-11

2) Test for Auditory Comprehension of Language (TACL)

Raw Score: 64 Age equivalence: 3 years, 10 months

3) Illinois Test of Psycholinguistic Ability (ITPA)

<u>Representational Level (Age Scores in years and months)</u>					
<u>Auditory-Vocal</u>	<u>Raw</u>	<u>Age</u>	<u>Visual-Motor</u>	<u>Raw</u>	<u>Age</u>
	<u>Score</u>	<u>Equiv</u>		<u>Score</u>	<u>Equiv</u>
Auditory Reception	2	2-4	Visual Reception	23	7-1
Auditory Association	10	4-1	Visual Association	23	6-10
Verbal Expression	6	3-1	Manual Expression	29	9-2

Composite Psycholinguistic Age: 5-3

4) Utah Test of Language Development

Raw Score: 29 Language Age Equivalent: 6 years, 1 month

5) Basic Concept Inventory (BCI)

	<u>Errors</u>
Part 1	27
Part 2 Statement Repetitions	12
Part 2 Questions	13
Part 3	3
Total:	55

6) Boehm Test of Basic Concepts

	<u>Number Correct</u>	(Out of 25 in each part)
Form A, Part 1	9	
Form A, Part 2	2	
Form B, Part 1	11	

Terry appears to be severely handicapped in both receptive and expressive language, functioning in both of these areas as a child of about three and a half years, as determined by the Northwestern Syntax Screening Test (NSST) and the Test of Auditory Comprehension of Language (TACL). In concrete terms, testing revealed that Terry did not know the meaning of such words as "in," "on," "under," "not," "he," and "she." Both morphology and syntax are very weak. Terry's composite psycholinguistic age of 5 yrs. 3 mos. obtained on the Illinois Test of Psycholinguistics (ITPA) is misleadingly high inasmuch as most of his strength on that test reflected visual and motor skills. If only those subtests are considered which bear closest correspondence to actual receptive and expressive aural-oral skills (e.g., Auditory Reception, Auditory Association, Verbal Expression, Grammatical Closure), Terry's composite psycholinguistic age is 3 yrs. 5 mos., a finding in close agreement with the NSST and TACL. Similarly, Terry's Language-Age-Equivalent of 6 yrs. 1 mo., obtained on the Utah Test reflects this test's sampling of such abilities as sequential numbering, spelling, and "reading."

Terry's performance on the Basic Concept Inventory and the Boehm provides additional evidence that his understanding of even

the most basic verbal concepts (e.g., "between," "fewest," "middle," etc.) was extremely poor. The Basic Concept Inventory revealed that Terry did not know the meaning of the word "not" or "can"; he could not distinguish between past, present, and future tenses; he used "it," "he," and "she" interchangeably. Terry's performance on the Boehm never exceeded the level of success expected through chance. Terry succeeded in picking the correct picture (out of 3 possible) on only 4 items on both Form A and B, part 1, a rate of success that would be expected by chance. That is, Terry's performance on the Boehm makes it highly questionable that he knew any of the 50 concepts tested.

Perceptual, motor, and perceptual-motor functioning

1) Wepman Auditory Discrimination Test: 4 errors

2) ¹Auditory Perception-Sound Discrimination

Raw Score: 23

3) ¹Auditory Perception-Sound Discrimination-Complex

Raw Score: 23

4) Bender Gestalt: 9 errors (Koppitz scoring)

5) Draw-A-Person

6) Frostig Developmental Test of Visual Perception

	<u>Raw Score</u>	<u>Age Equivalent</u>
I Eye-Motor Coordination	13	6 yrs. 3 mos.
II Figure Ground	20*	+
III Form Constancy	11	7 yrs. 6 mos.
IV Position in Space	5	5 yrs. 6 mos.
V Spatial Relations	5	6 yrs. 6 mos.

*test ceiling; age equivalent is 8 yrs. 3 mos.

7) ¹Gross Motor Coordination: 1st percentile

¹These tests obtained from: Eli Rubin et al., Cognitive/Perceptual/Motor Dysfunction, 1972, Wayne State University Press, Detroit, Michigan.

While a score of 4 or more errors on the Wepman is considered indicative of "inadequate development," Terry's performances on the other two measures of auditory discrimination were well within normal limits. Accordingly, Terry's language difficulties would not seem attributable to deficiency in auditory discrimination.

Terry's drawing of a person of May, 1975 is of strikingly primitive quality. (It is interesting to compare his somewhat more elaborated drawing of a person obtained when the Utah Test was administered almost four months later.) The Bender protocol is also of very poor quality. Of nine scorable errors (Koppitz system) seven are considered "suggestive" of brain injury and one of these errors is reported found almost exclusively in the brain injured.

The Frostig protocol indicates that Terry's visual perception is generally much retarded, and that he has special difficulty in identifying differences in spatial position.

Terry's gross motor coordination, vis-a-vis his normal 11-year-old peers, seems to be very poor. This finding is in accord with this examiner's impressions formed from informal observation

of Terry's efforts at throwing, catching, running, kicking, etc.

Socialization and academic achievement

1) Vineland Social Maturity Scale

Raw Score: 60 Age Equivalent: 5.8 yrs. Social Quotient:
53

2) Wide Range Achievement Test (WRAT)

	<u>Grade Equiv.</u>	<u>Percentile</u>
Reading Score: 67	5.5	42
Spelling Score: 42	5.0	32
Arithmetic Score: 27	3.0	6

3) Peabody Individual Achievement Test

Reading Comprehension

Raw Score: 23 Grade Equiv.: 2.4 Percentile: 1st

Terry's "social maturity" as determined on the Vineland approximates that of a child of about age six. His academic achievement is surprisingly good given the manifold serious handicaps delineated in the total assessment procedure. It should be noted that the Wide Range Achievement Test reading test measures word attack skills only: e.g., this test measures a person's ability to successfully convert a visual symbol (printed word) into an auditory symbol (spoken word) without reference to meaning. Terry's reading comprehension is far below his word attack skills.

Overview. Probably the most striking finding in the present evaluation is the profound disability that Terry evinces in both receptive and expressive language. This finding, in conjunction with the extraordinary disparity between estimation of intellectual functioning derived from nonverbal versus verbal tests, suggests to this examiner that the best overall estimate of Terry's cognitive ability must be based on estimates drawn from nonverbal measures. That is, Terry's extremely poor performance on verbal measures of intelligence would seem to a major extent to be a function of a specific linguistic handicap. Hence, a verbal IQ measure does not provide a broadly valid indication of Terry's ability to plan, think, and problem-solve. Estimates of current intellectual functioning based on nonverbal measures fall in the Borderline to Dull Normal range. Terry's long-standing self-imposed autistic isolation appears to be slowly lifting, and his increased "commerce" with the world about him holds promise for increased effectiveness of intellectual functioning. Similarly, Terry seems increasingly more "realistic" in his thinking, and amelioration of psychotic thought processes would in itself likely contribute to advances in measured intellectual ability. It seems probable to this examiner that Terry's potential intellectual functioning (as based on nonverbal measures) lies well within the Normal range.

Testing also revealed major motor, perceptual, and motor-perceptual deficits. These findings, in conjunction with the extreme disparity found between performance on verbal and nonverbal

measures of intelligence, strongly suggest that some degree of central nervous system dysfunction is fundamental to Terry's typical development.

Given the severity and manifold nature of Terry's handicaps he has nevertheless obtained surprisingly advanced achievement in several academic areas. Finally, Terry's overall social development is very limited. Terry, for example, virtually never spontaneously engages in play with other children.

Recommendations. It is recommended that an intensive and extensive systematic program in language training be instituted. This should include daily lessons on the Distar Language I and the Peabody Language Development Kit--Level P, as well as daily individually tailored language lessons in areas of special weakness (e.g., pronouns). These lessons should include one or two other children both to provide a linguistic model and to promote socialization.

Verbal and conceptual skills should further be developed through daily lessons of the Bereiter Conceptual Skills Program and through daily adjunctive lessons using a variety of concrete materials. Again, other children should be included in these lessons whenever possible.

Visual-perceptual and motor-visual skills should be developed through thrice weekly lessons on Frostig work sheets as well as

through giving Terry extensive experience with such materials as pegboards, puzzlegrams, parquetry designs, design cubes, etc.

Gross motor skills should be developed by requiring and encouraging Terry to engage in the more generally popular physical play pasttimes such as throwing, catching, hitting a ball, "tag," basketball, et al. Again, every effort should be made to involve other children in these activities.

In addition to the above measures, Terry's peer socialization skills should be promoted through helping him join other children in play with a variety of table games.

Although major emphasis should be placed on the development of verbal, conceptual, and perceptual skills, Terry should continue to receive daily brief lessons in reading and arithmetic. Reading material should be primarily drawn from the MacMillan Programmed Reading series because of its major emphasis on reading comprehension.

Terry should be re-evaluated in a year in order to assess the effectiveness of the above suggested procedures.

Additional implications of test results. The following discussion will consider a few points that did not receive emphasis in the original report.

Terry's performance on both the Illinois Test of Psycholinguistic Ability and the Wechsler Intelligence Scale for Children revealed

that Terry was decidedly more impaired in the auditory-vocal than in the visual-spatial modalities. There is a strikingly close parallel between Terry's achievement on the WISC-R Performance Subscales (normal on Block Design and Object Assembly; impaired on Picture Completion and Picture Arrangement; retarded on Coding) and that found characteristic of autistic children (Lockyer & Rutter, 1970). His extremely poor achievement on the Verbal Subtests of the WISC-R with the exception of Digit Span--where a relative strength is displayed--is also highly characteristic of autistic children with severe language impairment (Bartak, Rutter, & Cox, 1975).

The single most important practical result of the test findings was the stark clarity with which they revealed Terry's grossly impaired language comprehension. This had previously gone largely unrecognized, and this is a sufficiently important point to warrant discussion.

Examination of Terry's earlier clinical and school records over the years reveals that Terry was repeatedly and consistently described as having "good" or "excellent" receptive language. The only suggestion that this might not be the case appeared in a report at age 9 where it is noted that although Terry "has good receptive language, understands commands and directions. . . it is not as clear that he understands. . . more subtle verbalizations."

It is of interest to consider how it happened that a child,

who at age 11 barely had the comprehension of a three-year-old, could have been deemed for virtually all of his life to possess "good" or "excellent" receptive language. At this point in time, an explanation can only be conjectural. However, it seems likely that some or all of the following factors were involved:

1) For most of his life Terry was--or was considered to be--virtually untestable in any formal manner. When he did not perform in a testing situation there was a tendency to attribute this failure to negativism, rather than a lack of competence. This presumption of competence is especially clearly demonstrated in a report on him of March, 1971, which reads in part "Terry seems to have good receptive language but if tested on this to see how many commands he can follow, he fails to cooperate, resorting to a giggling fit or otherwise resisting." The assumption that an autistic child "could if he would" can be very misleading and some current evidence suggests that psychotic children may be most negative in those areas in which they have the greatest impairment (Alpern, 1967; Schopler, 1974).

2) It is possible that Terry's receptive language was implicitly compared against his expressive language. He seemed to understand some things, follow some directions, while his expressive language was largely limited to noncommunicative echolalia. Hence, in comparison to his almost nonexistent expressive ability, his receptive language may have appeared

"good."

3) It may be that Terry was implicitly compared with or against his age peers at the school--his classmates. Many of these children also had severe language problems and if they served as an implicit reference group Terry's deficits would not be so outstanding.

4) Finally, and probably most importantly, Terry did indeed seem to understand a good deal more language than the test results revealed that he did. It came as revelation--and a distinct surprise--to most persons that knew him well that Terry did not know the difference, for example, between in and on. It became clear that Terry, far from being single-mindedly "oppositional," typically made the best possible use of a wide variety of available situational cues in comprehending what was desired of him, e.g., he attended to the speaker's facial expression, gestures, tone of voice, the total situational context, and so on. This tended to mask the relative paucity of information that Terry obtained from the meaning of the spoken words per se. In testing Terry I learned early the extreme importance of not providing any extraneous cues: in presenting a test in which Terry had to respond by pointing to one of three or four pictures he initially tried to study the direction of my gaze to cue him regarding the correct answer. Terry was very open about this; he did not seem to have any self-consciousness about his

behavior or any sense of being involved in "cheating." He was simply trying to please, to do what was wanted.

Along with Terry making heavy reliance on extralinguistic cues, I believe a complementary process almost certainly took place--often on an unconscious level--in persons who were trying to communicate with him. That is, persons speaking to Terry were intent on helping him understand, and, as adults will with young children, tailored their communication so as to be maximally effective. Directions were kept simple; actions were suited to words; if Terry made a mis-move the tone of voice changed. All of this enhanced effective communication with Terry, but simultaneously tended to make his receptive deficit less immediately obvious.

The fact that judgments of a language-impaired child's receptive language may be seriously misleading if made outside of a formal assessment procedure where extralinguistic cues are eliminated has received increasing recognition in recent years (Curtiss, 1977; Rutter, 1978). The issue, however, is of fundamental importance and deserves emphasis.

In the course of my initial year's work with Terry he had made significant gains in the emotional and social spheres, but only limited gains with respect to language usage. The test results revealed for the first time the

grave deficit he had in even his receptive language. These findings led to the decision to introduce a comprehensive program of intensive language training in the next academic year (1975-76).

Test results also revealed serious deficits in Terry's perceptual and motor-perceptual skills, and it was decided to institute intensive training in these areas in the coming year.

In many respects, Terry's strongest performances among the many areas of functioning that were assayed had been displayed on tests of academic achievement. The major focus of work with Terry at the Day School in recent years had been in helping him to acquire the fundamentals of reading, spelling, writing, and arithmetic and Terry had made real progress in these areas. His achievement on the Reading subtest of the Wide Range Achievement Test was virtually age appropriate, an astounding performance in the light of his otherwise severe linguistic/cognitive deficits. In this regard it should be noted that a number of echolalic children exhibit competence at reading word-attack skills that is markedly superior to their general level of linguistic functioning (Huttenlocher & Huttenlocher, 1973), a condition first described by Silverberg and Silverberg (1967) who labeled the phenomenon "hyperlexia." In common with other "hyperlexic" children,

Terry's reading comprehension was far inferior to his word-attack skills.

Summary

Perhaps the first point that should be made is that my involvement with Terry constituted only a small portion of the total therapeutic effort that was being made with him, both at the Loyola Day School and in his home. Terry had been supported and helped by a loving family throughout his life, and by caring and skilled professional workers and volunteers at the Loyola Guidance Center and (later) School since age three and a half. My log, and this report, primarily reflects only that aspect of work with Terry with which I am most personally knowledgeable--my personal experience with him.

It did appear that in this first year that I worked with Terry that there was an acceleration of emotional growth, especially in the areas of relating to and reaching out toward adults who were caring for him, as well as some small signs of increased interest in other children. Also, it seemed that Terry appeared to be much more relaxed, happy, "adventurous" and outgoing than he had been, and much more cooperative. There appeared to be wide agreement regarding these changes among persons who knew Terry well. In early June of 1975 a Guidance Center psychologist who had known Terry since age 3½, remarked that Terry looked "at ease, in a sustained way, for a larger period of time than I can ever remember seeing

him." In the end-of-summer school evaluation of August, 1975 made by school personnel, it was noted that Terry "shows more interest in participating than previously" and that he displayed "considerable growth in interpersonal skills and interest in relating to others." Terry's parents also reported significant change of the same general nature.

There is no definitive way of knowing to what extent--if any--my personal involvement with Terry contributed to these changes. However, many of the changes did seem to be related to, and to grow out of, experiences that Terry and I were sharing. In the final analysis, of course, Terry's growth was a product of the entire matrix of experience that was provided him, both at home and at school.

To the extent that my personal involvement with Terry may have made a special contribution to his accelerated emotional growth, I would personally attribute it primarily to the intensity of my involvement with him, both in terms of the mutual emotional involvement that developed between us, and the sheer quantity of hours that we spent together. Although my way of working with Terry involved certain aspects that were peculiar to me, my broad general approach, involving as it did playful affective arousal plus efforts to help Terry develop a variety of social competencies, was not, in principle, very different from the work that had been ongoing for years. The intensity of my involvement, however, was unique to Terry's experience.

When I met him, Terry appeared to be a child who was gravely emotionally disturbed. He seemed very unhappy, withdrawn, "spacy." For the most part he kept to himself, and seemed to prefer it that way. During the first 3 or 4 months that I worked with him, Terry seemed to be actually making it a point to deny or conceal my importance to him. The first overt indications that I mattered at all to Terry were brief flashes of jealousy that he displayed, which revealed a depth of feeling that believ his usual mien of complete indifference. It was as if Terry guarded and fought against emotional involvement with me, and also against showing any sign of such. Trust and attachment were entered into grudgingly, and the smallest sign of positive feeling toward me seemed to be presented to me as if it were the rarest, most precious jewel. I think Terry has a great capacity for emotional hurt, to experience pain through emotional disappointment. And he moved into relationship with exquisite slowness to guard against the possibility of hurt.

These are, I know, only personal impressions. But it was with such impressions I worked and fashioned my own responses to Terry, so I share them.

My primary initial goal was to become important to Terry and I tried to do this by providing him with as much pleasure as I could. I played with him much as I might a two-year-old. There were hours of piggyback rides, "Horsey," tickling, "Oven," "Trouble," and so on, all activities involving extensive physical contact. I

tried to engage in a way that would delight him: I horseplayed, played the clown, "hammed it up," dramatized what I was doing. I gave my sense of humor free reign and found that Terry quite enjoyed it. I brought a great deal of energy and exhuberance to our interactions.

I expressed my love forcefully to Terry, both in physical hugs and kisses and in words. I felt that such expression was to Terry as water is to a parched plant. It is not that Terry was not, or had not been, loved--he was. Yet he guarded himself against it. It needed to be powerfully insistent before he began to freely experience it and acknowledge it.

I told Terry of my sadness when he slammed his head. His head-banging seemed to be an expression of anguish when he was unhappy beyond endurance. There was a definite decrease in this behavior from a rate of about once every week or two to about once every 2 months during the course of the year. Terry's head-banging did not seem to be a bid for attention, per se, as may be the case with some autistic children (cf. Lovass, Freitag, Gold, & Kassorla, 1965) and, indeed, the last time head-banging occurred during the year under discussion, Terry was alone. Terry seemed to understand and appreciate my concern, and I think that my expression of feelings contributed to the decrease in self-injury that was observed. (This kind of effect was inadvertently observed in a study by DeMyer and Ferster, 1962.)

In working with Terry I found that my expression of my feelings

tended to powerfully influence him, at least after the "thawing" that took place around February-March. A hug, a kiss, the words "Good work" or "Congratulations" proved to be powerful reinforcers. Terry sought them and reveled in them.

As noted earlier, around February Terry's emotional reserve and feigned indifference began to rapidly evaporate. A shift toward greater emotional investment in me, openly expressed, was begun, which by summer achieved dramatic proportions. By the beginning of summer Terry appeared much happier and relaxed than he had in the previous fall and winter. He displayed a new and delightful sense of humor. On a number of occasions he spontaneously hugged or kissed me, or told me he loved me, or sought a hug or kiss from me, or "tucked himself in" to my lap and arms. He was more self-assertive in a positive sense. He began to show keen pleasure and pride in his new accomplishments and even engage in a bit of "showing off." And, interestingly, he began to complain of pain if he accidentally skinned his knee or otherwise hurt himself--something that he had never done previously.

An additional area in which Terry displayed growth was with respect to generosity. I often asked Terry for a sip of a drink that I had bought him. I did this to try to foster sharing in Terry. I never insisted and always left it entirely to Terry as to whether he would comply with my request. Initially, he always refused and, at first, took the precaution of moving the drink

away from me, or even gulping it down to assure that he got it all. In time, however, Terry would give me a sip when he had quite quenched his own thirst. Later, he would of his own volition occasionally offer me a sip of his drink when he clearly was not finished with it. In many such interactions with Terry my role was far afield from that of the traditional therapist who is at pains not to ask a client to meet the therapist's needs and much closer to the role of parent who seeks to build social, less egocentric responses in a child. I felt it important to communicate many of my feelings and "needs" to Terry so that, hopefully, he would begin to appreciate and respect the independent existence of the "other."

I had a great sense of Terry as an independent soul who was following his own light. Because the lack of neurological integrity of many autistic children sometimes went unrecognized in the past, it has become somewhat fashionable to disparage workers who see autistic children as "mysterious," "special," holding some private inner "secrets," and so on. I do not want to be--or appear--hopelessly naive or romantic, but I can fully appreciate the feelings of workers who have sensed special depths in autistic children. Terry seemed to move out of a private space with its own very special --and fiercely maintained--integrity. He was not a soul to be taken lightly. I am not out of touch with the fact that Terry was--in my judgment--gravely impaired neurologically and seriously disturbed emotionally. But within this damaged structure was a highly independent being trying in his own way to follow his own star. Or so

it seems to me.

I was impressed that when I asked Terry, "Terry, who do I love?," he always answered first, "David," then "Nancy," and finally, "Terry." It was as if he were signaling that he could sort my priorities and he would not pretend with me that he was first. Of course, there was an element of teasing in this behavior. And yet. . .

Finally, it is necessary to consider Terry's negativism and "oppositional tendencies." One might say briefly and most simply that over the course of the year there was a marked decrease in negativism and that Terry was increasingly tractable and cooperative. This is true, as far as it goes, but fails to consider the nuances of what I came to regard as highly complex, multi-faceted behavior.

Initially, Terry was highly resistant to doing anything other than exactly what he wanted to do. It was as if he felt that his personal integrity was at stake and that to accede to me was to lose all authority over his own life. To do what I asked was to yield, and he only grudgingly moved into a space where we both seemed to share the feeling that it was reasonable for him to do something I asked him to. In March, as described in the Log, we had something of a pivotal encounter. It was as if we both knew implicitly that we were heading toward some kind of showdown. Was Terry's will to do something only as and when he wanted to, to be absolute? We took different sides on this critical issue. It took us months before

the issue could be framed in this manner, and offer the possibility of constructive resolution. I feel that if I had pushed too hard too fast I would have risked Terry rejecting me, and my efforts to enter his life, with finality. And what moved Terry and motivated him to work learn, change, and grow was finally a product of "love" he felt for me and pleasure in the relationship he had with me. And yet if I had not pushed at the time that I had, I am afraid that Terry would have entered and remained in a prolonged, perhaps indefinitely maintained stasis within which there would have been only minimal growth and change. I am impressed that after our "battle royal" Terry addressed me by name for the first time since the first couple of weeks that we had known one another--and this although I had often specifically asked him to. It was as if Terry needed the battle--needed the "defeat"--but could tolerate it and grow from it at the point that it took place. (Similarly pivotal confrontations are described by many other workers (cf. Gianscol, 1973a; Itard, 1972; Witmer, 1919, 1973).

Terry was most likely to be negativistic under certain predictable circumstances: he felt ill; he was fatigued; he was being asked to work on exceptionally difficult material, especially involving language. However, he often was oppositional in an impish fashion, seemingly being oppositional for its own sake. This could be lightly playful, in an almost affectionately teasing or joking fashion, or, at the other extreme, in a mocking and deliberately infuriating manner. I learned, to my chagrin, that the sight of me

losing my temper could be powerfully reinforcing to Terry. If he were angry at me and resistant, he had powerful weapons to bring to bear, a dead-pan echolalia not the least of them. Working with Terry's resistance--around it, through it, in spite of it--proved to be a perennial issue.

While psychodynamic considerations strongly influenced my approach to Terry--notably my conviction that he needed to develop a strong positive relationship and in my sensitivity to the nuances of Terry's emotional state--my interventions with Terry were equally influenced by considerations stemming from principles of behavior therapy and social learning theory. The account presented earlier in which I succeeded in teaching Terry to play catch with another child involved contingent reinforcement, physical and verbal prompts, step-by-step approximations toward the final goal (shaping), and, finally, the fading of prompts. If I found, for example, that Terry was afraid to jump from a three-foot ledge, then my thought would be: "How can I help him accomplish this?" I would think of the many ways that the task might be modified so that it would be less threatening and he could develop confidence and competence. For example, he might jump from a lower height, or jump into sand, or jump into my arms, or jump holding my hand, or jump from a sitting position and then a squatting position, and then a stooping position, and so on. There would be hugs and celebrations as different subgoals were achieved. I would not push the situation (or try not to) to the point where fear, fatigue, boredom, or irritability set in, but

would apply enough pressure or persuasion so that progress could be made. I would gradually remove supporting elements as I could, and introduce new and more challenging ones, e.g., jumping with another child, or landing on the far side of a drawn line. Work with Terry was a constant process of noting what he could not do and trying to arrange his experience so that he could come to do it. My familiarity with such standard behavioral procedures as careful assessment of deficits and the application of a rational systematic program of intervention to achieve particular desired goals was a major stimulus for the evaluation carried out during the summer and the adoption of a carefully drawn up program of cognitive, linguistic, perceptual, and social training to be carried out in the following year.

It may be useful to make explicit note at this point of the fact that because the particular goals, methods of intervention, time and emphasis accorded various activities, problems encountered, and so on, varied considerably over the period of years during which the study was conducted, no attempt was made to fit the description of all 3 years work into a single, identical, conceptual framework. For this reason the discussion sections of the 3 years of the study differ somewhat in the specific topics selected for focus, and in the treatment of topics. The three major assessments that were undertaken during the summer of each year of the study, however, make possible a systematic comparison over time of Terry's functioning in a wide variety of areas. Such comparison is provided in detail in the discussions of results of the assessments of the second and third

year of the study.

CHAPTER VII

THE SECOND YEAR: AGE 11-3 TO 12-2 (SEPTEMBER, 1975 TO AUGUST, 1976)

A Brief Synopsis

Terry experienced an abrupt change in his Day School program when school commenced in September, 1975. Previously, major emphasis had been placed on the more traditional academic subjects: reading, arithmetic, spelling, printing. Now time spent on those subjects was, in toto, relegated to less than an hour each day. The bulk of Terry's time was instead spent in a variety of language lessons, with heavy reliance being placed on a variety of commercially available programs: Distar I, Peabody Language Development Kit-Level P, and the Conceptual Skills Program, among them. Secondary emphasis was placed on training motor-perceptual skills employing a variety of materials, such as parquetry, design cubes, pegboard designs, Tangrams, and so on.

Training and practice of physical skills involved in the common schoolyard games continued, and Terry also spent half an hour each day in a scheduled session playing a table game with another child.

In September a volunteer, Sylvia Garcia, was assigned to work exclusively with Terry, and in February, two additional volunteers, Terry Smith and Ross Kosinski, were similarly assigned. Terry grew extremely fond of each of these persons and they came to play a very important role in his emotional life, as well as being directly responsible for providing the bulk of the training he received.

At home, Terry's mother provided some language training and his older brother Bill took it on himself to help Terry work with puzzles and learn games, often with the assistance of Brian, the youngest child in the family.

Toward the latter part of the school year (about July) Terry's day at school was extended from 3 PM to 5 PM to afford the opportunity for additional training.

The year was an extraordinarily good one for Terry. In an unexpected development it turned out that he truly loved the Distar I lessons and often greatly enjoyed the other language lessons. He came to love and delight in his volunteers. He occasionally initiated games with favored adults and, in rare instances, with children. He was usually happy, even gay, and exhibited a lively sense of humor. His self-destructive behavior was greatly reduced, and he did not bang his head at school at all during the year.

Terry made substantial gains in a number of areas over the year. In the assessment that took place in the summer of 1976 Terry demonstrated significant improvement on tests of nonverbal intelligence and perceptual-motor skills. He achieved a gain of the equivalent of about one psycholinguistic year on most of the measures of language ability that were used in his assessment.

Social-Emotional Development

Emotional tone and ability to cope with stress. Terry displayed new self-confidence, assertiveness, and risk-taking behavior during the

course of the year. For the first time he assumed the role of honking goose and chased the therapist. If being chased, he made greater efforts to elude or fight back. He grew more physically adventurous, whether in an outing in the woods or exploring the backstage of a theatre. He began--in little ways--to stand up for himself with other children. He took pleasure in occasionally showing off.

For the most part, Terry appeared fairly happy. He engaged in a playful, loving, and humorous fashion with a number of favored adults. Eye contact was good. There were fewer occasions of acute upset, and Terry did not bang his head at school at all during this year. (Several incidents of headbanging took place at Terry's home, in each instance following shortly upon Terry's having blood drawn in a test for lead--an extremely stressful procedure for Terry.) He repeatedly instigated his own idiosyncratic modes of play with adults--simple word play, singing phrases, the sound effects and touch play of "Goose," "Roast," "Zog--Monster from Outer Space," and so on, and "Squeeze" (a kind of affectionate nuzzling in which both persons squeezed their eyes shut and Terry brought the adults forehead into contact with his own). Terry also showed real interest in more traditional kinds of play such as bouncing a basketball and playing catch, and often began these activities on his own initiative.

Terry had shown the first signs of pubescence (genital enlargement) at about the time of his eleventh birthday, and had marked pubertal development (moderately heavy growth of pubic hair) by age 11½. These physical changes may have contributed to his enthusiasm for a form of

play which he called "bump dance" in which he vigorously bumped hips with female coordinators and room volunteers that he liked. His cry for a "Bump dance!" had a wonderful quality of openness and ingenuous exuberance, and he was rarely denied his request. Toward the end of the year, Terry displayed interest in and some attachment to several female volunteers who were not regularly assigned to him and when he arrived at school in the morning would typically make a bee-line for them.

Terry's ability and willingness to attend, concentrate, work, and cooperatively apply himself continued to improve notably. A striking example of the gains he made in these respects was his steady performance over a 3-hour period when his language was assessed in August by a speech pathologist at Stritch Hospital.

Terry still typically responded to unpleasant aspects of reality by distorting and denying it. When told something that he did not want to hear he would often simply cover his ears or say "No___!" as if that would correct the situation. Terry did this even in instances where it should have been completely clear that the speaker had no control over the event being discussed. A disappointment or rebuke could cause Terry to shatter, that is to abruptly break into red-faced, inconsolable wailing.

Although Terry generally appeared fairly happy and at peace with the world, there were signs that this equilibrium was delicately balanced. He was presented with a heavy work schedule and, at times, he

rebelled in blatant or subtle ways. When an extended day (Terry remained after school from 3 PM to 5 PM each day) was introduced, there was a sharp emergence of "bratty" behavior and signs of distress, both at home and school. (In time, Terry came to generally look forward to this addition to his day and expressed a preference that it continue.) Even more telling was Terry's reaction when there was any appreciable reduction in the number of hours that one of his workers spent with him. Under such circumstances he tended to become "spacey," withdrawn, and depressed. He appeared for all practical purposes to be inconsolable, and additional efforts by workers on hand did little to remedy the situation. Terry--slow and resistant to forming attachments--came to invest real depth of feeling in those workers assigned to him. But when circumstances interrupted those contacts, Terry's sense of psychological well-being appeared deeply shaken.

Relationship with peers. Terry showed some real interest in playing with other children. This interest was sporadic and often did not result in the kind of happy experience that would have been reinforcing. Sometimes his overtures were accepted, as when he approached D___ and asked, "Please may I play?" but more often Terry was rejected by the other children as a playmate. Play with other children typically went satisfactorily when it was a supervised, structured part of the school day. Such experience was built into Terry's program and other children cooperated in it. However, in "free time," children tended to group themselves according to their own inclinations, and Terry was often rejected--or neglected--as a play partner. Terry's feelings could be

easily hurt, and his attempts to involve himself with other children were far from persistent, thus making the situation all the more difficult.

On one occasion Terry sat in the lap of a child one year his junior when he felt the need for comforting. Although this child, and other children, sporadically offered some contact to Terry, this was very much the exception rather than the rule. Terry did have limited but generally positive contact with one other child, an autistic boy two years his junior. Terry repeatedly tickled, playfully chased this child, and asked for a "squeeze," and the youngster accepted these attentions with good-natured giggling. The relationship did not advance beyond this "chase and tickle" play.

At home Terry was reported as talking about children from school, and playing a variety of games with children in the family and from the neighborhood. It may well be that the normal children of Terry's home environment were more tolerant of his strange ways and handicaps than were his behaviorally disturbed classmates at school.

Relationship with adult volunteers. An extremely important development during this year was the introduction into Terry's life of several volunteer teacher-aides who came to develop relationships with him that were of great importance to him. Sylvia Garcia began work in September, Ross Kosinski and Terry Smith began in February, and Barbara Rajkowski began in June. While in each case the relationship developed quite slowly, in time Terry came to invest himself deeply.

These relationships broadened Terry's emotional experience and served to help attenuate the extreme intensity of Terry's involvement with me. Each of these persons brought themselves, and their personal way of loving and caring to Terry and the gains he displayed are largely attributable to their involvement.

Relationship with therapist. In September I assumed the position of Blue Room Coordinator and no longer engaged exclusively with Terry. Initially, Terry seemed very upset and hurt, but these feelings appeared to disappear in time. I introduced a formal weekly 30 minute play therapy session with Terry, so that we could have a regular time devoted exclusively to his pleasure. In these sessions Terry often blew bubbles, or used a dart gun or balloon to pop bubbles I blew. He also enjoyed using an Easy Bake Oven and building simple structures with Lincoln Logs.

As the year went on, Terry seemed to have less intense investment in me, as his relationship with his volunteers grew in depth. This was manifested in a variety of ways: he "shooed" me off when he was with one of his favorites: I would not be the first person he sought out on his arrival, and so on. Also his tolerance for my displaying affection to other children increased--there were fewer jealous outbursts.

Over the course of the year there was a shift in the manner in which Terry and I typically engaged, most notably a decrease in physical contact and an increase in various kinds of simple verbal play. Terry, for example, would repeatedly ask me to sing short phrases and movie

titles and sometimes sing with me.

During the summer, issues of oppositional behavior and negativism were very much an issue between Terry and myself. Clearly, Terry was often entertained by my reactions to his negative behavior and often called for favorite admonishments in the spirit of pure play. He would, for example, prompt me to say "What do you mean, no?" or banter with me by saying "the!" to which I was suppose to respond, "Not the--this!" Of course, other factors than Terry's pleasure at seeing me "climb the wall" were involved: Terry was being pushed to do a great deal of work and sometimes he flatly rebelled. I did not want Terry to bang his head and volunteers were instructed to be careful not to push him too hard. When the volunteers assigned to him were having special trouble with him "goofing off" or refusing to work, I would be called in to trouble-shoot. Often this meant helping to redefine the task presented Terry so that it was easier or more fun. Sometimes it meant simply lending the weight of my authority to that of the volunteer and insisting Terry get to work. In this manner I came to represent something of a taskmaster to Terry. During the summer I often covered the hours of volunteers who were working or on vacation. At times I was simply spending too much time working with Terry, and tensions grew. Notwithstanding the occasional flareups, however, Terry was for the most part doing an extraordinary amount of work with remarkable patience.

Language and Cognitive Training

I had no background in language disorders or language training and--at that time--the Day School did not have a language therapist on

the staff. Rather than trying to create from scratch my own broad approach to language training, and to avoid the necessity of having to devise a half-dozen language lesson plans each day, I decided to rely in the main on pre-packaged commercially-available programs.

Terry's language handicaps were so diverse, severe, and pervasive that it seemed advisable to mount an intensive and widely diversified approach to language training in the hope that the variety of procedures employed would reinforce and complement one another. Each day Terry had a (group) lesson from each of the following programs: Distar Language I and Distar Language I, Revised Edition (Engelmann & Osborn, 1976), Peabody Language Development Kit-Level P (Dunn, Horton, & Smith, 1968), and the Conceptual Skills Program, Second Language Edition (Bereiter, Regan, Forrester, & Anderson, 1970). Further, Terry received individual lessons each day from Pictures and Patterns Revised Edition (Frostig, Horne, & Miller, 1972), the Learning to Think (Thurstone, 1972) series, and oral drill based on the Sullivan Associates Programmed Readers, 3rd ed. (Sullivan & Buchanan, 1968). Finally, I worked with Terry once a day in a session in which I employed sequence cards, same and different cards, sequence beads, and other materials, and also had one lesson each day on personal pronouns.

Terry's language training was thus diversified in that some lessons were individual, while others took place in small groups. Different children were involved in the several groups, and both group and individual lessons were taught by a number of different volunteers and conducted in several different locations in the school. It was hoped

that these variations would add interest to Terry's day, and also promote generalization.

Although it is not possible to describe all the language training procedures used with Terry in great detail, it may be useful to note some of the advantages offered by the various programs that were employed, and modifications that proved helpful. Both individual and group lessons offered their own special advantages. In a group lesson a child is not always "on"--he has the opportunity of listening to another child respond, at least on occasion. A child who has a linguistic strength in a particular area may be used as a model. The child also sees his language-handicapped peers struggling and working; he may not feel so isolated with his handicap. In the group, a disruptive or negativistic child may be ignored while the teacher attends to those children that are responding. This lack of attention is often experienced as mildly adverse and the disruptive child may start attending and responding again. Also, the children may, with guidance, interact with each other; engagement is not limited to adult-child exchanges. Group sessions have disadvantages in that maintaining order and securing the attention of several handicapped children who have serious emotional and behavioral problems can be extremely difficult and trying. It is a challenging task to conduct lessons with children of somewhat varying linguistic handicaps such that all children benefit. When unison responding is employed great care must be taken to ensure that every child is responding, and responding correctly. Individual sessions have the advantage of permitting concentrated effort in the

precise areas that the child most needs practice, and making it easy to adjust the flow of the lesson so as to be maximally sensitive to the child's linguistic needs. Such lessons, however, are especially taxing and tiring for the child, and offer no opportunity for peer conversational exchange.

Terry had always been especially negativistic when I had tried to work with him on language, and I anticipated that he would offer massive and sustained resistance to his newly scheduled language training activities. To my surprise this proved not to be the case.

I tried to induce a pleasurable state of expectancy in Terry by telling him that I was going to show him something and ask him to talk about it (the Distar Placement Test), and that I would be helping him to learn to talk better. I deliberately presented it (the Placement Test) as something that he would enjoy, but that we could not do for a few days. Terry seemed genuinely pleased about the idea of learning to speak better and looked forward to the "talk" with happy anticipation. When I did give Terry the Distar Placement Test, it was love at first sight.

The Distar Language Program is a carefully sequenced, highly structured program which begins at a primitive language level of simple naming and progresses to use of such relatively complex cognitive/linguistic concepts as same/different and multiple classification. Terry was truly enthusiastic about the Distar lessons from the very first one. He was crushed if a lesson had to be canceled. His fascination with the

materials was such that he occasionally slipped away during his free time to peruse the lesson books (and Teacher's Manual!). Throughout the two years that the lessons were presented, Terry would adopt favorite parts of them for games between the two of us when we were taking a walk or otherwise enjoying free time. "Name the parts of a car," he would challenge, or ask me "Why does a lamp have a shade?" Then it would be my turn to ask him a question.

I believe that several factors were responsible for the remarkable acceptance of the Distar program by Terry (and other children). First, the lessons are carefully structured and start at a primitive level and build in complexity only very gradually. The illustrations are engaging. And the format calls for the children to make their initial responses in imitation of the teacher. Thus the lessons exploited the one linguistic strength that Terry might be said to possess: his ability to repeat--or "echo"--what he had just heard. Finally, I (and other persons I subsequently trained) presented the lessons with great gusto, humor, and verve. I mugged, shouted, whispered, groaned, hopped up and down, gesticulated, and, in general, "hammed it up" shamelessly. The children in the lesson were often reacting with the same keen pleasurable excitement that they might at a Punch and Judy show. And they learned.

Highly detailed instructions are provided for the presentation of the Distar lessons and these instructions and procedures in themselves constitute a formidable introduction to good teaching technique. To the extent possible, I followed the format as presented; I departed from it

however, if something proved unworkable. In particular, I found that I would not achieve unison responding at a signal. Instead, I simply attended carefully and made sure that each member of the group was indeed "getting the idea" of the particular material being presented. I also occasionally supplemented the Distar lessons by using additional concrete objects while employing the standard Distar method of presentation. Thus, for example, I might use a wastepaper basket and a table while teaching on and under, or, for that matter, have one child stand on the table or crawl under it, while the other children responded to my direction. Although the Distar Teacher's Manual specifies that the lessons are to be presented in a lively, vigorous fashion, the extremely playful and clowning presentation I employed was an adaptation of the style of developmental play therapy (pioneered by DesLauriers and Carlson) which I customarily used when engaging with Terry.

Initially only one other child shared the first Distar lessons with Terry, but in time the group grew to four. When the revised version of Distar I came on the market in April, Terry and the other children were begun on it, while they continued lessons with the original edition. This provided very useful review and reinforcement.

The Peabody Language Development Kits (PLDK) provide instructions and materials for a variety of lessons focusing on reception, expression, and conceptualization, with special emphasis on oral language development. The PDK-Level P proved useful, and children found the materials highly appealing. However, the lessons are not sequenced as tightly and systematically as the Distar. More innovation was required in

presenting lessons, and the lack of massive, repetitive drill--a hallmark of the Distar--proved a real disadvantage with our severely language-impaired children.

The Conceptual Skills Program is described by its author as "primarily a thinking program, not a language program." It includes practice in following and giving instructions, asking questions, and working with such aspects of relationship as sameness and difference, incongruities and irrelevancies, definitions, class concepts, and consequences. This program proved to be a real diamond--in the rough. It was extremely valuable in providing children with the opportunity to interact with one another, to provide practice not only in following instructions, but in giving instructions and asking questions. (Indeed, I adopted some of the procedures from this program to the Distar: rather than merely instructing the children what to do with the Distar Take-Home Worksheets, I helped the children learn to instruct one another, and to ask the "child-teacher" what to do.) A small practical drawback to this program is that lessons are presented in a very brief, outline fashion. While posing no handicap to a trained teacher, student volunteers had considerable difficulty in presenting effective lessons unless they received considerable assistance. The "Second Language" edition of this program is designed for children for whom English is a second language and this edition proved admirably suited to the language-impaired children at the Day School.

The Pictures and Patterns Books, Revised Edition, provides training both in motor-perceptual skills and basic school readiness concepts.

The lessons are well planned and Terry enjoyed these workbooks a good deal.

The Learning to Think series was very helpful. At first Terry found the lessons very difficult and resisted working with these books. On one eventful day, however, he began to "get the idea" and did 35 pages in succession, as if they were so much candy. Subsequently, they became favorites. We went through the series twice; the second time Terry was required to explain what he was doing. For example, if Terry marked two pictures as "going together" he had to put into words why they went together.

In the individual language lessons I worked with Terry on correct use of the words boy/girl and he/she. I used a variety of pictures, and gave Terry considerable practice repeating the word that I modeled before he was asked to perform without a model. This resulted in a kind of "errorless learning" and was a way of learning language that was tolerated well by Terry. Indeed, after Terry had repeated what I said a number of times he tended to begin anticipating me, and in effect thereby signaled when he was starting to understand what was required of him. This method of errorless learning, in which Terry had merely to passively follow the model repeatedly presented him, became a technique that I was to employ extensively throughout the period of intensive learning training. Such errorless learning markedly reduces frustration and has had demonstrated effectiveness with autistic and retarded children (Hamblin et al., 1971).

I also worked with Terry on the words "in" and "on," employing a variety of objects. I used sequence beads first to help Terry learn to label certain qualities (size, shape, and color) and then to learn the use of the concepts (and words) "same" and "different." After Terry could readily name correctly the attributes of a single bead, he might, for example, be given six beads which were identical except for the fact that five were red and one was blue. I would pick out the blue bead and say "This one is different." Terry would repeat it. I would then indicate the red beads: "These are red." Terry would repeat. Then I would indicate the blue: "This is blue." And so on. When Terry could do this kind of task successfully I reduced the number of beads in the group and finally would use two cubes and ask a series of questions for which I modeled the answers, e.g., "Are they the same color?" "Yes, they are the same color. They are both blue." "Are they the same size?" "No, they are not the same size. One is large and one is small." Finally, with much practice and in a series of graded, sequential steps, Terry could be given two beads and report accurately to the effect that "They are the same color and same shape. They are not the same size. They are different because one is large and one is small."

I worked with Terry on the personal pronouns I/you and my/your with the help of two Day School children with normal language ability. These two children were boys who often teased Terry and he was frightened of them. I hoped that by employing them as teacher's aides more benign interactions might develop, and this indeed happened to a

considerable extent. Although lessons were conducted in a variety of ways, I would typically employ one child as model and another as promptor. One method was to deal the children playing cards. One of my most moving moments in working with Terry came during the course of one of these lessons:

12/10/75 Terry was finally learning to use "I" and "you." I held a playing card: "What do I have?" I would ask. Initially either E _____ or H _____ would first model the correct response, "You have a _____ (whatever I was holding)." I would then ask Terry and he would imitate the answer that he had just heard the other boy give. I alternated this with dealing the boys cards and asking each in turn, "What do you have?" The youngster would reply "I have a _____," affording a model for Terry's reply when it became his turn. Terry was really starting to get the idea and I had come to the point where I started switching rapidly back and forth between the two kinds of questions and giving questions mostly to Terry. That is, he was beginning to no longer need the immediate modeling of one of the other boys. He was beginning to "get it." For the first time Terry was showing evidence of really sorting out and understanding the use of "I" and "you." Abruptly Terry interrupted the flow of the lesson and interjected, speaking with great seriousness, "I love you." He was staring intently into my eyes. I was momentarily silent, still. He repeated the words as if intent on my receiving the message. It was as if the use and meaning of the two words were finally becoming clear and he took the opportunity to put his new mastery to his own special use. I was stunned. "Thank you. I love you too."

There were many possible variations on this lesson. I might, for example, ask the model a series of such questions before I asked Terry to respond. The model might be instructed to emphasize the pronoun or to point to himself or another person as he spoke the pronoun. Similarly, I might hold a card out in front of myself and ask "What do I have?" Models and promptors would again help Terry to successful responding. Finally, and most difficult, I would deal a single card, face up, to Terry and myself. He might have to respond to either the question

"What do I have?" or "What do you have?"

Although Terry came to be successful on these tasks while a lesson was in progress, he seemed to lose his hard won gain shortly after the session ended. Terry continued to often (not always) reverse pronouns. He often avoided the issue by using proper names. While he would usually employ "I" when asking for something, he would generally substitute his own first name rather than use the word "me." He reserved the name "Terry" for himself and always spoke of, or addressed, Terry Smith by both first and last name. When using proper names Terry never confused his name with that of another person, although he would sometimes misname the person he was addressing.

The first year of intensive language training was a year of revelation for those of us who were trying to teach Terry language. We learned that lessons could be presented in such a manner that Terry would enjoy them and work long and hard. We found that Terry learned progressively more quickly and effectively as the lessons continued. Simple verbal distinctions and labeling that required months of daily effort when training began could later be acquired by Terry in a matter of weeks and--at a point still further in his training--in a few days. Such accelerated learning curves are often observed (Hamblin et al., 1971; Lovaas, 1977). And we also had our first hard lessons that language laboriously, painstakingly taught to and acquired by Terry tended--at least in the first--to be forgotten if it were not reviewed. It had been somewhat disheartening to find that Terry--when assessed during the summer--was responding randomly to the words he/she

and in/on, when these had been among the first successes and early fruit of months of effort in the preceding winter and spring. The necessity of repeatedly reviewing successfully accomplished new language acquisition became very evident, and such periodic review became an established part of Terry's training.

Use of Language

For all of his undoubted enthusiasm for many of his language lessons, and the gains reflected in the second summer assessment, Terry's spontaneous use of language remained primitive. He did not try to explain or share his experiences. He asked few questions. Unless there was constant monitoring and adult intervention, verbalizations were telegraphic or stereotypic. Instead of the single word "bathroom" Terry might routinely say "Please-may-I-go-to-the-bathroom?" but having mastered that successful formula, he never altered its wording.

Terry did delight in various kinds of word play during this year and choose to engage in it almost constantly. Some of it was derived from the Distar lessons and Terry and I entertained each other by asking (and answering) such questions as "What are the parts of a ___?" and "Why does a ___ have a ___?" At other times our banter might reflect some of our common exchanges when Terry was being oppositional during a lesson, or my singing a movie title on request. I often (not always) had a definite, prescribed role in such exchanges and Terry was insistent when this was the case that I respond according to formula, often modeling the words to cue me, if I forgot or made a mistake.

Terry did seem to comprehend better what was said to him. There was some beginning ability and willingness to use language to talk about his experience, as exemplified in the following instance when he discussed being hit by a snowball:

1/20/76 L___ and I were walking together returning from the park. Terry was 10 feet behind us and E___ was 8 feet behind Terry. Suddenly Terry wailed, cried, and showed extreme upset. At the time Terry would not give me any answer when I asked him what was the matter. About 3½ hours later, well after he had calmed down and the episode was behind him, I decided to try to speak to Terry about it again.

"Do you remember coming back from the part, how you cried?"

"No!" (Terry showed upset and clearly did not want to discuss the matter.)

"It's important. I want to talk to you about it. What happened?"

"Back."

"What about your back?"

"Snow."

"Did snow hit your back?"

"Yes."

"Did it hurt?"

"No."

"It didn't hurt you, Terry?"

"No."

"If it didn't hurt you, Terry, why did you scream and cry so?"

"Upset."

I suggested it might be better if Terry did not get so upset. Terry agreed. We touched foreheads, met eyes, smiled.

This was the first time that I had ever been able to effectively talk with Terry about something that had upset him earlier.

At home Terry was reported to have spontaneously picked up the telephone and said "Hello," and had seemed to begin to make some sense out of the sound on television shows.

During the course of language training with Terry in this year some problems became apparent that had not gained attention earlier.

Terry was noted to sometimes make a delayed response to stimuli, such that his comment was appropriate to an earlier situation rather than the context in which he uttered it. When asked to briefly describe a series of pictures he was being shown he would, for example, sometimes offer comment appropriate to the previously viewed and discarded picture while looking at, and to all appearances trying to describe, the new picture now held in his hand. When doing this there was no suggestion of "teasing" and he seemed to have no awareness of the incongruity between his verbal report and the picture he was holding and ostensibly trying to describe. There were other kinds of situations, also, in which Terry was blithely indifferent to any correspondence between his verbal report and objective reality. Terry often gave arbitrary and wrong answers to questions to which he well knew the correct answer. Sometimes his answer seemed to be a reflection of how he would prefer things to be; sometimes it seemed as if he felt the first thing that popped into his head was a fully adequate response--that there was no need to concern himself with an objective reality. Terry seemed to treat many questions as people in general tend to treat the inquiry "How do you do?" that is an invitation to say something, rather than as a request for specific, accurate information. In many such instances Terry could and did come up with the correct answer when pressed to do so. Also, in common with normal nursery school age children (Glucksberg et al., 1975) Terry would often cheerfully and confidently "answer" questions regarding matters about which he was complete uninformed. Special effort was made to teach Terry to say "I don't know" in such situations, but often he seemed quite unaware of the fact that

he didn't know.

A constant effort was made to help Terry put the new linguistic structures that he was acquiring in his formal language lessons to use in his daily activities. Thus, Terry was encouraged to speak in sentences, to report on what other children were doing, and so on. While Terry typically responded cooperatively to such prompting, his spontaneous verbalizations, as noted above, remained very limited.

Motor-Perceptual Training

During the year Terry spent approximately 20 minutes each day on a lesson from the Frostig Pictures and Patterns books, Revised Edition, and 20 minutes working with a variety of such materials as design cubes, parquetry, mazes, pegboard designs, Tangram pieces, and other puzzles of all sorts. He enjoyed parquetry from the first, but initially resisted work with the other materials. Two workbooks from the Fitzhugh Plus Program, Book 101: Shape Matching, and Book 104: Shape Analysis and Sequencing (Fitzhugh & Fitzhugh, 1976, 1979) proved very useful.

When Terry first began work with the motor-perceptual materials it was necessary to work with him constantly, urging him to try, arranging pieces so it was easy for him to see their relationship, and so on. We strove to create a situation where there was challenge for Terry, but challenge of a level he was capable of mastering. Over the course of the year, Terry became quite adept in these tasks, would work independently, came to genuinely enjoy such activities, and often sought them out on his own initiative.

Academic Work

While work on reading, arithmetic, spelling, and writing was limited in toto to less than an hour a day, Terry still managed to maintain his skills in these areas, and even make a little progress. During the year Terry was able, for the first time, to add simple sums in his head. Previously, to add 5 plus 3, for example, Terry had to make a series of hatch marks, viz., $///// \quad ///$, and then count the total array of marks to obtain the sum.

In September Terry began on the Programmed Reader Series. He enjoyed these books when lessons were confined to reading aloud and filling in blanks. We tried to use the books to train comprehension as well, however, and Terry resisted answering questions about what he had read. To induce his participation it was necessary to ask extremely broad, simple, and concrete questions. Going beyond this, it was often necessary to suggest alternative answers that he might choose, or provide hints and cues. Terry, with all possible help provided, found answering "comprehension" questions very hard work, and very frustrating. He displayed marked signs of upset if more than one or two such questions were presented per page of material.

Involvement of Volunteer Teacher-Aides

My own assignment to work exclusively with Terry as a volunteer the previous year had been something of an experiment. In the past, volunteers had worked with all of the children in the room rather than being assigned to work exclusively with one child. I had been impressed with the intensity of attachment that had developed between Terry and

myself and arranged to have several volunteers assigned to work exclusively with Terry under my direct supervision.

I hoped that Terry's volunteers would form warm, close relationships with Terry, while helping him to acquire language and other skills. Volunteers were taught to touch, tickle, and hug Terry, and to adopt the playful, and stimulating manner of presenting lessons that I employed with him. I spent considerable time overseeing the presentation of lessons when volunteers first began working with Terry. It was important that lessons not merely be playful, but also that they be presented in a manner that was conducive to learning. Typically, training was accomplished by having the volunteer observe me as I gave a lesson and then gradually having the volunteer assume the role of teacher as I withdrew. Initially training usually took place over the course of a couple of months and I continued to observe on the order of once a week until it was evident that the volunteer had a secure grasp of their role. The large bulk of all training was accomplished by student volunteers.

When a new person was introduced to Terry as a volunteer, he would give them the "cold shoulder" for weeks. During this stage volunteers tended to feel bad, feel that they were somehow doing something "wrong," and envy me my special status with Terry, who made no bones about his attachment to me. I had to repeatedly reassure the new volunteer that he or she was doing fine, and that in time Terry would accept them. He did.

As noted earlier several of the volunteers came to be of great emotional importance to Terry. His personal universe of persons who meant a great deal to him expanded dramatically during this year. Terry took great delight and happiness in his new friends and the overall success of this year owes more, in my judgment, to these relationships than to any other single thing. Terry's attachment, however, had a double edge: when it was not possible for his volunteers to see him, or it was necessary for them to reduce hours, Terry could experience sharp loss and show serious signs of depression, withdrawal, apathy, and even disorientation.

Coordination of Efforts with Terry's Family

Mrs. Egan observed language lessons with Terry as well as a variety of other school activities on a number of occasions over the course of the year. Both of Terry's parents met with Terry and myself in the evening several times for more of this kind of sharing. I taught Mrs. Egan ways to work with Terry on language and she worked with him at home, using materials I provided, when circumstances permitted. I had sent a large collection of motor-perceptual materials home with Terry and I was informed that other children in the family often used these with Terry. Bill Egan, Terry's older brother by two years, took it on himself to work with Terry, helping him to learn to play and enjoy a variety of games. Mrs. Egan was also given the opportunity to observe on several occasions as Terry was being tested during the course of the re-assessment undertaken during the summer. In these ways school and home were mutually apprized of goals, progress, and problems, and efforts were coordinated.

Highlights of Psychological Evaluation II

A broad re-assessment of Terry's functioning was undertaken during the summer of 1976. Standard psychological tests were administered by graduate interns in clinical psychology and results are reported in full in Appendix II. More specialized assessments were undertaken by three speech pathologists and complete reports of these examinations are presented in Appendix III.

Briefly, the major findings included the following:

1. A gain on measures of non-verbal IQ, notably a 20-point gain in IQ on the Leiter and 19 points gain on the WISC-R Performance Scale.
2. Marked gain in perceptual-motor functioning as reflected in improved performance on the Bender Gestalt and Frostig Developmental Test of Visual Perception. Superior performance was accorded on the Children's Embedded Figures Test.
3. No change in reading, arithmetic, and spelling ability.
4. Substantial gain in comprehension of basic concepts as assessed by performance on the Boehm Test of Basic Concepts and the Basic Concept Inventory.
5. A gain of between approximately six months and two years of estimated psycholinguistic ability on most tests of expressive and receptive language administered.
6. Spontaneous use of language as assessed by a Developmental Sentence Analysis was revealed to be markedly inferior to performance level on structured tests of expressive language.

This analysis further revealed

- a) Terry's spontaneous language was no more grammatically complex than that of a normal child of barely age two.
- b) Eighty percent of Terry's utterances had to be eliminated from the sample because they were completely irrelevant to the situation, echoed, or unintelligible.
- c) There was a high frequency of semantic error.
- d) Terry's language was not merely delayed, but highly deviant.
- e) Terry's primary deficits appeared to be in language comprehension and in motivation to use language.

All of the above findings are discussed in the reports referred to and are also considered in greater detail in conjunction with the presentation of the results of the third and final comprehensive evaluation found in Chapter VIII.

The assessment findings revealed that Terry had made important gains with respect to nonverbal intellectual functioning, motor-perceptual functioning, and aspects of his understanding and use of language. The intensive systematic training that Terry had received during the preceding year had been designed to promote just such growth. A program for the coming year was designed in which cognitive/linguistic training would continue to receive primary emphasis. Training with perceptual materials would be de-emphasized while somewhat greater time and attention would be given to the basic academic subjects of reading (specially comprehension), arithmetic, writing, and spelling.

CHAPTER VIII

THE THIRD YEAR: AGE 12-3 TO 13-2 (SEPTEMBER, 1976 TO AUGUST, 1977)

A Brief Synopsis

During this year Terry spent a 40-hour week at the Loyola Day School, with a little over 4 hours each day given over to a formal language lessons. He also continued to receive instruction in traditional academic subjects. For the most part Terry enjoyed his lessons, and took pride in his new learning. During the course of this year, for the first time, he began to ask to take workbooks home when he had completed them.

For the most part, Terry appeared happy. He took great pleasure in his favorite volunteers, and showed an active interest in many of the young women volunteers at the school. He began to show some fledgling signs of empathy and consideration for other person's feelings. He occasionally joined other children during group play, and took special delight in one younger autistic boy. While in general Terry displayed increased social interest and interaction, there was a distinct diminution of the intensity of his engagement with me personally.

Terry made marked gains in physical stature, strength, and coordination. He learned to ride a skateboard and a bicycle, and markedly improved in his skills in basketball, softball, and swimming.

Terry's language comprehension definitely seemed to improve. He

began to listen to television with the sound on, rather than off. He began to play records on his phonograph with the music at low volume. His expressive language continued to be sparse, telegraphic, stereotypic, and error-filled. However, there was somewhat greater effort and ability to communicate: he might, for instance, now inform us if he was feeling ill. The formal assessment of the summer of 1977 revealed significant gains in both receptive and expressive language.

Social-Emotional Development

In many ways Terry's social-emotional development during this year appeared to be a smooth progressive growth in trends evident during the proceeding year. For the most part, he appeared happy, even very happy, taking special pleasure both in his relationships with favorite adults and in his own accomplishments. For a brief period in December, Terry was brought to school a half-hour early for an additional work period and evinced signs of considerable stress. One of the three times that he headbanged at school occurred during this period, and he showed numerous other signs of upset both at home and school. Terry's parents refused to permit him to come early after two weeks. At the time I wanted a longer trial period, remembering that Terry had taken several weeks to become accustomed to staying after school until 5 p.m. In retrospect, it is clear to me that Mr. and Mrs. Egan made the correct decision. The small gain in potential teaching time did not begin to compensate for the sharp increase in stress that Terry seemed to be experiencing.

Terry's relationship with his volunteers--especially those four persons who had begun work with him the previous year--ripened and

deepened. On rare occasions he displayed small signs of consideration for some other person's feelings, as when he "made up" to me after he had refused to work. He was much more tolerant of tardiness or occasional absence of a volunteer (or myself), although he could become very upset if several such disappointments occurred in a short time span.

Terry seemed to have a lengthening time frame and to become more able to accommodate to phenomena that were not concrete or immediate. He could, for example, accept more peacefully an explanation that a favored adult would be on vacation for a week, or apparently derive real comfort from a telephone conversation with a volunteer who could not come to school at the expected time. He began saving greeting cards and letters he received whereas earlier he had shown no interest in a card after he had seen it. In several such ways it appeared as if Terry's phenomenal experience had become less apparently disconnected and discontinuous.

Terry continued to show some interest in play with other children, although he still preferred his own company for the most part. His special fondness for the younger autistic boy remained in full force, with Terry often approaching the child asking for a "squeeze" or demanding the child to "name the parts of an eye," etc.

Signs of increased socialization were also much in evidence at Terry's home, where he participated far more fully in both family and neighborhood activities. Reported robust participation in family celebrations and in a neighborhood block party were definite high points,

rather than typical behavior, yet his degree of involvement in these events was completely unparalleled in earlier years.

There were other changes: during this year it was noted that Terry had virtually stopped all masturbatory activity in public, and he sometimes displayed some modesty in dressing. Smelling of objects disappeared. Terry had been permitted to take increasingly longer trips on campus unaccompanied and it had become routine for him to cross from one end of the campus to another on his own.

Terry's facial features and expression could appear disconcertingly different at various times. That is, most times Terry's physiogamy suggested alertness and intelligence and was reasonably attractive. However, his face could also assume an expression that would give him the appearance of a prototypical village idiot, looking markedly retarded and/or bizarre. Occasions of tension and self-consciousness could lead to prolonged "rubbering" and "mugging" of features. It was remarkable how Terry's appearance could vary from that of an apparently normal, attractive youth to one suggesting marked impairment and disturbance.

Terry's relationship with me developed along lines that had evinced themselves the preceding year. He now rarely asked for the vigorous kinds of physical play that had filled our first year, but instead spent countless hours in simple verbal play with me, asking me to sing-song titles or play "opposites" and so on. While I was a very important support person for Terry, and the person he would most likely call out for if frightened or upset, I was definitely not "top banana" when it came

to spending leisure time. Terry was clearly moving well away from the extreme intimacy and emotional dependency that had characterized our first year together. I fostered this movement, celebrated it--and had some moments of private personal wistfulness because of it.

What was most noteworthy about Terry this year was the general sense of happiness, confidence, and self-pride that he exuded. He could be so happy about learning something in a language lesson that he would bite his hand in excitement. He rode a skateboard with elan and would proudly show off his new ability to ride a bicycle. He asked for and took home completed work books. He displayed a delightful sense of humor, which had a quality that was somehow simultaneously lovingly innocent and teasingly provocative--a kind of adolescent Harpo Marx. He was a delight to be with, and he delighted in the world about him.

Coordination of Efforts with Terry's Family

During this year I saw Mrs. Egan about once a month, and met with both parents every several months. Meetings were largely given over to sharing with one another what was happening with Terry at home and school. Mrs. Egan also observed weekly language lessons that Terry received at the Northwestern University Language Clinic during February and March, and also again observed some of Terry's assessment sessions during the summer.

My relationship with Mr. and Mrs. Egan--at least as I experienced it--was a mix of warmth, mutual support, and tension. On the one hand we all wanted much the same kinds of things for Terry and recognized,

appreciated, and respected the contributions that each was making to Terry's life and growth. On the other hand, we had some sharp differences of opinion about what--in given concrete instances--was best for Terry or reasonable to expect the family to do. I had an intense involvement with Terry and tended to think of family life as something that could and should be shaped into a kind of therapeutic milieu, while Mr. and Mrs. Egan maintained a perspective that emphasized that Terry was but one member of a much larger family. In retrospect it seems that I was forever concerned about whether Terry was receiving sufficient time and training at home while Terry's parents were concerned that other family members not be neglected in the cause of providing for Terry's special needs. Clearly there is value and validity to both perspectives, but Terry's parents' and my position on these issues was at sufficient odds to at times generate considerable tension and some conflict.

Terry's family--parents and siblings--provided him a consistently supportive and loving home. Yet Terry could and would sit aimlessly at home for long periods--even as he would at school--unless there was active intervention. While Terry was never neglected there was considerable fluctuations in the amount of active involvement, attention, and training that he received. Caring for the needs of a large family is taxing and time-consuming and realistically Mrs. Egan found it difficult to consistently find periods of time to systematically work with Terry. In the year under discussion, moreover, four of the Egan children married. Under such circumstances it is little wonder that Terry's home

training often took a back seat to other family exigencies. Moreover, Mr. and Mrs. Egan were well aware of the demanding nature of Terry's schedule at school and were dubious about the wisdom of giving him a good deal of additional "work" at home as well. There was a good deal of casual, loving, playful contact provided Terry by his family. And--at times--and to varying degrees--Terry received systematic training in a number of areas.

In March of 1977 I prepared some written materials outlining some of Terry's needs and procedures that might be used at home (see Appendix VI). Mr. and Mrs. Egan received copies and the suggestions served as a basis for discussion. We had planned for another psychology intern to work with Mrs. Egan in the Egan home for a period of time to help Mrs. Egan further develop her skills in working with Terry, but these plans were not implemented because of a variety of unexpected circumstances. While I could have assumed such a role myself, I was concerned that my already very intense involvement with Terry might make such an action on my part seem unduly and unpleasantly intrusive. Hindsight--in its helpful way--suggests to me that my providing training in the home could have been comfortably received if I had offered it in the earliest stage of work with Terry. In my judgment my failure to do so was my gravest error of omission in my approach to work with Terry. While work with the parents and autistic child in the home is relatively commonplace now, it was something of a rarity at the time I began work with Terry. And, initially, I was too immured in the traditional model of providing services at a clinic for the

idea of home sessions to even occur to me. Since systematic in-the-home training and follow-up was not carried out, it is problematic as to the extent that these recommendations were actually implemented. Other workers (Kozloff, 1973; Lovass, 1977) have found extensive in-the-home training of parents to be an indispensable condition for parents to successfully learn and use many specialized techniques of behavioral intervention and language training.

Motor Skills

Terry experienced a growth spurt associated with puberty and gained considerably in size and strength during the year. His coordination improved and he began to display real enjoyment and pride in some physical activities that one or two years earlier he had adamantly eschewed. His abilities at basketball and softball notably improved and he might be induced to play for ten minutes at a stretch. He continued to display greater physical adventurousness, for example, occasionally choosing to climb over something that he might have walked around. He began to learn to swim (could dog-paddle 30 feet) and learned to ride a skateboard and a bicycle.

Terry continued to need special help with new motor tasks. He spent considerable time on a skateboard going around the edge of a room with his hands on the wall, or holding the arm of a person walking beside him, before he was ready to venture an attempt without an aid. I had asked a volunteer to teach Terry to ride a bicycle and the volunteer reported back that the task has proved impossible: Terry was so afraid that he dropped his feet off the pedals and planted them

firmly on the ground before the bicycle was even in motion. The solution to this impasse proved simple. Two persons were employed, one on either side of Terry. The helpers placed one hand on the saddle and one hand on the handlebar and positioned themselves near the handlebar where Terry could most easily see them and be aware of their presence. Thus reassured against a fall, Terry placed his feet back on the pedals and training began. Long-winded volunteers thus ran along side Terry for short 10-minute sessions provided daily over the course of a couple of weeks. In a series of graduated steps, the volunteers moved further to the rear of the bicycle so that they were not as fully visible, gradually relaxed their hold on the bicycle, held their hands just above the handlebars for brief moments and then for increasingly longer periods, and, in short, gradually "faded" their presence and involvement. Once Terry had acquired sufficient balance to navigate the bicycle on his own, he was not deterred by an occasional spill.

Once or twice a week a volunteer worked with Terry on a variety of crafts and construction projects. Terry loved to make simple things and took considerable pleasure and pride in his productions.

In April of 1977 I administered the Frostig Movement Skills Test Battery to obtain an objective basis of comparison of Terry's physical skills vis-a-vis normal 12-year-olds. On this test Terry proved to have normal ability in Hand-Eye Coordination, Visually Guided Movement, and Flexibility. He was one standard deviation below the mean on Balance, and two standard deviations below the mean on Strength.

Academic Work

Terry spent an average of about $1\frac{1}{2}$ - 2 hours in toto each day on reading, writing, and arithmetic. The Programmed Reader Series (Sullivan & Buchanan, 1968) was the principle reading text employed. Terry enjoyed these readers and because of their profuse illustrations they lent themselves readily to both work on reading comprehension and language comprehension. It was easy to ask Terry a question that could be answered by reference to the text, an illustration, or both.

The primary tool for teaching arithmetic was the Structural Arithmetic Kits 1 and 2 (Stern, Stern, & Gould, 1965). These kits provide a child with wooden cubes and blocks which can be used to concretely "workout" or illustrate arithmetic operations. These materials were a great success with Terry. He very much enjoyed the lessons and definitely seemed to gain in his understanding of what simple arithmetic operations were all about. The Structural Arithmetic program also introduced Terry to simple thought problems. On occasion Terry took turns with his volunteer in assuming the role of teacher and thus got experience in asking questions as well as answering them. For additional computational practice, two workbooks were employed: Modern School Mathematics: Structure and Use, Revised Ed. (Duncan, Capps, Dolciani, Quest, & Zweng, 1972), and Mathematics Grade 1 and 2 (Adler, 1965). Special attention was given to helping Terry learn the value of coins and be able to count money. To reinforce training at school, he was required to count out the money he needed when he wanted to make a small purchase on an outing.

The primary text employed for written English was The Art of Writing (Hughes, Bereiter, & Gurren, 1970), while Catching On (Bereiter, Hughes, & Anderson, 1972) proved very valuable both in terms of written English and reading comprehension.

The Dubnoff Cursive Handwriting Program (Dubnoff, Chambers, & Collen, 1972) was introduced early in the year, and work with this program was one of Terry's most favorite activities. He developed a clear and attractive (if fairly large) cursive handwriting style.

As noted in more detail in the Psychological Evaluation, Terry exhibited a gain of about one-half grade in reading, spelling, and arithmetic for the year.

Language and Cognitive Training: An Overview

During this year Terry spent over twenty hours each week in formal lessons involving training in language, cognition, and communication. A large number of different lesson plans and approaches were employed simultaneously, making it very difficult to briefly characterize this work. Ideas were drawn from many sources, and some techniques were developed in the course of working with Terry. Too, Terry's receptive and expressive language abilities were slowly but steadily improving, permitting and requiring changes in teaching techniques over time.

Before considering in greater detail some of the component parts of the language and cognitive training that was undertaken, it may be useful to first briefly review some of the broad principles and approaches to lesson presentation that were found useful and often employed in

the course of the work.

As was noted earlier, Terry participated in both individual and group lessons, in a variety of settings with a number of volunteer teachers. This was done to relieve boredom, to promote generalization (Harris, 1975), and because individual lessons permit precise tailoring of a lesson to a child's needs (Blank & Soloman, 1968) while group lessons provide the opportunity for peer interaction and peer modeling (Ross, 1971).

The volunteer teachers assigned to Terry divided their time between working with him and playing with him to facilitate the development of a strong positive relationship. In time strong emotional bonding took place between Terry and his primary teachers and Terry looked forward to the arrival of his teachers with keen anticipation.

An effort was made to introduce an element of humor and playfulness into the lessons. The teacher might, for example, suggest that he was going to try to "fool" the group and then feign dismay when the children "caught" him (Bereiter, & Engelmann, undated).

The value of "errorless learning" in reducing frustration and promoting language acquisition has already been noted, and this technique was used extensively, especially when new language elements were introduced. The level of difficulty of the lessons was adjusted on an ad lib basis according to whether it seemed more effective at the moment to insist on progress or to relax demands. Although Terry often responded favorably to pressure for better performance, a miscalculation

could precipitate marked upset and conflict. Hamblin et al. (1971) found it useful to present a demand only once and if a child failed to respond, to systematically substitute a different task. These workers also systematically ignored, rather than corrected, "mistakes" which were clearly the result of oppositional behavior. Both of these techniques were employed with Terry on occasion, but not routinely. It is a moot point, but it is possible that systematic use of these techniques may have permitted Terry to make similar progress with fewer occasions of conflict.

In Terry's early training extensive use was made of simple and representative material objects in presenting lessons and illustrating words. Demands upon Terry often involved some physical action on his part rather than a verbal response. Thus Terry might be shown several containers and a ball and asked to "pick up the one that was different." Non-verbal responses tended to be easier for Terry than verbal responses, and he enjoyed making them, so that they could be used as necessary to relieve stress by reducing the level of demand in the presentation of a lesson. Typically, many exemplars of a concept that was being taught were employed, a procedure found advantageous by Haywood and Switzky (1974). The integration of visual perception, auditory perception, and motoric action (Frostig, 1975) was fundamental to Terry's early training, although it became possible at a later point to conduct some lessons without visual referent or motoric involvement. Eisonen (1972) suggests that it is most efficient to first establish representational-symbolic behavior (e.g., ability to match, sort, categorize, identify

the "different," and so on) through the visual modality. This approach was used with Terry. In the early stages of training, for example, he had merely to cross out a picture that was different from others. As training progressed he had to name aloud the different objects. At a still later point he had to say in what way the pictured object was different. In the later stages of training he might have cards with the name of objects presented him, while in the final stage of this training he became capable of attending while 3 or 4 words were presented orally and successfully identifying which word was different and telling why. In the first year of language training purely auditory lessons without benefit of visual or motoric accompaniment were effectively impossible to conduct and without benefit. During the second year of training such lessons comprised a minor but important part of Terry's training.

In his ninth and tenth year Terry had often chosen to communicate in a crude fashion by writing a word or two on a blackboard by his desk. Written cue words were often introduced into lessons that Terry was having difficulty with and repeatedly proved very helpful. (Several workers have reported similar instances (Marshall & Hegrenes, 1972; Stark, Rosenbaum, Schwartz, & Wisan, 1973; Sulzbacher & Costello, 1970).

In many of his lessons Terry was invited to in effect "take turns" being teacher. That is, he would reverse roles with his instructor and he would become the party to ask questions or give directions. Terry enjoyed this and in time came to sometimes spontaneously introduce such activity himself.

Schuell (1974) notes that common mistakes made in teaching language handicapped children are to talk too much, to try and force responses not readily available, and to "correct" too much. These warnings seem important ones and indeed, it was critically important to permit Terry to proceed at his own, sometimes tortously slow, pace. Schuell also emphasized the importance of judiciously chosen hints, helps, and prompts. Often the single greatest technical problem facing one of Terry's teachers was how to help him acquire some verbal behavior that was sufficiently novel that he could not seem to begin to grasp what was being required of him. Sometimes considerable ingenuity was required to devise intermediary tasks or suitable modeling, prompts, or cues that would permit Terry to advance. A closely related issue was that of handling Terry's wrong responses--those which seemed to be genuine mistakes rather than oppositional behavior. An extremely useful guide was found in the writings of Blank (1972, 1973). Blank provides a lucid and detailed analysis of the different kinds of mistakes that a child may make and a large number of techniques that a teacher may use to guide the child to understanding in a way that provides maximum benefit to the child. Among the many responses that a teacher may make are: Delay--make the child stop and think before he proceeds; focus the child's attention by asking him to repeat the demand; repeat the demand; rephrase the demand; partially complete task (start child out); dissect task into smaller components; offer relevant comparisons by offering clearly incorrect alternatives; direct action to help child recognize salient characteristics; focus on relevant features; and so on. Providing appropriate responses to Terry's errors was an important and integral

part of his training, and all of Terry's primary volunteer teachers were provided training in Blank's methods.

Expressive and receptive language of autistic children may be functionally independent (Guess, 1969; Guess & Baer, 1973) and, in general, it is not safe to assume that because an autistic child has mastered some specific verbal behavior that he has command of different closely related usages. When, for example, Terry was taught use of the passive voice, he was given a stimulus sentence (in the initial stage of training with accompanying picture) such as "Mary was pushed by Joe" and then trained on such questions as "Who was pushed? Who did the pushing? Was Mary pushed? Was Joe pushed? Who pushed? Did Mary push? Did Joe push?" and so on, with the questions eventually being presented in random order. While this may appear to be a kind of instructional "overkill," experience with Terry indicated the need for this kind of global approach.

As Terry's language skills improved, increasing use was made of a variety of communication games and less formally structured group lessons to help bridge the gap between formal language instruction, per se, and use of language in normal social situations. At school Terry was constantly stimulated to use language in all situations so that in effect informal language training was in progress throughout virtually his entire day.

Language and Cognitive Training: Component Elements

Commercial language programs. Although Terry's program changed

at times over the year, for the most part he received five group lessons a week on both Distar Language I and II, three group lessons from Peabody Language Development Kit, Level 1, and three group lessons a week from the Conceptual Skills Program.

Terry received four individual lessons a week from the MWM Program for Developing Language Abilities (Minskoff, Wiseman & Minskoff, 1972). The MWM was designed to train language functions assessed by the Illinois Test of Psycholinguistic Ability (Minskoff, 1974) and provides an excellent variety of exercises. Program materials in the area of verbal expression, auditory and visual association, and grammatic closure, were of special value in work with Terry. The MWM program includes tasks requiring a moderately high level of ability and proved especially useful in the second half of this year of training.

Terry was involved in three group lessons each week involving role playing, acting out, and imitation. Many of these lessons were drawn from the program Toward Affective Development (Dupont, Gardner, & Brody, 1974).

Thirty to 45 minutes a day were devoted to a variety of communication games which involved Terry and between one and three other children. The kit Concepts for Communication, Unit 3: Communication (Developmental Learning Materials, 1974) provides material for a number of such games which held the attention of participating children very well. Other lessons were drawn from ideas provided by Greenspan et al., (1975).

Terry also received three individual lessons a week from Core English: English for Speakers of Other Languages (Slaget, Wolk, Goodrich, Kreat, & Johnson, 1971-1972).

Besides participating regularly in the lessons noted above, Terry also received training in a variety of more time limited lesson plans (typically six to ten weeks in duration) which focused on more narrowly defined areas. Terry's simultaneous involvement in a variety of training procedures did not permit formal assessment of the effects of these individual components, but informal observations suggested that the activities described below were well suited to his needs and were especially beneficial.

Flexibility training. Corter and MacKinney (1968) developed a set of exercises involving similarities, differences, concept shifting, opposites, and analogies, designed to develop cognitive flexibility (vs. stereotypy and the inability to shift concepts). Each exercise requires some kind of perceptual or cognitive shift. Both educable retarded and bright, normal kindergarten-age children demonstrated significant gains on several dependent measures of "flexibility" as well as gains in Stanford-Binet IQ following training. Dr. Corter kindly provided lesson plans and materials for use in Terry's training and the program proved well suited to Terry's needs.

Classification training. Terry received a series of lessons involving multiple labeling, multiple classification, multiplicative relations, and reversability according to principles developed in a study by Sigel, Roeper, and Hooper (1966), and further elaborated with detailed

lesson plans in an article by Hooper (1972). In these group lessons children are first taught multiple labeling (e.g., an orange is round, juicy, edible, has a peeli, and so on). Following this children are given practice in multiple classification (e.g., a group of foods may be classified by color and then by fruit/non-fruit and then by shape, and so on. Finally, training is offered in multiplicative relations in which two criteria are coordinated as a basis of classification: e.g., identification of things that are both fruit and round. The bright preschool children involved in the original study displayed significant gain in substance and weight conservation and increased verbal sophistication.

、 Reporting events. Brown, Huppier, Scheuerman, and Sontag (1974) reported a behavioral program used to teach young trainable students to report behavioral events. In this program the teacher performed a variety of behavioral events (e.g., squeezed clay, dropped a pencil, clapped hands, and so on) and then modeled a short descriptive statement for the students to repeat. In a modification of this procedure used with Terry, one adult performed actions while another queried the children and modeled responses. Also, children were given a turn at doing tasks and were given an opportunity to describe their own behavior as well as describe the behavior of their peers.

Abstract thinking. Blank and Solomon (1968) and Blank (1973) provided a guideline for tutorial lessons designed to develop abstract thinking in socially disadvantaged preschool children. Two basic issues

are addressed in lesson presentation: firstly, overcoming the child's confusions and misinterpretations and, secondly, fostering active involvement from the child. Techniques are varied and used in conjunction with an ongoing dialog with the child. Among the many challenges that may be presented a child are: imagery of future events ("Where would the doll be if it fell off the table?"); separation of the word from its referent (child is given a command which he repeats before acting it out; and awareness of possessing language (child must ask questions or given an instruction to the teacher). Blank's (1972, 1973) analysis of ways of responding to a child's wrong response has already been discussed. Terry received an extended series of lessons presented according to the principles elaborated by Blank (1972, 1973) and Blank and Solomon (1968).

Giving and seeking information and recall. Lovaas (1977) presented a number of discrete language programs for autistic children which were developed in his laboratory. Two of these, Giving and Seeking Information and Recall seemed especially appropriate for use with Terry and were used in his training. The programs are described in detail in Lovaas (1977) but, briefly, in Giving and Seeking Information the child learns to discriminate what he does know from what he does not know and to ask for and pass on information, while in Recall he is trained to describe progressively more distant events, in progressively greater detail.

Memory, question comprehension, question-asking. Terry was trained simultaneously in memory, comprehension, and question-asking,

in a series of lessons involving two texts. Listen My Children and You Shall Hear (Kratoville, 1968) contains a number of extremely brief "stories" each presented at three levels of complexity. In using this book Terry was read the simplest version of the story and had to repeat it from memory. He might also be asked to act it out. He then had to answer a series of questions relating to the story (Who? How? When? Why? Where? What kind? How many?). Finally, he asked the teacher questions about the story and had to decide if the teacher answered correctly. After Terry had worked with all the stories in their simplest version, the lessons were repeated at the more advanced levels.

The New Language Stories and Drills, Book I (Crocker, Jones & Pratt, 1966), a text designed for the deaf, was put to similar use. However, in addition to the procedures noted above, Terry also had to write out the story, and he was drilled on the verb forms of verbs used in the story. Thus Terry would have to give the past, present, and future verb forms and also phrase each of these as a positive statement, a negative statement, and a question. Finally, at the end of work with each story Terry had to act it out and add something new to the story.

Telephone usage. The Illinois Bell Telephone Company loaned the Day School a Teletrainer--two connected working telephones which permit training of dialing, answering, and carrying on a telephone conversation. Using this device Terry's ability to use a telephone definitely improved, although his telephone manner--and manners--remained highly idiosyncratic.

Workbooks. A number of workbooks were used for language and cognitive training during the course of the year, including the following: The Thinking Book (Bereiter & Hughes, 1970); The Auditory Stimulator for the Development of Attention, Listening, and Memory Skills (Kaplan, 1969); The Language of Directions--A Programmed Book (Rush, 1970); Concepts for Communication, Unit I: Listening with Understanding (Developmental Learning Materials, 1974); Learning to Think Series (Thurstone, 1972); and Sound/ Order/ Sense: A Developmental Program in Auditory Perception (Semel, 1970).

Other individually tailored language lessons. Terry also received 30-45 minutes of individual language instruction each day from myself which was directed to a number of specific deficits and which involved a variety of materials and techniques. In February and March, 1977, Ms. Susan Mulhern, Clinical Coordinator at the Northwest University Speech and Language Clinic, had taught a demonstration class using Terry as a subject. Mrs. Egan, several of Terry's volunteer teachers, and I sat in on this class, and Ms. Mulhern devoted a part of the class time to training me in the techniques that she was using. The methods that I learned in this class formed the bulwark of the individual lessons that I gave Terry and markedly influenced the manner in which many of Terry's other lessons were presented.

A major focus of the training Terry received from Ms. Mulhern was on breaking down Terry's stereotypic responses, helping him to understand questions and answer them appropriately, and encouraging him to ask questions. Terry had to order sequence cards so as to tell a story, and

then put the story into words. He sometimes had to guess what was pictured on a single sequence card which was kept face down while the others were face up in their proper places. After the cards had been laid out in correct sequence he was then asked such questions regarding part of the pictured sequence as "What's he going to do? What's he trying to do? What should he do? What is he feeling? What might he say? Does he like it? How do you know?" After answering a few questions Terry was encouraged to ask some questions himself. Similar exercises were undertaken using picture books without words. Terry's statements were sometimes questioned (challenged) even when he was correct so that he would learn not to (as was typically the case) immediately shift his position whenever he was questioned on something.

Other instructional techniques included having Terry put sequence cards in order and writing a sentence for each picture on a separate card. These sentence cards were then jumbled and Terry had to order them. Finally, the sentences were written in jumbled order on a single sheet of paper and Terry had to number the sentences in their proper sequence. Terry was asked to point out first visual absurdities in a poster scene and later to identify absurdities in material that was auditorially presented. Using Association and Difference cards he had to tell why things went together or were different. Terry was given a sequence of activities to perform and had to repeat the instruction before, during, and after their execution. He was sometimes given his instructions from across the room or from a distance on the playground because he often lacked responsiveness to a person speaking to him from

any distance from himself.

Ms. Mulhern also suggested that Terry be told short stories, repeat them from memory, and answer questions about them. The training described earlier under "Memory, question comprehension, and question-asking" was a direct product of these suggestions. Another method used to help Terry understand the meaning and use of "why," "when," "where," and "how" involved a set of four printed cue cards arranged across the table which read as follows: WHY tells a reason; WHEN tells a time; WHERE tells a place; HOW tells the way. I would show Terry a 3 x 5 card on which was printed a core phrase such as the boy climbed. This core phrase would be used as the foundation for a longer sentence which would be constructed with Terry's help. Terry had a pile of other 3 x 5 cards on each of which a word or short phrase was printed, e.g., yesterday; a tree; to get the cat; quickly; this morning; a ladder; to get on the roof; carefully, and so on. As I asked "Why," "Where," "When," and "How" questions Terry choose an appropriate card coming up in time with a completed sentence. As Terry grew more confident in his understanding he would sometimes write a word or phrase of his own that he wanted to use to create an original sentence.

In Terry's individual lessons with me I also spent a minute or two each day asking him to repeat random numbers forward and backward in the hope that this practice might contribute to an increased ability to concentrate and attend.

Two other aspects about Terry's language training might be mentioned,

Terry was extremely prone to respond "Yes" to questions that he did not understand, and even to questions where he clearly would want to say "No" if he had been attending. If, for example, you were to say to Terry: "The man did not wear a red hat. Did the man wear a red hat?" Terry could be counted on to reply "Yes." This propensity may be similar to the "acquiescence response set" identified in aphasics (Jenkins, 1965). In any case, Terry was given repeated drills in answering yes-no questions on pictured material and in situations where the objective reality of the situation could be determined immediately. Extensive modeling (errorless learning) was employed utilizing both negative and positive responses. Thus initially Terry and I would look on a picture together and I would say "The man does not have a red hat. Does the man have a red hat?" and model the answer which Terry would repeat. I would do this for many details involving both positive and negative responses. Later I modeled Terry's responses without the picture before us but with it available as back up if needed. In time, Terry came to be much more discriminating in his use of the word "yes."

Along with his propensity to use the word "yes," Terry also had a strong inclination to repeat the last thing that he heard, as if in affirmation, even when that was far from reflecting his true feelings. Thus, if Terry were to be asked during a outing "Do you want to go home?" he might reply "Yes" or "Home" when that was in fact far from his mind--his true feelings on the matter being revealed only when he began frantically protesting preparations being made for his return. To avoid

these difficulties I routinely tried to avoid yes-no type questions when it was important to be sure of Terry's feelings about a matter, instead phrasing the question with explicitly stated multiple alternatives, e.g., "Terry, do you want to stay longer or go home?" Under these circumstances Terry's response almost always reflected his true feelings.

Use of Language

While the formal assessment procedures employed during the summer of 1977 revealed that Terry made significant gains in both receptive and expressive language during the course of the year, these findings do not in themselves reveal the impact of these gains on Terry's everyday linguistic functioning. Further, behavioral observations suggest that Terry made improvement in some areas that were not formally assessed. The following account attempts to describe Terry's linguistic functioning in a global fashion, in the broad context of this social use of language and communication.

Probably the first thing that should be noted in any discussion of Terry's language is that his gains were quite limited and that for all the documented improvement his communication skills remained extremely primitive. Also, some aspects of his language usage failed to improve at all: to take one example, the grammatical complexity of his spontaneous utterances remained virtually constant at a level comparable to that of a child just past his second birthday; to take a second example, Terry's utterances continued to have a flat, mechanical, unexpressive tonal quality. His use of language remained lazy and

sparse, and he maintained his heavy reliance on stereotypic phrases to express his wants. Terry often offered patently wrong answers to questions in a way that suggested that he was either not aware of, or not particularly concerned about consonance between words and objective reality:

4/8/77 When Joe was to take Terry home he asked Terry his address. Terry answered, but unintelligibly. Joe--not being able to make out the name of the street (Hood) made a guess: "Hone? Is it Hone? How do you spell it?" Terry helpfully responded, "H-O-N-E."

7/3/77 I was working with Terry on the teaching telephones. He was showing no understanding of his role. I had written a script and he tended to speak the lines randomly, without paying any attention to what J___ was saying. I asked Terry to ask J___ what he had for breakfast. I helped Terry to form the question. "J___ what did you..."

Terry: J___, what did you have for breakfast?

J___: Rice Crispies

David: Terry, what did J___ have for breakfast?

Terry: Oh, give me a hint.

It was as if Terry made no association between what he asked J___ and what J___ responded and my inquiry. We practiced this and Terry began to get the idea. But we had earlier practiced--in person, rather than using the telephone trainer--my asking Terry a question about Geri. Terry would ask Geri the question and then give me the information. Apparently there was no carry over from this training. On the other hand, two days ago Terry had asked "Where's Barbara?" "Terry, you know she is at home with a sprained ankle. Do you want to call her?" "Yes." On the phone, with my prompting and cueing, Terry asked Barbara when she was coming back to school. This conversation took place at 10:30 in the morning. Later, when I took Terry home at 5:00 I said, "Terry, this morning you asked Barbara when she was coming back to school. Did she tell you?" "Yes." (Silence.) "Well, when is she coming?" "Monday." I later checked with Barbara and learned that is indeed what she told him. Barbara's return was very meaningful to Terry, while what J___ ate for breakfast was not. Perhaps this accounted for his differential success in the two situations.

He resisted "small talk" and, for example, if asked where he had gone on an outing, might reply with almost any answer, although he was quite capable of veridical reporting if pressed. The full responsibility for

"normalizing" a conversation with Terry--achieving effective communication--almost always fell entirely on the adult:

10/15/76 I had insisted that Terry join in a ball game. After 6 or 7 minutes he came over, grasped me gently, warmly, by both arms and murmured in a soft voice, laden with warmth and approval, "Played very good." He was clearly imitating the way I usually end his compulsory ballplaying sessions--some warm words of approval for playing while I gently hold him and then tell him he may go back to whatever he wants to go. Terry often thus communicates. Not knowing how to ask for what he wants he says the words he wants to hear, hoping the adult will take the hint.

1/3/76 Terry was playing with a couple of toy metal airplanes and a toy car. He did not put them away when I told him it was time to go, but held them next to him, saying "Terry." "Do you want those things?" "Yes." "Then ask for them." Terry: "You may have..." "No. May I have..." "May I have these wheels?"

6/28/77 J__ and Terry were shouting directions to each other at a distance. I was with Terry to help him in the exercise. J__ shouted "Shake David's hand." When it was Terry's turn he shouted. "Shake David's hand." When I pointed out that I wasn't with J__ so that that wouldn't work, Terry shouted to J__ "Shake J__'s hand!"

7/8/77 I have Terry use the phone to call his mother to tell her he will be home at 3:00 because he is not feeling well. I coach, "When your Mom answers, say "Hello, this is Terry." Terry dials and when his mother answers he says into the receiver, "Hello, this is Mom." Later, in response to his mother's question of "How are you?" he gives his stereotypic reply to this question, "I am fine."

Still--even given the severe limitations noted above--there were aspects of Terry's use of language in social situations which showed clear improvement over the course of the year. Terry seemed to have far better understanding of what was said to him and around him. He began to often leave the volume up when he watched television by himself and seemed to be following the dialogue, whereas formerly he had always turned the volume off. (Friedlander, Wetstone, and McPeck, 1974 found that severely disturbed children listened equally to natural and grossly distorted sound tracks accompanying a videotape, while normal and less

disturbed children showed a strong preference for the natural sound track.) Terry was also observed at home to laugh at appropriate places during television programs, or during family banter, whereas formerly he had been apparently oblivious to such verbal stimuli. Terry's increased comprehension of language thus seemed to facilitate and permit his being more in "tune" with his surrounding environment.

There was very little immediate echolalia except on relatively rare occasions when Terry was especially irritable and clearly employing the echolalia as an oppositional device. His encounter with a campus security officer who found him unattended is a case in point. Terry, when asked his name, first challenged the officer with a far more sophisticated language than that of which he was usually capable: "Why should I tell you?!?! Autistic children have often been noted to use a much higher level of language under situations of special stress (Caparulo & Cohen, 1977; O'Gorman, 1970); a phenomenon which Wepman (1951) has also reported to be characteristic of adult aphasic patients. A little later, when the officer repeated his question, Terry blandly echoed "What is your name?" In most circumstances, however, echolalia had virtually disappeared, and, in general, Terry's verbalizations were more cogent and communicative than they had previously been.

Terry displayed new effort and greater willingness to discuss his feelings, and tell persons when he was not feeling well or when something was bothering him:

2/18/77 Terry played with a lighter and inadvertently lit it. Later in the day he held his thumb out to me and said, "Fire on your thumb." "What about it?" "It hurts."

3/21/77 Terry said today, imperiously, during a lesson: "Go home!" "Do you want to go home, Terry?" "Yes." "Why?" "Stuffed nose." With that, Terry got some Dristan out of his pocket. As Nancy remarked, we used to have to watch Terry carefully for signs of illness because he would not tell us. Now, he may.

3/23/77 Terry slammed his head into a desk today. Only Terry and K__ were in the room at the time. When Sharon entered and asked what happened, Terry answered "Fell down." "Did you fall or were you pushed?" "Pushed." "Who pushed you?" "K__ pushed Terry."

He occasionally volunteered comments of a casual nature which exhibited a pertinency and degree of cognitive/linguistic sophistication completely absent in his earlier development.

7/15/77 Terry was being tested on a language test to determine if he could provide the correct name for persons of different degree of blood relationship. He was asked, "What would you call your uncle's child?" Terry giggled, and responded "My uncle is a priest."

He became much more successful in finding words that would permit someone to understand what he wanted to communicate. Millman and Canter (1972) note that many utterances of an autistic child which appear bizarre are in truth manifestations of immature syntax. An illustrative example of this may be drawn from Terry's attempt to describe a picture depicting a girl drying a knife with a dishtowel. In September of 1975, the best that he could manage was "Cut the apple. The cut...cut his shirt," while in May of 1978 he offered "The girl is washing the knife" (see Appendix V). This is not, of course, to say that Terry was not often at a loss for words. But his syntax and command of vocabulary had improved to the extent that his efforts were typically far more intelligible than had formerly been the case.

In this year, too, Terry was occasionally observed--for the first time--using language to instruct himself. He might in sotto voice tell

himself "be quiet now" or "be a good boy" when he was clearly struggling to contain himself and his feelings in a situation. Caparulo and Cohen (1977) reported a similar development in a child who was observed cautioning himself "Be cool, Phil!" and this kind of self-instruction would appear to be a precursor of true inner language (Vygotsky, 1962).

In a number of other ways, also, Terry showed small but definite gains in his communicative abilities. There was an increased use of hand gestures accompanying his speech and his favorite phrase when he wanted to dissuade an adult from pressing a demand—"Forget it!"--was both accompanied by a deprecatory flap of a hand and appropriate tonal emphasis. He learned to signal his failure to comprehend what was expected of him by saying "Give me a hint!" He began to call out loudly to adults who were some distance from him to get their attention before he spoke, and was much more responsive when someone called out something to him from a distance. There was a sharp diminution in the frequency of "delayed" responses (see Appendix V). Terry also frequently displayed a new tolerance for and even enjoyment of loud music played on a jukebox or radio and occasionally took pleasure in singing. (It was learned by accident that Terry apparently had perfect pitch. He could unfailingly identify which bar of a toy xylophone had been struck by sound alone. It is interesting to note in this regard that Kozloff (1973) reported that several of the children in his study had perfect pitch.)

"Improvement" is, of course, a relative quality. While after two

years of intensive training, Terry's language was still grossly atypical and deficient, there was, nonetheless, substantial improvement in his ability to understand, and be understood by, other persons in contact with him.

Two Time Series Analyses

At his assessment in the summer of 1976, Terry displayed marked improvement on a variety of language tests vis a vis his performance in 1975. During the course of the year between the two assessment periods he had received intensive interpersonal stimulation as well as intensive systematic language training. Joyous play and the creation of strong bonds between Terry and his volunteer teachers had received equal emphasis with formal language lessons per se. I felt--and still believe--that both the affective involvement as well as the didactic work was important to his progress. I recognized, however, that other interpretations were possible. It might be argued that all of Terry's progress had been due to the intensive interpersonal interaction and affective stimulation he had received and that language training, per se, had contributed nothing. Under such a hypothesis, the same results might have been obtained in the absence of such training. The painfully slow manner in which Terry learned many of the language elements that we were working on quite convinced me that this was not the case. Still, personal conviction is not tantamount to demonstration, and I felt that some demonstration of the specific contribution of training to Terry's acquisition of language might be useful. It seemed unconscionable to eliminate language training for a protracted period of time in order to compare

Terry's progress with and without it. Instead, I decided to use a time series design to illustrate the effects of training on specific language elements that Terry had not yet acquired. To this end, two time series analyses were conducted, one during the fall of 1976 and one in the spring of 1977.

Study I. During the initial assessment of 1975 I had administered the Boehm Test of Basic Concepts to Terry. This is a test of 50 basic concepts all of which virtually all normal children have acquired by age seven. There are two forms of this test and in each form the child must choose the one picture of three presented which best illustrates the concept being tested. The concept itself is presented orally by the examiner in the context of a standard stimulus sentence. Thus a child has one chance in three of identifying the correct picture entirely by chance, and one chance in nine of making such a correct identification by chance on both forms of the test. Chance alone, then, would account for about 17 correct answers on either Form A or Form B, and about 6 concepts being correctly identified on both Form A and Form B.

During the first administration of this test (9-10-75) Terry's "successes" were at a level that would be accounted for entirely by chance. At the second assessment (7-20-76) Terry identified 20 of the concepts correctly on both Form A and B, a hit rate clearly in excess of that expected through chance. It was decided to re-administer the test in October, 1976, and provide systematic training on those concepts that Terry had had difficulty with on both the testings of 7-20-76 and the October testing. Eighteen such concepts were identified and each was

assigned to one of three groups, with six concepts in each group. Groupings were made such that related concepts were in the same set and thus would be taught at the same time. A randomizing procedure was used to determine the order in which the three sets would be taught. An additional pretest was conducted on 11-8-76 prior to the introduction of training. All pre- and posttests were conducted by administration of the entire Forms A and B of the Boehm by a trained volunteer teacher who was not informed of the concepts that were being trained. Terry's training in the concepts was conducted by myself. The concepts comprising each group are presented below:

Group 1: few; as many; at the side; bending forward; equals; least.

Group 2: farthest; whole; nearest; 2nd ___ from ___; almost; 3rd ___ from ___.

Group 3: in a row; mark the other; matches, every; skip; in order.

Training was accomplished by the creation of a variety of stimulus materials which would serve to illustrate the concepts. I would repeatedly demonstrate the correct use of the concept and have Terry immediately mimic me. After a period of time Terry could typically start to anticipate me. This signaled that he had "gotten" it.

Because each of the six concepts in each group was tested on both Forms A and B, the maximum number of potential errors for each set was 12 at each assessment period. Results of the study are presented graphically in Figure 1.

As Figure 1 indicates, the effects of training were evident.

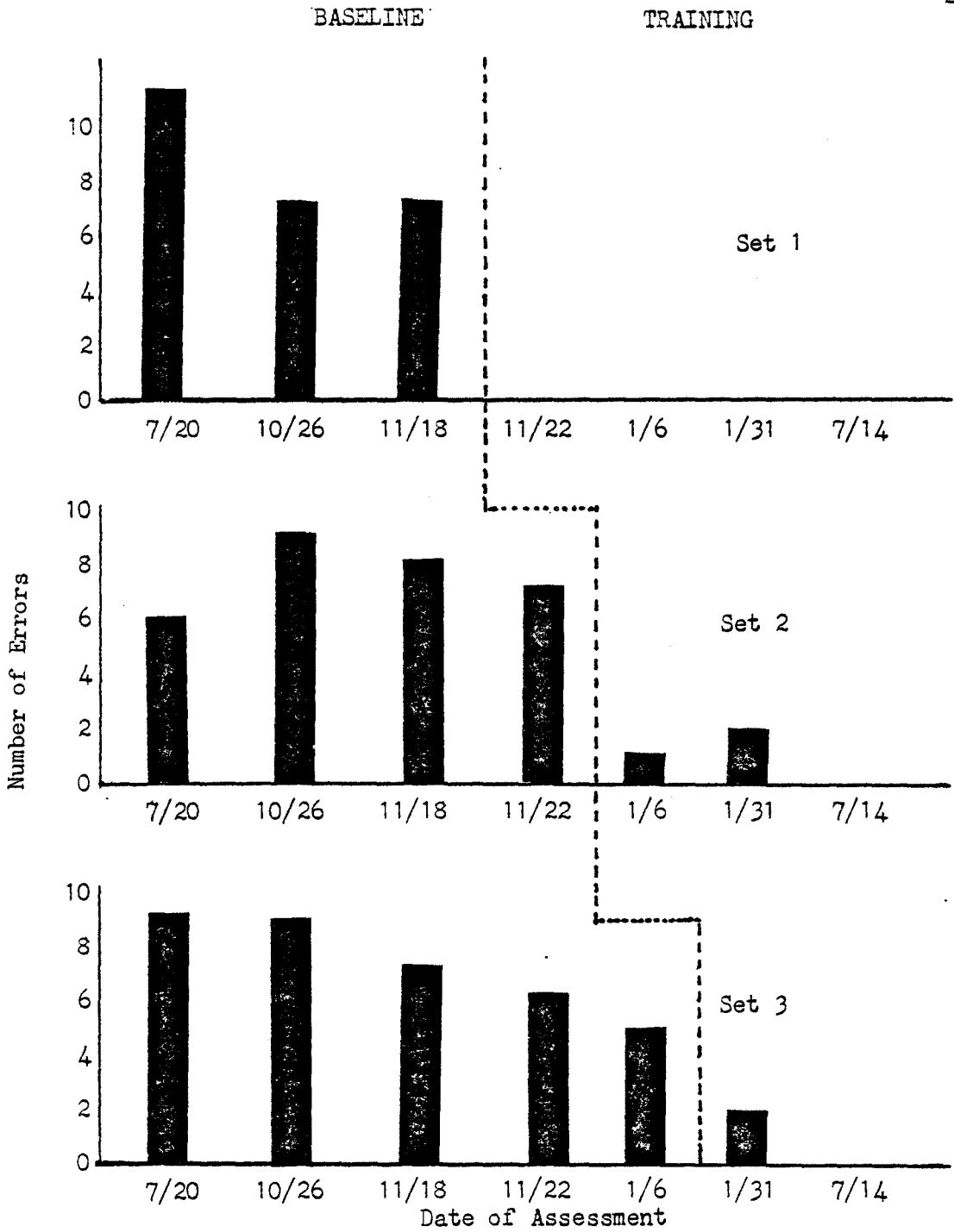


Figure 1. Effect of training on obtained errors: selected Boehm items.

Although there was some decline in total number of errors during the four-month period preceding training, the reduction was modest. Following training on Set 1, errors in this set dropped to zero, while errors on the untrained sets remained at about their previous levels. Errors on Set 2 items were sharply reduced following training on them, while errors on items in Set 3 remained relatively high. While Terry still made four errors on the assessment immediately following the conclusion of the special training, this performance was far better than he had done on any of the pre-training trials. When the Boehm was administered six months later during the course of the annual comprehensive assessment, Terry made no errors on any of the items that had been trained in the study.

Study II. Immediately following the conclusion of the first study a second was inaugurated. Linguistic elements selected for training were chosen from among a large number that Terry had consistently failed when they had been presented at earlier assessments. For example, Terry had displayed a complete lack of understanding of passive voice, and it was decided to provide intensive training in this area. Terry could not form the correct plurals of a number of common nouns with irregular plural forms. It was decided to offer training on the plurals of the following words: leaf, deer, goose, die, soap, and ox. Although the words can, cannot, not, and neither had been covered in the Distar Language Program, Terry had not achieved a secure grasp of their usage and, accordingly, they were selected for specialized intensive training. Finally, four linguistic elements that had repeatedly caused Terry

trouble on the Test of Auditory Comprehension of Language (coming, pianst, bicyclist, and third from the...) were selected for intensive training.

Items to be trained were grouped in three sets (A, B, and C) and a special test was devised that offered multiple probes of each linguistic element selected for training. Order of presentation of sets for training was determined by a random selection process. Set A included the four elements drawn from the Test of Auditory Comprehension of Language, and the irregular plurals. The test provided 34 response opportunities for these items. Set B provided training on the words neither, can, cannot, and not, and the test contained 28 probes of these concepts. Set C was devoted to training in the passive voice, and 30 items on this test were devoted to this area. All training sessions were conducted by myself.

Training of irregular plurals was accomplished by showing Terry drawings of one or more than one of each of the selected items, and having him repeat what I said. Drawings were also used for the four concepts drawn from the TACL.

Training on Set B involved both drawings and purely auditory drill. For example, four drawings would be displayed, e.g., 1) a man and a woman sitting; 2) a man and woman standing; 3) a man standing and a woman sitting; and 4) a man sitting and a woman standing. I would then first say "Neither the man nor the woman is standing. See, the woman is not standing and the man is not standing. Neither the man nor the

woman is standing. Say it, Terry: Neither..." Terry would repeat the sentence after me. I might continue: "Is the man standing? No. Is the woman standing? No. Neither the man nor the woman is standing. Say it, Terry."

In this fashion I would in effect, capitalize on Terry's major linguistic "strength" -- his propensity to echolalia. Also, Terry was typically cheerfully cooperative if the only demand upon him was to repeat what I said. He could work for extended periods without stress and was happy to do so. I would drill Terry on several such pictures and then begin work on "Both the man and woman are standing" and "Only the man is standing." I would not challenge Terry to describe the pictures without my modeling until he seemed to have developed a secure grasp of the task.

For the purely verbal part, I would lead Terry in such drills as the following:

David: "Elephants are not small animals."
 "Are elephants small animals?"
 "No!"(Pointing to Terry)
 "Elephants are not small animals."
 "Are elephants small animals..(Pointing to Terry)"
 Terry: "No!"

Many examples would be given using are, are not, can, and cannot. Later training progressed to include forms that Terry would not be familiar with, e.g., "Zircons are not precious stones. Are zircons precious stones?"

Training on Set C involved both pictures and purely verbal drills.

Employing the same general format outlined above, auditory training involved presentation of a short sentence with passive construction such as "John was pinched by Bill" and helping Terry to learn to correctly answer such questions (presented randomly, toward the end of training) as "Who was pinched?"; "Who pinched?"; "Who did the pinching?"; "Was John pinched?"; "Was Bill pinched?"

Care was taken in the construction of materials to make sure that no training or test items were identical to those used in the standard instruments employed in Terry's annual comprehensive assessment.

All administrations of the test used in the assessment trials were conducted by trained teacher volunteers who had no information about the content or progress of the training sessions. Results of the study are presented in Figure 2.

As Figure 2 reveals, errors remained high on all three sets throughout the pre-training period. Errors on Set A dropped to zero following training on this Set, while errors on Sets B and C continued apace. The effects of training as it was introduced on Sets B and C are equally obvious.

The results of the two studies are not particularly remarkable or surprising. They merely illustrate that with training Terry could learn aspects of language usage that he had not acquired without such training. The studies serve to document the contribution of training per se, to his language acquisition. It is perhaps useful here to consider briefly the distinction between training and coaching. The

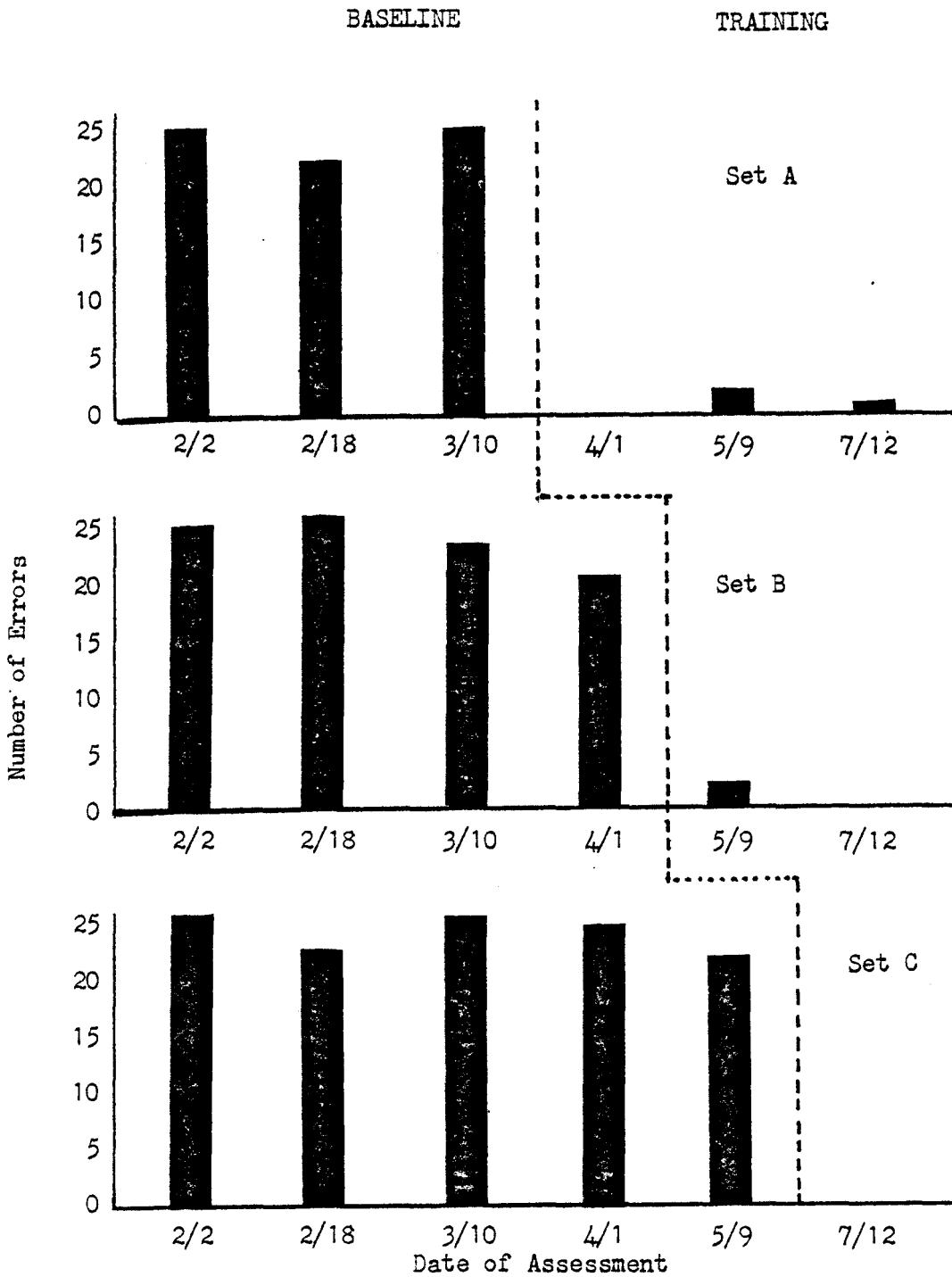


Figure 2. Effect of training on obtained errors: selected linguistic elements.

assessments of the summers of 1976 and 1977 revealed that Terry had made important gains with respect to nonverbal intellectual functioning, motor-perceptual functioning, and aspects of his understanding and use of language. The intensive, systematic training that Terry received during the preceding years had been designed to promote just such growth. In weighing the significance of the observed changes it might be well to consider the ways in which training experiences were similar to, as well as, the ways they differed from, assessment procedures.

To present extreme conditions, if the training procedure and the assessment method are identical, training might best be deemed coaching. While the subject might display mastery in the testing situation, there would be no assurance that the trained behavior would be elicited in circumstances or under conditions that were not identical to those presented during training. If, for example, Terry had been trained on the 50 concepts assessed by the Boehm Test of Basic Concepts, using the Boehm test itself as the training device, his subsequent success on the Boehm test would not reveal anything about his ability to use these concepts in other situations. On the other extreme, if Terry's training did not even touch on the tested concepts, there would be little reason to expect his performance on this test to improve.

To continue with the example of the Boehm test, two rather different uses of the results of that test should be considered: on the one hand the fifty concepts might be considered as being a sample of a larger, unspecified body of basic concepts that children acquire. A

child's performance may be considered as reflecting his relative acquisition of this broader body of knowledge. Thus, a six-year-old who is "average" on the Boehm might be presumed to also be "average" in his acquisition of concepts that are not specifically assessed by the Boehm. On the other hand, the child's performance on the test may be used to pinpoint specific conflicts which he had not acquired so that remedial training might be offered. Once such specific remedial training is introduced, test results can no longer be considered as providing a valid indicator of the child's broader overall acquisition of concepts. At no time were actual test materials or items of any test used in Terry's training. During the first year of training specific concepts drawn from the Boehm--and other language tests employed--were not selected for special attention. Certainly, many of the test concepts were covered in the several commercial language programs employed. Terry's improvement on the Boehm--as well as the other tests of language employed--may be considered as reflecting a generalized improvement in cognitive/linguistic functioning. That is, no part of Terry's language training was specifically introduced or designed to "teach the tests." During the second year of the study, however, in the two time series analyses, a large number of specific concepts from the Boehm and the Concept Mastery Test was selected for training, as well as four linguistic elements from the Test of Auditory Comprehension of Language (TACL) with which Terry had experienced repeated difficulty. Following this training Terry's achievement on the Boehm and the Concept Mastery Test could be used as an index of the effectiveness of the specialized training, but his performance on these instruments could no longer be

interpreted as being representative of his overall grasp of basic concepts. In contrast, the estimates of auditory comprehension provided by the TACL were virtually unaffected by the study, Terry's final estimated psycholinguistic age being reduced by only 2 months if the points of the four trained items were not counted in his score.

Specific elements were never drawn from any of the many assessment instruments for special emphasis or training, other than in the case of the two time series analyses described above.

Social Assessment

Terry was evaluated on the Vineland Social Maturity Scale with the help of his mother on two occasions. At the first evaluation (July 2, 1975) he was just 11 years old and received an age equivalency of 5 years and 8 months. Thus Terry's social development had proceeded at a pace of about half that of a normal child as measured by this instrument. Fourteen months later, on September 2, 1976, Terry was evaluated the second time. Now age 12 years and two months, his obtained age equivalency was 7 years and 5 months, a gain of 23 months in the 14-month period between evaluations. This represented sharply accelerated development as compared with his rate of development up to age 11.

Four persons rated Terry on 18 of the 30 Fels Child Behavior Scales (Richards & Simons, 1941) during October of 1976. Fifteen of the employed scales were those that had been used in the study of DesLauriers and Carlson (1969). In that study the 15 scales had been

chosen because the therapist and two observers agreed that they seemed to reflect changes in behavior specifically relevant to early infantile autism. The author of the present study included three additional scales (kindness, physical apprehension, and resistance) which in his opinion also bore closely on the autistic syndrome. Raters were asked to assess Terry at the present time (age 12-13) and also to rate him retrospectively at age 11-0 and 10-0. Raters included Mrs. Egan, Patrick Egan (brother), Master Teacher Nancy Buckler, and Dale Gody (graduate student who had taught in Terry's classroom when he was age ten and eleven).¹ Raters were provided an instruction sheet and each rater worked entirely independently. Modal ratings are presented in Appendix IV. Although the retrospective nature of the ratings for age 10 and 11 put the results in question, there was remarkable agreement on many of the scales. Modal ratings indicate that Terry was seen as having very markedly gained in cheerfulness and affectionateness, and as having made lessor but still appreciable gains with respect to patience, conformity, obedience, planfulness, gregariousness, suggestibility, sense of humor, and friendliness. He was also seen as less socially apprehensive and less resistant and oppositional. No appreciable change was seen with respect to curiosity, physical apprehensiveness, kindness, tenacity,

¹Mr. Egan also rated Terry but because of ambiguity in his use of the form his ratings could not be used in combination with others.

emotional excitability, or aggressiveness.

Highlights of Psychological Evaluation III (Summer, 1977)

During the summer of 1977 graduate interns in clinical psychology undertook a third and final broad re-assessment of Terry's functioning. The results of this evaluation are reported in full and discussed in detail in Appendix VII. More specialized assessments were also again undertaken by three speech pathologists and their findings are reported in full in Appendix III. The present discussion will highlight the major findings of these various examiners and briefly compare Terry's functioning following two years of intensive training with his functioning at the time of the initial assessment (summer of 1975).

Intellectual functioning. At the final assessment, estimates of Terry's nonverbal intellectual functioning ranged from normal (WISC-R Performance IQ of 101) to dull normal (Leiter Adjusted IQ of 79). While Terry showed no gain on the Raven's Progressive Matrices test from initial to final assessment, he had gained 11 IQ points on the Leiter and 24 IQ points on the Performance scale of the WISC-R.

Estimates of verbal intellectual functioning varied markedly, depending upon the particular test or subtest employed. On some measures of verbal intellectual functioning Terry displayed marked gains over the two year period of intensive training while other measures registered no change. In general, Terry did better on verbal tests requiring relatively concrete use of language (e.g., Vocabulary,

Digit Span) and poorest on tests requiring more abstract use of language (e.g., WISC-R Comprehension subtest and the Orientation subtest of the Detroit Tests of Learning Aptitude (DTLA)).

Over the two-year-period of training, Terry's IQ on the Peabody Picture Vocabulary Test rose from 57 to 76 and IQ increased from 60 to 85 on the Ammons Full-Range Picture Vocabulary Test. Thus Terry registered highly significant gains in his passive vocabulary.

The Detroit Tests of Learning Aptitude had first been administered in 1976. While three subtests (Verbal Absurdities, Free Association, and Disarranged Pictures) revealed no gains, more subtests registered gains of six or more months of age equivalency. Especially noteworthy were gains in Auditory Attention Span for Unrelated Words (a gain of 6 years, 6 months), Visual Attention Span for Objects (3 years, 0 months), and Likenesses and Differences (4 years, 0 months). Gains of one year or more of age equivalency were also found for Verbal Opposites, Oral Commissions, and Orientation.

Terry obtained an IQ score of 62 on the Stanford-Binet, an insignificant change from the score of 58 which was obtained when the test was first administered in 1976. Similarly, Terry's WISC-R Verbal IQ of 50 was little different from earlier obtained scores. It seems likely however, that Terry's failure to display improved verbal cognitive abilities on the WISC-R Verbal scale and Stanford-Binet is attributable to his verbal cognitive improvement taking place at a level below which these tests are discriminative or in areas which

they fail to assess. This interpretation is suggested by two findings: Firstly, on two of the WISC-R verbal subtests Terry obtained substantially higher raw scores in 1977 which did not result in higher scale scores. (E.g., in 1975 he obtained a raw score of 2 in Vocabulary and in 1977 obtained a raw score of 15, both yielding a scale score of 1. Secondly, Terry displayed an increase of one or more years of estimated age equivalence on four of the six Verbal subtests of the Weschler Preschool and Primary Scale of Intelligence (WPPSI). The WPPSI was first administered in 1976 because it was felt that this test might prove a more sensitive indicator of verbal cognitive change at the level that it was anticipated that it might take place. Tests results appear to have borne out this hypothesis.

Over the course of the year Terry received training in the recall of random digits a few minutes each day and training in the recall of orally presented short stories. It is of interest to note in this regard that he markedly improved on all tests employing auditory recall. While it is impossible to determine whether his improved performance was attributable to the memory training, or the extent to which improved short term memory may have bolstered other demonstrated gains in cognitive and linguistic functioning, the findings suggest the possibility that the training may have made a significant contribution to his observed improvement. A controlled study of the effects of such training would be of interest.

When the full array of findings cited above are considered together, they might be briefly summarized as follows: On nonverbal

measures of intelligence Terry now routinely functions in the dull-normal to normal range. The intensive training of the last two years would seem to have substantially contributed to Terry's ability in this regard. On verbal measures of intelligence Terry functions as a severely handicapped child. His ability varies strikingly as a function of the specific verbal task imposed, with greatest relative strength displayed in the area of vocabulary (the "naming" function) and greatest deficit in tasks requiring more global comprehension of meaning. Although not reflected in the WISC-R Verbal IQ score, or the Stanford-Binet, the other tests of verbal aptitude employed reveal major gains in verbal cognitive ability over the course of training. These gains reflect a rate of growth much greater than that which Terry displayed prior to the intensive program.

Linguistic functioning. Probably the single most striking finding of the present study is the marked increase in language comprehension that Terry displayed following the two years of intensive language training. In 1975, at age 11, tests of language comprehension employed (Northwestern Syntax Screening Test, Test of Auditory Comprehension of Language, and Illinois Test of Psycholinguistic Ability) provided estimates of Terry's auditory comprehension as equivalent to that of a child approximately age 3, whereas at the final assessment these same tests provided an estimate of his comprehension as equivalent to that of a child of about age 6½. This gain of over three years of language equivalence in a two year span is especially remarkable given, firstly, Terry's earlier extremely

retarded rate of development of this language function, and, secondly, the fact that Terry was age 11 and pubertal at the time training began.

Terry also displayed marked improvement in expressive language functioning, although since his expressive language is deviant as well as delayed, it is not possible to adequately summarize his expressive language functioning with a single figure representing a psycholinguistic age equivalent. Results on two of the expressive language measures employed--the Northwestern Syntax Screening Test (NSST) and Carrow Elicited Language Inventory (CELI)--must be interpreted with special care because of their reliance on the subject immediately repeating words spoken by the examiner in the determination of psycholinguistic age. This procedure taps the one linguistic strength Terry may be said to possess--his ability to repeat or echo what he has just heard--and tends to grossly overestimate the quality of his spontaneous self-initiated verbalizations. While test results must thus be interpreted with considerable caution, nevertheless, the pattern of change of scores over the past two years of intensive language training clearly points to important gains.

On initial testing in 1975 Terry's estimated expressive language psycholinguistic age on the NSST was less than 3-0 while at the final assessment in 1977 it had risen to 5-6. During the same period Terry's estimated psycholinguistic age (PLA) on the Verbal Expression subtest of the Illinois Test of Psycholinguistics rose from 3-1 to 5-6, while important gains were also achieved on Auditory Association

(from PLA 4-7 to 6-2) and Grammatic Closure (from PLA 4-2 to 7-3). When the Carrow Elicited Language Inventory was first administered in 1976 Terry's score was far below the median for children age 4-0 to 4-11 while his score in 1977 was well above the median for children age 5-0 to 5-11.

In contrast to the above gains, Terry displayed no improvement on the Porch Index of Communicative Ability in Children, Advanced Format, over the past year. Contributing importantly to Terry's poor performance at both assessments was his inability to immediately shift his response set as the nature of the task changed. Instructions typically had to be repeated before he "caught on" to the demands of the new task, a response deficit which resulted in consistently poor scores on subtests.

The grammatical complexity of Terry's spontaneous utterances, as assessed by the Developmental Sentence Score (DES), remained primitive (just above the 25th percentile for children age 2-0 to 2-11) and displayed very little change over the course of the year. However, whereas 80% of Terry's spontaneous utterances during the assessment of 1976 had to be eliminated from formal analysis because they were unrelated to the stimulus materials or situation, or were unintelligible or echolalic, only 30% of Terry's utterances needed to be eliminated from the analysis of the 1977 sample. Furthermore, Terry for the first time achieved success answering simple "Who?" "What?" and "What...doing?" questions, and displayed substantially less semantic error. Thus although Terry's spontaneous speech remained markedly

deviant and delayed, it was far more task relevant and afforded more effective communication than was the case the previous year. When the full panoply language test results are considered, they may be briefly summarized as follows: Terry gained somewhat over three years in psycholinguistic age equivalence in language comprehension during the two years of intensive training, with about half of that gain registered during the past year. Auditory memory substantially improved. Gains in expressive language were especially apparent with respect to a sharp decrease in noncommunicative "static" (Irrelevant utterances, echolalia, and unintelligible utterances) and decrease in semantic error. Terry's expressive language, however, remained grossly deviant and primitive in quality.

Perceptual-motor functioning. Terry's performance on the several measures administered did not differ appreciably from that of the previous year, a finding which may reflect the fact that little training time was devoted to these areas in the past year.

Understanding of basic concepts and academic achievement. Terry made substantially fewer errors on the Basic Concept Inventory than he had the previous year. He missed only one of the 50 items covered in the Boehm Test of Basic Concepts. Terry had received special intensive training on 18 of these concepts during the course of one of the two time series analyses undertaken and the present test results provide evidence of the retention of that learning.

Considerable variation among the tests of achievement employed

(Peabody Individual Achievement Tests, Wide Range Achievement Test Level II, and Cooperative Primary Tests), both with respect to grade equivalents obtained and amount of recorded change, makes interpretation difficult. However, the overall pattern of change was clearly in the direction of improved performance. Improvement in arithmetic, reading recognition, and spelling may be estimated at about half a year or more, while reading comprehension improved by only a few months.

CHAPTER IX. EPILOGUE: TERRY AGE 13 THROUGH 15

The Loyola Day School works with children through age 12 and Terry, having had his 13th birthday on July 1, 1977, would have in the normal course of events been transferred to a new school in September. Because of his remarkable progress over the previous 2 years, however, it was decided to extend his stay at Loyola 1 more year. Born of the best intentions, this decision in retrospect seems to have been a serious error.

On his entrance into school in September, Terry appeared sharply regressed. He was extremely tense and appeared deeply depressed. Between September and late December, Terry rarely smiled, or displayed the goofy sense of humor which had become so prominent in the preceding year, and did not reach out in a loving way to his favorite adults, or respond to playful or loving overtures from them. Instead he withdrew into himself. His face took on a haunted and often bizarre expression. He exhibited a number of tics, such as rolling his eyes and craning his head up and back. He exhibited a number of compulsive behaviors: he walked about the classroom in a fixed and compulsively rigid pattern; he would abruptly bend down and touch his shoe tops; he would wipe the back of his hand on a person if they touched him. [Rutter (1978a) reports such frankly obsessional symptoms, with touching compulsions and the like, are a common occurrence in adolescence.] He gave the appearance of trying to "ward off evil." He appeared clinically depressed and could not be drawn into a happier mood.

Terry's unhappiness seemed to be focused about the school.

Signs of tension and depression were more in evidence at school than at home, and by November Terry was showing definite signs of recovery at home although not displaying improvement at school.

It did not prove possible to get much work done with Terry and lessons were treated lightly and briefly. In December it was decided to stop trying to do academic work or language training altogether, and concentrate exclusively on doing things with Terry that he enjoyed. It was also decided to begin looking for another school for Terry for placement in September of 1978. It had become clear that Terry's experience at Loyola was no longer benefiting him, and we hoped that placement at a facility for adolescent autistics might serve him better.

During the early months of 1978, Terry responded somewhat to our efforts to provide him with enjoyable experience, and there was some amelioration in the signs of tension and depression.

In May of 1978 we learned that the Rimland School for Autistic Children, Evanston, Illinois, could accept Terry in June. This school provides an excellent program and was our first choice for placement for Terry. Over a six-week period Terry continued at Loyola but visited at Rimland, spending progressively more time in what would be his new school. Terry liked Rimland and the transition went smoothly.

Terry's abrupt and sharp decline had been completely unexpected.

It's appearance was a surprise; as time went by and Terry failed to improve, surprise gave way to stunned dismay. Explanations of the reversal can only be conjectural. Although the interpretation offered below has a certain cogency, it is quite impossible to determine the truth of the matter with any certainty.

It has been observed that autistic adolescents have occasionally sharply regressed (Rutter, 1978) and inexplicable reversals and regressions are not unusual with autistic children. Two factors especially suggest themselves as being possible contributors to Terry's decline: firstly, the abrupt and unanticipated severance of two relationships that had come to mean a great deal to him; and, secondly, an intuitive awareness on Terry's part that as a bigger, older adolescent he no longer really "fit" with the Day School children and that a change of placement was needed and/or imminent. Both of these hypotheses will be considered in detail.

Terry was initially very slow to form an attachment to an adult worker. Yet when an attachment was formed it was invested with genuine emotional depth. He warmed slowly--reluctantly and grudgingly--but after he had accepted the adult into his world and heart his emotional involvement had a peculiar intensity. When one of his favorite volunteers had to miss an appointment Terry felt a loss, and on many such occasions became morose or even showed signs of disorientation. It would seem that such disappointments struck deeply at Terry's sense of well-being and, possibly, self-esteem. When circumstances conspired to create a situation wherein several

of Terry's favorites were temporarily unavailable to him he could be inconsolable.

In September, Terry unexpectedly lost two of his favorite student volunteers simultaneously. In both cases the students had fully expected to work with Terry, but heavy academic schedules in conjunction with unexpected personal exigencies made it impossible for them to continue. If their departure had been anticipated, we would have employed a gradual phasing-out and spent a couple of months helping Terry work through the experience. As it was, severance of the relationship, was for all practical purposes, without forewarning and complete. Terry's history of acute sensitivity to absences of volunteers--his expression of anguish following his learning that one of these volunteers would not be working with him--his abrupt laying aside the gift watch which he had proudly worn for months--his remarkable brightening when he met one of these volunteers on campus--all support the interpretation that Terry had experienced such an acute loss that he had, in effect, entered into mourning. Limited contact with these volunteers was reinstated in January, and it is noteworthy that it was about this time that Terry finally began to show some amelioration of his condition at school.

Another factor that may well have contributed to--or even been principally responsible for -- Terry's depression, tension, and withdrawal into himself was his own inner sense that he no longer really "fit" in the Loyola Day School and that his days at the school

were numbered. Terry was the oldest child in the school (by a year) and the largest. In many ways he appeared (and was) out of place, and there were no children at the school who were really very much like him. As it happened, most of the children near his age and size were not autistic and had language and social skills far beyond his, while other autistic youngsters in the school were much younger and smaller and for the most part did not have the language ability that he had acquired. He truly did not have a genuine peer group. In retrospect it seems likely that at some level Terry appreciated that a move was needed and imminent before school personnel did. It seems possible that Terry himself felt the need to move on, coupled with anxiety about that move. Change was always hard for Terry, but in his own way Terry may have started to struggle with that issue before his adult caretakers did so.

There is no way of knowing whether Terry was grappling within himself with the issue of separating from the Loyola Day School from his earliest arrival on campus in September. However, it does not seem in any way inconsistent with Terry as I know him. It was always clear that he shared only a very limited portion of what he experienced. Offering some support to the second hypothesis is Terry's behavior on two occasions, one in late November when Terry took me on an extended tour of the old Day School facility, and one in early December, when he engaged in kinds of play that he had done in our first year together. On both occasions I had an acute and poignant sense of recapitulation, of a traveling over familiar

territory for old times sake. It should be noted that these events took place prior to any discussion among school personnel of transferring Terry in the near future. This hypothesis is further supported by Terry's positive reaction to the news that he would be going to a new school, and his excellent adjustment to that major change. While he experienced and exhibited considerable anxiety, there was also clearly a sense of excited, happy expectation. I believe that when Terry heard of the plans for the transfer there was--along with anxiety--a real sense of relief. As he had seen so many other children do before him, it was now Terry's turn to graduate--to move on.

Further supporting this interpretation is Terry's manner of separating himself from me as he left the Day School. Initially he wanted me to accompany him to Rimland--to in effect move there with him. When he learned that was not possible he made it clear that he wanted to continue to see me twice a week. Yet as the transfer date neared, with Terry having spent progressively greater intervals of time at Rimland and finding it very much to his liking--he changed his position and told me that he did not want to continue to see me at all. At first I was not sure whether or not I should honor this request. I had had too much experience with Terry trying to chase me off when it was important that I not permit it, to simply take such statements at face value. Perhaps Terry was feeling hurt and rejected as he left the school, and it was important to press and insist upon my involvement and caring. On the other hand, it seemed possible that what was taking place might be a very healthy and important

development in which Terry was placing his special dependency upon me behind him. Perhaps he was not merely graduating from school but was "graduating" from our relationship as well. As I observed him, it seemed even clearer to me that this was indeed the case. Terry was moving away from me and reaching out to others. It was important to let go, and to respect his new independence and growth.

The most severe signs of depression and tension showed signs of ameliorating at home in December and then at school in January. In the spring months Terry often spoke of "Trixie," the name of a little girl in a cartoon entitled "Speedway Racer," in a manner in which it was apparent that he was communicating about himself. This peculiarity had an indirect parallel in Terry's earlier behavior. When Terry was younger he might say or write apposite slogans on movie titles that reflected his inner feelings. A poignant example is when he wrote the movie title "River of No Return" on the occasion of his last therapy session with his therapist of two years. However, with his use of "Trixie" Terry was far more revealing and direct in expressing himself. An especially elaborate example of this is presented below:

Terry: "Why did Trixie cry?"

David: "Why?"

Terry: "Because she banged her head. Why did Sparky put a band-aid on Trixie's head?"

Although in this manner he kept some distance between himself and his feelings, he also shared more of himself than he ever had before. By spring, too, Terry could again accept comforting, and often actively sought it. He often held an arm or leg out to me saying, "Broken."

I was to put my hand on it and make it whole. Terry also cued me to put my hand on his head and say "Don't hit your head." He appeared to be seeking help to gather his inner forces and mend his spirit.

Although the period between September, 1977 and February, 1978 was for the most part one of severe regression, a few isolated incidents occurred which represented important positive change. Probably the most striking of these was Terry's spontaneous request to buy Terry Smith a Christmas present. Terry always displayed a virtually total indifference to the emotional needs of others unless those needs were presented to him in a forceful, compelling fashion. To exhibit thoughtfulness of this kind was virtually unprecedented. Terry's attentiveness to his young nephew on a walk, and his offer of help to Sylvia when she expressed fear on the ice were other incidents that suggested that Terry was capable of a new quality of solicitousness previously undemonstrated.

Terry did not receive the extensive assessment that he had received in earlier years. This work had been routinely done in the summer months when there were fewer demands on the psychology interns who performed the bulk of the testing. When we learned in May of the opening at Rimland and decided that Terry would be leaving the school in mid-June to take advantage of it, it did not seem appropriate or fair to Terry to try to crowd his last weeks at the school with a fresh battery of tests. Two tests, however, the Wide Range Achievement Test and Peabody Individual Achievement Test, were administered in late May to provide Rimland with current information

on Terry's academic functioning. On the Peabody Individual Achievement Test Terry showed little change except in General Information where his grade equivalent was 2 years lower than he had achieved the preceding year. On the Wide Range Achievement Test Terry displayed no change in Arithmetic but registered a gain of almost two years in Reading (word recognition) and Spelling. These results suggest that, in general, Terry maintained his skills in the tested areas or even improved. While no tests of language or cognitive functioning were administered, it seems likely that similar results would have been obtained. Terry had not seemed to regress or decline with respect to the language and cognitive skills, per se, that he had acquired. The regression, rather, was in the areas of emotional health and interpersonal functioning. The regression seemed to have its major impact on the acquisition of new skills, rather than affecting those previously acquired. Terry had so little interest in, or "heart" for work that lessons were drastically curtailed, eased, and even abandoned. Terry was never placed on the extended day (additional work from 3 to 5 P.M.) that he had been on the previous year. In most respects lessons were largely a matter of helping Terry review and keep fresh his previously attained skills rather than a forum for new learning. Terry's actual use of language, however, probably suffered, although measures were not made of his spontaneous speech and this is impossible to know with certainty. In general, however, there definitely seemed to be at least a moderately high correlation between Terry's spirits and the quantity and quality of his speech. A morose Terry spoke little, and the little he did

speak tended to be of especially primitive quality. Terry's spontaneous speech was almost certainly of lower quality during the period from September through February (or so) than it was the previous summer. By late spring, Terry's spontaneous language had improved to the point that it seemed roughly comparable to his language usage of the preceding summer.

Before I close this discussion of Terry's last year at the Day School I want to briefly switch the focus from Terry's experience during that year, to my own. I hope that my sharing may be of some usefulness to others--family or workers--who may find themselves witnessing regression in an autistic child.

For all my familiarity with the literature on autistic children, and awareness of the fact that regression was a common phenomenon, the experience--when I faced it--came as a total shock. I felt wounded. And while I tried to bring to Terry those qualities of love, support, and cheer that he needed, his failure to respond brought a deep sadness into my own life. Perhaps seeing someone you love in pain is inevitably saddening. Yet--I think if I were traveling the same course again, something within me would modulate my personal sorrow, would counsel me about time and patience and healing that may take place through agencies outside ourselves.

It is hard to maintain such a perspective when in the throes of the experience. Yet it would seem to be very important that those

persons who have invested themselves in the care of an autistic child appreciate the fact that rather steady, continuous progress is very much the exception rather than the rule--that descents into valleys are common, and that such declines may best be understood as simply being a part of the path.

Although at some level Terry almost certainly welcomed his transfer to Rimland, he always found change hard, and there was a considerable period of adjustment before he felt entirely at home there. By December of 1978 Terry once more typically appeared happy and relaxed. All trace of facial tics, grimaces, and ritual behavior had disappeared. He enjoyed school, and both at home and school displayed the cheerful and relaxed manner that had come into being and been so much in evidence during the period of intensive training described in the study. Terry's subsequent adjustment to Rimland (through June, 1980) has been reported by his mother to be excellent.

CHAPTER X. DISCUSSION

For all the features that autistic children share, it seems most plausible to consider "autism" a behavioral syndrome which may be produced by a number of different conditions (Wing, 1976b). In this respect there does not exist a "representative" autistic child who may be considered prototypical of all such children. In common with other autistic children Terry's development was characterized by four basic features: early onset; impaired social development; delayed and deviant language; and "insistance on sameness." Examination of Terry at age three revealed no "hard" signs of neurological impairment, while psychological assessment at age 11 found much evidence of it. While Terry possesses normal nonverbal intelligence, he is severely impaired in verbal cognitive performance. Social withdrawal and emotional disturbance were extreme.

Terry's 50-point disparity between verbal and nonverbal estimates of IQ, his markedly inferior auditory processing vis-a-vis his visual processing, his extreme difficulty in acquiring the rudiments of language, as well as many other supporting observations, would seem to indicate that Terry suffers from major neurological impairment affecting a broad range of linguistic, cognitive, and perceptual functions. I believe that from birth Terry's impairments made it impossible for him to integrate his experiences. The world was unpredictable, and intolerable pain caused him to withdraw deep within himself. His failure to relate to others provided the ground

for bizarre behavior and thought patterns which themselves constituted new formidable barriers to relationship, socialization, and learning.

By age 10--at the start of the present work--Terry had made notable improvement over his early years. He was no longer the extremely destructive "wild child" that he had been as a toddler. He had some very limited functional use of speech. He was "manageable" and had made progress in acquiring the skills of reading, writing, spelling, and arithmetic.

Yet if Terry was no longer an intransigent rebel, neither was he a child who had found real satisfaction in his relationship to the world. For the most part he kept strictly to himself. Most utterances were echolalia. He had the appearance of a child lost in his own world.

When I was assigned to work with Terry my first and most immediate goal was to become important to him. I wanted to develop a strong positive affective bond. I strove to please him, delight him, bring him joy. The surest, most successful avenue proved to be pleasurable physical contact and play, as has been reported by many other workers (DeMeyer & Ferster, 1962; DesLauriers & Carlson, 1969; Goldfarb et al., 1956; Schopler, 1962; Steucher, 1972). Although Terry seemed to respond positively to me when I was present with him for some time, he remained largely "distant" and seemingly indifferent to me until I increased the number of hours I spent with him from 3

to 10 each week. The sheer intensity of my involvement with Terry seemed to be crucial to the strong emotional investment that he came to make in me. I took delight in Terry and soon developed a "non-rational"--but highly beneficent--fondness, devotion, love. Whitehorn (1958) stresses the importance of emotional communion with schizophrenic patients and Freeman and McGhie (1975) also emphasize the potency of the therapists' nonverbal behavior with psychotic patients. In my estimation Terry has an extraordinary sensitivity to at least those inner feelings of others that bear directly upon him. While some psychodynamically oriented workers might question my "counter-transference" I feel that my delight in Terry and his progress, my deep investment of feeling, made a powerful contribution to my work with him.

The development of a bond with Terry was not without difficulty or conflict. It was as if at some level Terry knew that for me to become important to him would entail a cost, some reduction, perhaps, in his own fierce independence. In subtle ways, hard to define or describe, yet easy to experience, a shift slowly took place over the first four or five months I worked with Terry. Increasingly I felt I could--and did--make demands on Terry: he owed me. He too seemed to sense this shift--and resist it. A pivotal event was our knock-down, drag-out wrestling match over my insistence that he go to the park. The event came when we were both ready for it. And the day ended with a sign of new bonding when Terry said "Goodby, David," using my name for only the second time since we met.

The bond that grew between Terry and myself created an emotional and affective foundation for the intensive systematic training which was introduced a year after we met. During the first year I worked with Terry our relationship steadily grew in depth and intensity. Slowly but surely Terry offered greater cooperation, and was able to sustain longer work periods. Because of his growth in trust in me he would attempt things in my presence, while I offered active encouragement and support, that he was otherwise afraid to try.

By the end of the first year of intensive training Terry was putting in a 40-hour week at school, with at least 6 hours each day devoted to lessons in which Terry was an active participant, working with the help of an assigned student volunteer or myself. Few normal children of his age faced such a rigorous schedule. Yet Terry prospered and blossomed on this routine.

Beginning in the summer of 1975, and annually thereafter, Terry received comprehensive assessments in language, cognition, perceptual-motor skills, and academic achievement. These evaluations served to guide training efforts and chart progress. In Terry's training extensive use was made of behavior modification principles such as shaping, use of prompts, fading, positive reinforcement, timeout from reinforcement, modeling, and so on. These principles were employed in a flexible manner, adopted to the exigencies of the lesson or task at hand. (That is, Terry's teachers did not present stimuli and offer reinforcement or timeout from reinforcement according to a rigid, predetermined schedule as is the case in some research studies.)

A wide variety of teaching techniques and training programs were employed with, or adopted for use with Terry. Materials and procedures originally developed for use with aphasic children and adults, retarded children, deaf children, culturally-deprived children, learning-disordered children, and children for whom English was a second language, were all used at one time or another with Terry. The systematic intensive training that Terry received was critical to his observed gains, as was clearly demonstrated by the two time series analyses that were conducted.

Having no strong theoretical commitment of my own, I drew freely from the work of both psychodynamic and behavior modification practitioners. I found their distinctive emphases--interpersonal relatedness and directed behavioral change--not contradictory, but complementary. My engaging with Terry in a warm, cheerful, humorous, and vigorous fashion, employing much pleasurable physical contact came to delight him and was instrumental in the development both of his feelings of attachment and of his new willingness to cooperate and work. I tried to be sensitive to Terry's feelings and thoughts and respond to him in a way that he would find meaningful. The early encounter in which I entered Terry's "break the spell!" fantasy is a case in point. My entering into Terry's "spell" fantasy with him did seem important to him and appeared to facilitate the possibility of the two of us being in emotional "touch." Dynamic workers, such as Bettelheim (1967) and Ekstein (1966), in particular stress the importance of the therapist's sharing the child's world of experience

as a necessary precondition of therapeutic change, and from within the behavior modification school Lovaas (1971) has also made a bow toward "empathy." After a period of some months Terry came to spontaneously imitate me on occasion and once insisted during the course of a lesson "I will be David." These events possibly reflect a beginning "internalization of the therapist's image...that allows for the creation of the transference track upon which the psychotherapeutic process may proceed" (Ekstein, 1966, p. 243).

Deliberate and persistent efforts to help Terry develop skills and display increasingly appropriate, i.e., normal, behavior is in close accord with the behavior modification approach, although some psychodynamic workers (e.g., Rutterberg, 1971) also stress this. Familiarity with the behavior-modification literature was extremely helpful in suggesting procedures to maximize Terry's learning. In my opinion Terry would have made relatively little progress in language and cognition in the absence of the intensive systematic training that he received. Recognition of the critical importance and potential value of systematic training of language and cognition to the habilitation of autistic children is one of the major legacies of workers of the behavioral orientation (e.g., Lovaas, 1966).

I have been impressed with the importance of "playing" Terry, or recognizing those times when it is I who must give. As Witmer (1919-1973) put it, "Shall the teacher coax or force him? On the lee side of this question many a gallant educational craft lies shipwrecked" (pp. 53-54). Perhaps this concept is somewhat akin to what Bettelheim

(1970) had in mind when he stated that treatment "has to center greatest respect on symptomatic behaviors..." (p. 409). Certainly it is a close parallel indeed to Kozloff's (1973) injunction to parents to "back up or lower the level of skill required should the child show signs of stress or fatigue" (p. 440) and Lovaas's (1971) remarks regarding the importance of a flexible approach in the implementation of a program.

In sum, concepts drawn from both the behavioral and psychodynamic literature served to illumine work with Terry and contributed to the directions that intervention took. In many respects this eclectic approach was based on empirical considerations: these were the kinds of intervention that seemed to "pay off" for Terry. Indeed, current therapeutic practice seems to be largely determined by empirical considerations (Hingtgen & Bryson, 1973; Schopler, 1974) and there is evidence of an increasing convergence in the methods of intervention adopted by workers of differing theoretical persuasion (Helm, 1976).

Terry's parents were kept closely informed of the work that was taking place with him. Mrs. Egan observed both lessons and assessment procedures on a number of occasions. She learned new ways to play with Terry which both she and he greatly enjoyed. Mrs. Egan received instruction on how to work with Terry on language at home, and other family members helped Terry with perceptual-motor activities, games, and other skills.

Beginning in September, 1975, a number of student volunteers

were assigned to work with Terry on a regular basis, each putting in six hours a week. By November of 1975, and for the next two years, the largest part of Terry's training was done by volunteers. Volunteers were provided extensive training over a period of 2-3 months and continuing active consultation, guidance, and support and supervision throughout the period that they worked with Terry. Several of Terry's volunteers worked with him a full three years. Terry's advances in language and cognition and other areas is a testimony to the devotion and competence of these volunteers. Apart from helping Terry acquire skills, many of his volunteers played a major role in his social-emotional development. Several volunteers became key figures in Terry's emotional life. These relationships broadened Terry's experience, brought him deep pleasure and greatly facilitated his emotional growth. An additional indirect advantage of Terry's deep investment in a number of his volunteers was that it attenuated the extreme attachment and dependency upon me which had developed by the end of the first year that I worked with him.

During the course of a three-year period, 10/74-8/77, which covered Terry's tenth through twelfth year, he made a number of significant advances, although there were important limitations to those advances. Socially-emotionally Terry "came alive." There was a large number of adults he delighted in, and he eagerly sought them out and engaged with them. He showed some limited interest in other children. He came to be able and willing to work in a sustained way for lengthy periods, even for strange examiners when circumstances

required it. He learned many physical skills, showed greater physical daring, and took some pride and pleasure in "showing off." He took pleasure in his lessons and pride in his accomplishments. He appeared happy, developed a lovely sense of humor, and was a real pleasure to persons about him. These changes are the more impressive in as much as important improvement in social-emotional functioning is much more likely in the three to six age period than at an older age (Wenar & Ruttenger, 1976).

Terry showed improvement during the period of intensive work in many areas which were never "targeted" or given special attention, e.g., he stopped putting things to his nose and smelling them and he lost the apparent agnosia that he had exhibited from early infancy and began to show discomfort and speak of pain if, for example, he skinned himself. Terry displayed a sharply increased rate of learning over the course of training: comparable language acquisition that had required months at the beginning of the training could be accomplished in a matter of a few days at a later period.

One of the most remarkable aspects of working with Terry--observed repeatedly--was the transition of a particular activity from one which Terry fiercely resisted learning to one that Terry took great pleasure in and spontaneously sought out. Examples of such change could be drawn from almost any sphere. It took place with respect to playing catch, using small puzzle material, many types of workbooks and kinds of language lessons, and so on. The words of Witmer (1919-1973) seem strikingly applicable:

Fears and desires are the two greatest motives of mankind... As I understand Donnie now, he had no desires, but many fears. We compelled him to do those things which he feared. As soon as he had done the fearful thing, the fear, in many instances, disappeared and desire took its place (pp. 58-62).

With respect to cognitive, linguistic, and perceptual-motor achievement, Terry also displayed important, albeit limited, gains. Terry advanced from borderline to normal on nonverbal tests of intelligence. Language comprehension improved from an age equivalency of about 3-0 to about 6-6. This gain in language comprehension is all the more remarkable in that training did not begin until Terry was age 11 and had already entered puberty. During his two years of intensive language training Terry gained in comprehension the psycholinguistic age equivalency of some 3½ years, demonstrating a sharply accelerated rate of growth. Echolalia virtually disappeared, and Terry's productive speech tended to be much more relevant and communicative. Terry developed appreciably better expressive language so that it was more possible for him to successfully communicate to others.

Terry's linguistic gains--documented at formal assessments--had their behavioral counterparts which were informally observed: He began to listen to television with the sound on; he followed conversations that were going on about him in a way that was new; he sometimes volunteered information about something that was upsetting him; he became more willing and able to answer simple questions.

While Terry displayed important gains in language and

communication, his limitations remained severe. He continued to use language in a stereotyped, sparse, and "lazy" fashion. Competence, limited as it was, still far out stripped performance. Terry rarely volunteered information about himself or events he had experienced, or commented on the day, and so on. Productive speech was largely limited to expressing immediate needs and wants, and those in the briefest possible fashion. It is unclear to what extent this pattern of behavior was occasioned by social-emotional variables, e.g., little need or desire to communicate and share of himself, and to what extent it was dictated by the very real difficulty which Terry experienced in trying to express himself. Probably both factors were operative and important.

In the social-emotional spheres, Terry for all the observed improvement remained highly deviant. He showed only the faintest glimmers of empathy or compassion for another person, and this only rarely. He showed little social sensitivity. His interests were limited and childish: at age 12 a favorite pastime remained smashing rocks together or breaking icicles which had formed.

Under stress Terry would show marked signs of personality disorganization and psychotic thought process. The tenuous and fragile nature of the observed social-emotional improvement was made evident by the sharp regression that took place during his last year at the Day School.

For all of Terry's gains he remained a limited, gravely handicapped youngster whose emotional stability was delicately balanced and in whom stress could easily instigate psychotic process. He shall certainly need sheltered care all of his life (a properly managed board and care home) and is deeply dependent upon caring adults for his welfare and happiness. He is intelligent and lucid enough to be aware of his handicaps--his difference. He has need of deep human contact but is not--except at the most childish and self-centered level--able to care in return. He does not fit into this world, and--I am convinced--deep within himself he well knows it.

The question is occasionally raised: Are these children worth the expenditure of time, energy, and human resources involved, given the often limited gains? In part, the question may be answered from the perspective of a humane and civilized society, to wit: What is the alternative? To the extent that it proves humanly possible, caring for the handicapped and providing for their happiness seems the hallmark of a civilization worthy of the name. The question may be answered, too, from a more limited personal perspective, in terms of the meaning I found in my work with Terry. I shall return to this issue at the close of this summation.

It is pertinent at this point to consider why Terry's improvement proved as limited as it did. There can be no certain answer to this question. Other investigators (Lovaas, 1966; Hensley et al., 1978) have noted that autistic children display extreme variability

in their response to treatment, and the factors involved are still poorly understood. Rutter (1978d) reports that for autistic children with a nonverbal IQ in the normal range the IQ as such is of little predictive value with respect to the acquisition of spoken language. However, the child's quality of play was found to provide a useful guide. The prognosis was less good if the young child did not show spontaneous construction activities; did not show a varied, appropriate, and meaningful use of toys; did not actively explore his environment in a purposeful manner (find out how toys work, etc.). In each of these particulars, Terry's behavior as a young child was prognostic of poor language development. Similarly, prolonged use of echolalia is prognostically associated with poor speech development (Rutter, 1978d). Finally, intensive systematic language training did not begin until Terry was age 11--a point at which Terry had already entered puberty. Most workers attach great importance to beginning such training as early as possible (Hamblin et al., 1971; Lovaas, et al., 1976) and greater progress might have proved possible if such training had been initiated earlier.

There are, of course, a host of unanswered questions relating to the habilitation of autistic children. Unresolved issues range from the very broad--increasing the autistic child's inadequate motivation (DesLauriers & Carlson, 1969; Lovaas, 1977)--to the more particular--the rejection of the autistic child's tentative social overtures by the behavior disordered children with whom they commonly share a classroom (Rutter & Bartak, 1973). There has been increased

understanding of the needs of autistic children over the last two decades, and the problems of autistic persons are currently the focus of much active concern and work. Answers to the many questions and problems associated with the teaching and habilitation of autistic persons awaits future research.

I would not want to end my overview with a discussion of the limitations to Terry's growth, and related unresolved technical problems, however important these considerations must be. Involvement with Terry was never an activity whose value was finally determined by measures of change. For myself, as well as other involved, caring for Terry was an intrinsic good that constituted its own reason for being. Moreover, our own growth and needs were served as we served him. Two excerpts from Milton Mayeroff's brief On Caring (1971) are illuminating in this regard:

This, then, is the basic pattern of caring, understood as helping the other grow: I experience the other as an extension of myself and also as independent and with need to grow; I experience the other's development as bound up with my own sense of well-being; and I feel needed by it for that growing. I respond affirmatively and with devotion to the other's need, guided by the direction of its growth. (pp. 9-10)

Through caring for certain others, by serving them through caring, a man lives the meaning of his own life. (p. 2)

Terry, although gravely handicapped, and deeply fearful of a largely incomprehensible and threatening world, yet possesses a singular independence of vision and spirit. He is a very special human being, a soul who in his own way demands to be taken with the utmost seriousness. Usually abiding within his isolated aloneness, still

when he opens to and meets the other, it is at depth. Those of us who have been privileged to share in his life will not forget.

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APPENDIX I

RIMLAND'S DIAGNOSTIC CHECK LIST FOR BEHAVIOR-DISTURBED CHILDREN

(Form E-2)¹

Mrs. Egan provided the following information on Terry.

1. Present age of child: 11 years
2. Indicate child's sex: Boy
3. Child's birth order and number of mother's other children: Child is middle born; 8 children are older and one is younger
4. Were pregnancy and delivery normal? Problems during both pregnancy and delivery
5. Was the birth premature (birth weight under 5 lbs)? No
6. Was the child given oxygen in the first week? No
7. Appearance of child during first few weeks after birth: Average
8. Unusual conditions of birth and infancy: Normal
9. Concerning baby's health in first three months: Skin rashes
10. Has the child been given an electroencephalogram (EEG)? Yes, it was considered normal
11. In the first year, did the child react to bright lights, bright colors, unusual sounds, etc.? Average, or don't know
12. Did the child behave normally for a time before his abnormal behavior began? Normal during first six months
13. (Age 4-8 months) Did the child reach out or prepare himself to be picked up when mother approached him? No, I don't think he did
14. Did the child rock in his crib as a baby? Yes, quite a lot
15. At what age did the child learn to walk alone? 13-15 months

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16. Which describes the change from crawling to walking? Little or no crawling, sudden start of walking
17. During the child's first year did he seem to be unusually intelligent? Suspected average intelligence
18. During the child's first two years, did he like to be held? Notably stiff and awkward to hold
19. Before age 3, did the child ever imitate another person? No, or not sure
20. Before age 3, did the child have an unusually good memory? No evidence for remarkable memory
21. Did you ever suspect the child was very nearly deaf? No
22. (Age 2-4) Is child "deaf" to some sounds but hears others? Yes, can be "deaf" to loud sounds, but hear low ones
23. (Age 2-4) Does child hold his hands in strange postures? No
24. (Age 2-4) Does child engage in rhythmic or rocking activity for very long periods of time (like on a rocking horse or chair, jump-chair, swing, etc.? Yes, this is typical
25. (Age 2-4) Does the child ever "look through" or "walk through" people as if they weren't there? Yes, often
26. (Age 2-4) Does child have any unusual cravings for things to eat or chew on? Yes, sugar and candy
27. (Age 2-4) Does the child have certain eating oddities such as refusing to drink from a transparent container, eating only hot (or cold) food, eating only one or two foods, etc.? Yes, definitely
28. Would you describe your child around age 3 or 4 as often seeming "in a shell" or so distant and "lost in thought" that you couldn't reach him? Yes, this is a very accurate description
29. (Age 2-5) Is he cuddly? No, rather stiff and awkward to hold

Questions 30-58 refer to child at age 3-5.

30. Does the child deliberately hit his own head? Yes, by banging it against someone else's legs or head, or by hitting walls, floors, furniture, etc.

31. How well physically coordinated is the child (running, walking, balancing, climbing? About average
32. Does the child sometimes whirl himself like a top? No, he shows no tendency to whirl
33. How skillful is the child in doing fine work with his fingers or playing with small objects? Average for age
34. Does the child like to spin things like jar lids, coins, or coasters? Yes, often and for rather long periods
35. Does child show an unusual degree of skill (much better than normal child his age) at any of the following? No unusual skill or not sure
36. Does the child sometimes jump up and down gleefully when pleased? Yes, this is typical
37. Does child sometimes line things up in precise, evenly spaced rows and insist that they not be disturbed? Yes
38. Does the child refuse to use his hands for an extended period of time? No
39. Was there a time before age 5 when the child strongly insisted on listening to music on records? Yes, insisted on only certain records
40. How interested is the child in mechanical objects such as the stove or vacuum cleaner? Little or no interest
41. How does child usually react to being interrupted at what he is doing? Sometimes gets mildly upset; rarely very upset
42. Will the child readily accept new articles of clothing (shoes, coats, etc.)? Usually resists new clothes
43. Is child upset by certain things that are not "right" (like crack in wall, spot on rug, books leaning in bookcase, broken rung on chair, pipe held and not smoked)? Yes, such things often upset him greatly
44. Does child adopt complicated "rituals" which make him very upset if not followed? Yes, definitely
45. Does child get very upset if certain things he is used to are changed? Yes, definitely

46. Is the child destructive? Yes, this is definitely a problem
47. Is the child unusually physically pliable (can be led easily; melts into your arms)? Definitely not pliable
48. Which single description, or combination of two descriptions best characterizes the child? Hyperactive, constantly moving, changes quickly from one thing to another and Watches television quietly for long periods
49. Does the child seem to want to be liked? Indifferent to being liked; happiest when left alone
50. Is child sensitive and/or affectionate? Not sensitive to criticism nor affectionate
51. Is it possible to direct child's attention to an object some distance away or out a window? He rarely sees things very far out of reach
52. Do people consider the child especially attractive? Yes, very good-looking child
53. Does the child look up at people (meet their eyes) when they are talking to him? Never, or rarely
54. Does the child take an adult by the wrist to use adult's hand? Yes, this is typical
55. Which set of terms best describes the child? Aloof, indifferent, self-contented, remote
56. Is the child extremely fearful? Child ignores or is unaware of fearsome objects
57. Does he fall or get hurt in running or climbing? Never, or almost never, exposes self to falling
58. Is there a problem in that the child hits, pinches, bites or otherwise injures himself or others? Yes, self only
59. At what age did the child say his first words (even if later stopped talking)? 3 years - 4 years
60. (Before age 5) Did the child start to talk, then become silent again for a week or more? Yes, but later talked again (age stopped: 3; duration: 3 or 4 weeks)

61. (Before age 5) Did the child start to talk, then stop, and begin to whisper instead, for a week or more? Yes, but later talked again (age stopped: 3; duration: 3 or 4 weeks)
62. (Age 1-5) How well could the child pronounce his first words when learning to speak, and how well could he pronounce difficult words between 3 and 5? Unusually good on first words, and also at 3-5
63. (Age 3-5) Is the child's vocabulary (the number of things he can name or point to accurately) greatly out of proportion to his ability to "communicate" (to answer questions or to tell you something)? He can point to many objects I name, but doesn't speak or "communicate"
64. When the child spoke his first sentences, did he surprise you by using words he had not used individually before? No
65. How did child refer to himself on first learning to talk?
"(Terry) fall down" or "You fall down"
66. (Age 3-5) Does child repeat phrases or sentences that he had heard in the past (maybe using a hollow, parrot-like voice), what is said having little or no relation to the situation?
Yes, definitely, including peculiar voice tone
67. (Before age 5) Can the child answer a simple question like "What is your first name?" "Why did Mommy spank Billy?"
Yes, can answer such questions adequately
68. (Before age 5) Can the child understand what you say to him, judging from his ability to follow instructions or answer you? Understands a little, if you repeat and repeat
69. (Before age 5) If the child talks, do you feel he understands what he is saying? No, he is just repeating what he has heard with hardly any understanding
70. (Before age 5) Has the child used the word "Yes"? Seldom has used "Yes" but has used it
71. (Age 3-5) Does the child typically say "Yes" by repeating the same question he has been asked? Yes, definitely, does not say "yes" directly
72. (Before age 5) Has the child asked for something by using the same sentence you would use when you offer it to him?
(Example: The child wants milk, so he says: "Do you want some milk?" or "You want some milk?") Yes, definitely.
(Uses "You" instead of "I")

73. (Before age 5) Has the child used the word "I"? Seldom has used "I", but has used it correctly
74. (Before age 5) How does the child usually say "No" or refuse something? He would just say "No"
75. (Before age 5) Has the child used one word or idea as a substitute for another, for a prolonged time? (Example: always says "catsup" to mean red) No
76. Knowing what you do now, at what age do you think you could have first detected the child's abnormal behavior? 7-12 months --actually detected at that point in time

Mrs. Egan indicated that none of Terry's blood relatives have ever been in a mental hospital or were known to have been seriously mentally ill or retarded.

The following items were checked as being Very True of Terry:

Before age 2, arched back and bent head back, when held; Before age 2, struggled against being held; Abnormal craving for certain foods; covers ears at many sounds; only certain sounds seem painful to him; inconsolable crying; after delay, repeats phrases he has heard; after delay, repeats whole sentences he has heard; examines surfaces with fingers; chews or swallows nonfood objects; intensely aware of odors

The following items were checked as being True of Terry:

Avoids people; insists on keeping certain object with him; notices changes or imperfections and tries to correct them; tidy (neat, avoids messy things); has collected a particular thing; repeats questions or conversations he has heard, over and over, without variation; hides skill or knowledge, so you are surprised later on; learned words useless to himself; learned certain words, then stopped using them

The following items were checked as being False of Terry:

Eats unusually large amounts of food; fails to blink at bright lights; skin color lighter or darker than others in family; prefers inanimate (nonliving) things; always frightened or very anxious; gets "hooked" or fixated on one topic; holds bizarre pose or posture; dislikes being touched or held; seems not to feel pain; terrified at unusual happenings

APPENDIX II

PSYCHOLOGICAL EVALUATION II (Summer, 1976)

Client: Terrence Egan
 B.D. 7-1-64
 Age: 12-9 (approximate age at time of assessment)

Testing Dates: between 7-12-76 and 8-11-76, and 9-7-76

Report Written by: David Helm

Purpose: Reassessment of cognitive, linguistic, perceptual, and motoric functioning to determine change, and to aid in curriculum planning for academic year 1976-77.

<u>Dates Examined and Tests Administered</u>	<u>Examiner</u>
1) 7-12-76 Peabody Individual Achievement Test	Carol Edwards
2) 7-12-76 Wechsler Intelligence Scale for Children - Revised	Jean Keeley
3) 7-14-76 Ravens Progressive Matrices, 1938 Sets A, B, C, D, E	Aaron Cooper
4) 7-13-76 Stanford-Binet Intelligence Scale Form L-M	Vicki Kaiser
5) 7-13-76 Wechsler Preschool and Primary Scale of Intelligence	Cheryl Rampage
6) 7-19-76 Leiter International Performance Scale	Lori D'Asta
7) 7-19-76 Peabody Picture Completion Test, Form B	Lori D'Asta
8) 7-19-76 Ammons Full-Range Vocabulary Test Form A	Lori D'Asta
9) 7-20-76 The Basic Concept Inventory	Aaron Cooper
10) 7-20-76 Boehm Test of Basic Concepts	Aaron Cooper
11) 7-22-76 Detroit Tests of Learning Aptitude	Barbara Rosen
12) 7-21-76 to 7-31-76 Cooperative Primary Tests	Barbara Rosen
13) 7-21-76 Frostig Developmental Test of Visual Perception	Robert Cavanagh
14) 7-23-76 Bender Gestalt	Robert Cavanagh

15) 7-23-76 Developmental Test of Visual-Motor Integration	Robert Cavanagh
16) 7-23-76 Draw-A-Man	Barbara Rosen
17) 7-26-76 Porch Index of Communicative Abilities in Children, Advanced Format	Dorothy Wood
18) 7-27-76 Wide Range Achievement Test	Carol Edwards
19) 8-5-76 Northwestern Syntax Screening Test	Joan Diederich
20) 8-5-76 Illinois Test of Psycholinguistic Ability	Joan Diederich
21) 8-5-76 Michigan Picture Language Inventory	Joan Diederich
22) 8-5-76 Test for Auditory Comprehension of Language	Joan Diederich
23) 8-6-76 Wing-Semel Test of Linguistic Concepts	Donald Miro
24) 8-6-76 Assessment of Children's Language Comprehension	Donald Miro
25) 8-6-76 Envad: Test of Nonverbal Auditory Discrimination	Donald Miro
26) 8-11-76 Childrens Embedded Figures Test	Frank Lani
27) 8-11-76 Perceptual Integration Test	Frank Lani
28) 8-11-76 Perceptual Ambiguity Test	Frank Lani
29) 9-7-76 Carrow Elicited Language Inventory	Susan Mulhern
30) 9-7-76 Developmental Sentence Analysis	Susan Mulhern

Testing Circumstances

Terry was tested by a number of different examiners in a variety of situations. Two of the examiners, Barbara Rosen and Carol Edwards, were experienced teachers in a Masters Program in Special Education who were doing a practicum in Terry's classroom at the Loyola Day School. Both had occasionally worked with Terry. Eight of the examiners (Jean Keeley, Aaron Cooper, Vicki Kaiser, Cheryl Rampage, Lori D'Asta, Robert Cavanagh, Donald Miro, and Frank Lani) were advanced graduate students in clinical psychology serving an internship at the Loyola Guidance Center and Day School. While all

of these persons were known to Terry by sight, none had every worked with him directly or in his classroom. All of the above examiners worked with Terry alone in one of several different interview rooms at the Loyola Guidance Center. All examiners reported that Terry was cooperative and that the obtained test results seemed to reflect a valid estimate of his current ability. Several of these examiners wrote behavioral observations which are appended to the close of this report.

Ms. Susan Mulhern, Clinical Supervisor of the Northwestern University Speech and Language Clinic, examined Terry in a room with his mother present but out of Terry's sight. Terry had never met Ms. Mulhern before this testing.

Ms. Joan Diederich, Acting Director of Speech Pathology and Audiology of Foster G. McGaw Hospital of Loyola University of Chicago, assessed Terry in an examining room at McGaw Hospital. This was Terry's first meeting with Ms. Diederich. Mrs. Egan and David Helm were both seated in the same room but at some distance from Terry and Ms. Diederich as the examination took place.

Ms. Dorothy Wood, Speech Pathologist of the College of Speech and Communicative Disorders at Marquette University, examined Terry at the Loyola Guidance Center in the presence of Mrs. Egan and David Helm. This was Ms. Wood's first meeting with Terry.

The complete reports of the three speech specialists are appended to the close of this report.

Test Results

A. Intellectual Functioning

1) Raven Progressive Matrices - 1937 Sets A, B, C, D, E

Score: 27 (A score of 23 would have placed Terry at the 10th percentile, for his age with an IQ equivalent of about 80; a score of 30 would have placed Terry at the 25% percentile for an I.Q. equivalent of about 89. Interpolating, Terry's score of 27 is equivalent to an IQ of about 86.)

2) Leiter International Performance Scale

MA: 10-0
IQ: 83
Adjusted IQ: 88

3) Wechsler Intelligence Scale for Children - Revised (WISC-R)

<u>Verbal Tests</u>	<u>Raw Score</u>	<u>Scaled Score</u>
Information	4	1
Similarities	7	4
Arithmetic	2	1
Vocabulary	0	1
Comprehension	0	1
(Digit Span) ¹	(6)	(3)
Verbal Score		8

<u>Performance Tests</u>	<u>Raw Score</u>	<u>Scaled Score</u>
Picture Completion	17	7
Picture Arrangement	11	4
Block Design	44	13
Object Assembly	26	12
Mazes	25	12
Performance Score		48

	<u>Scaled Score</u>	<u>IQ</u>
Verbal Score	8	47
Performance Score	48	96
Full Scale Score	56	70

¹Subtest not used in computation of I.Q.

4) Peabody Picture Vocabulary Test - Form B

Raw Score: 60 MA: 6-10 IQ: 64

5) Stanford-Binet Intelligence Scale - Form L-M

CA: 12-0 MA: 6-5 IQ: 58

6) Wechsler Preschool and Primary Scale of Intelligence (WPPSI)

<u>Test</u>	<u>Raw Score</u>	<u>Estimated Age Equivalent</u>
Information	5	3-9
Vocabulary	11	4-0
Arithmetic	9	5-0
Similarities	13	6-5
Comprehension	4	3-11
Sentences	10	4-6

Estimated Mean M.A.: 4-7
 Chronological Age: 12-0
 Estimate IQ: 38

7) Detroit Tests of Learning Aptitude (DTLA)

<u>Test</u>	<u>Score</u>	<u>Age Equiv.</u>
Verbal Absurdities	0	<5-0
Verbal Opposites	30	9-0
Auditory Attention Span, Simple	40	6-6
for Unrelated Words } Weighted	188	5-9
Oral Commissions	9	5-6
Visual Attention Span, Simple	30	5-6
for Objects } Weighted	156	5-6
Orientation	5	3-3
Free Association	1	<5-3
Memory for Designs	26	10-3
Auditory Attention Span for Related Syllables	12	3-0
Disarranged Pictures	1	<5-6
Oral Directions	0	<6-3
Likenesses and Differences	1	<6-9

8) Full-Range Vocabulary Test - Form A (Ammons)

Score = 28
 M.A. = 7-3
 IQ = 60

Terry again displayed far greater strength on non-verbal tests of intelligence than on verbal tests of intelligence, as he had in the initial comprehensive assessment of the summer of 1975. Indeed, the disparity between non-verbal and verbal test results was even more striking during the current assessment. Although his score on the Ravens Matrices did not change appreciably, Terry's estimated IQ

on the Leiter rose 20 points and his estimated IQ from the Performance Scale of the WICS-R rose 19 points. In contrast, there was essentially no improvement in Terry's functioning on the Verbal Scale of the WISC-R or on the Peabody Picture Completion Test. Terry's very poor performance on the Binet, WPPSI, verbal portions of the DTLA, and the Ammons further underscores his severe deficit in intellectual tasks requiring language.

Terry's marked increase in estimated IQ on the Performance Scale of the WISC-R essentially reflects greatly improved performance on three of the sub-scales (Block Design, Object Assembly, and Mazes) and the choice of using the Mazes subtest rather than Coding as part of the Performance Scale battery. As part of his perceptual training Terry had been given extensive experience over the past year with a variety of materials that are closely related to these three subtests, such as parquetry, puzzles, commercially-produced design cubes and mazes, etc. Casual observation suggested that Terry had dramatically gained in mastery in the use of such materials, and the test results seem to confirm this impression.

It had been decided before the administration of the WISC-R to substitute the Mazes for the Coding sub-test in the determination of the Performance Scale IQ. This decision was made because Terry typically displays an obsessive concern with neatness and correctness of execution when writing or copying a design. He simply ignores any suggestions to "work as fast as possible" when undertaking such a task, and proceeds with meticulous deliberation. Accordingly, it was felt that the Mazes sub-test might be a more appropriate choice than the Coding.

Of the Verbal sub-scales of the WISC-R, two scales reflected an appreciable change from Terry's performance of the year before: the Similarities score showed a marked increase (SS:4 vs SS:1) and Digit Span showed a marked decrement (SS:3 vs SS:7). Terry's improved performance on the Similarities very possibly reflects the training in identifying how things are alike and different that he had received in the Distar Language Program over the past year. His relatively poorer performance on the Digit Span may reflect greater fatigue at the time of the current testing. In the summer of 1975 the WISC-R subtests had been spread over the course of the entire day. At the time of the present testing all subtests were administered in a single 75-minute session, and the examiner noted that Terry had become fatigued as testing continued.

Because Terry had done so poorly on the Verbal WISC-R sub-scales in the summer of 1975, it had been decided to give him the WPPSI verbal subscales to get some idea of how he would perform on this easier test. Since Terry was beyond the age norms for this test, no true scale scores or verbal I.Q. could be obtained.

Instead, the raw scores were converted to an estimated age equivalent as an aid to interpretation. Terry's best performance was again on Similarities. In general, his scores simply provided further evidence of the severity of his deficit in the verbal areas.

On five of the subtests of the DTLA administered, Terry did not achieve the minimum number of correct answers necessary to establish an age-equivalent. His best performance on a verbal test was on Verbal Opposites. This latter would seem to reflect Terry's enthusiasm for the training in opposites provided by the Distar Program. (Terry enjoys "Opposites" so much that he often initiates a verbal game employing "opposites").

It is interesting to note that Terry is much more disadvantaged vis a vis normal children in his memory for related words than he is in his memory for unrelated words, a finding common in autistic children (Hermelin & O'Connor, 1967). That is, normal children find it much easier to repeat words from memory which are meaningfully related, as in a simple sentence, than to repeat a chain of unrelated words. Terry enjoys no such advantage. It is as if the related words do not form a meaningful gestalt for him.

In sum, results of intellectual testing suggest that Terry may well have benefited from the program of intensive training of the past year with respect to non-verbal intellectual functioning. However, it would seem that Terry did not gain in his verbal intellectual ability--the focus of greatest effort and concern. It is of interest to note, however, that two verbal subtests in which Terry displayed at least some modest ability, the Similarities subtest of the WISC-R and the Verbal Opposites of the DTLA, are similar in content to part of the Distar Language Program which Terry has received training in.

B. Linguistic Functioning

1) Northwestern Syntax Screening Test (NSST)

Receptive Language Score: 24

This score lies between the 50th (22) and the 75th (25) percentile for children age 3-0 to 3-11.

Expressive Language Score: 24

This score lies between the 75th percentile (23) and the 90th percentile (26) for age 3-0 to 3-11. It is just below the 50th percentile (25) for age 4-0 to 4-11.

2) Test for Auditory Comprehension of Language (TACL)

Raw Score: 81

Age Equivalency: 5 years, 11 months

3) Illinois Test of Psycholinguistic Ability (ITPA)

<u>Auditory-Vocal:</u>	<u>Raw Score</u>	<u>Age Equiv.</u>
<u>Representational Level</u>		
Auditory Reception	24	5-10
Auditory Association	20	5-9
Verbal Expression	13	4-8
<u>Automatic Level</u>		
Auditory Memory	20	5-6
Grammatical Closure	19	6-5
<u>Visual-Motor:</u>		
<u>Representational Level</u>		
Visual Reception	25	7-9
Visual Association	20	6-0
Manual Expression	26	7-11
<u>Automatic Level</u>		
Visual Memory	22	8-4
Visual Closure	31	9-0

Composite Psycholinguistic Age: 6-7

4) Porch Index of Communicative Abilities in Children, Advanced Format

Normative Age for General Communicative Ability: 3-4

5) Michigan Picture Language Inventory (MPLI)

<u>Test</u>	<u>Expression Score</u>	<u>Est. PLA</u>	<u>Comprehension Score</u>	<u>Est. PLA</u>
Vocabulary	22	5+	29	5+
Language Structure	51	6	65	6+

6) Developmental Sentence Analysis (DSA)
Developmental Sentence Score: 2.26

This score falls below the 10th percentile level for three-year-olds and approximately at the 25th percentile level for children from age 2 to 2 years, six months.

7) Carrow Elicited Language Inventory (CELI)

The large majority of scores fell below the 50th percentile for children age 4-0 to 4-11. Total Errors: 36

8) Assessment of Children's Language Comprehension (ACLC)

Terry's performance on this test included only one error. The average first or second grader should receive a virtually perfect score. No age equivalent score available.

9) Wiig - Semel Test of Linguistic Concepts

	Correct			
Comparative Relationships	4	\bar{X} G1 = 7.7	S.D. = 1.55	
Passive Relationships	3	\bar{X} G1 = 6.6	S.D. = 1.43	
Temporal Relationships	4	\bar{X} G1 = 6.5	S.D. = 1.50	
Spatial Relationships	6	\bar{X} G2 = 7.2	S.D. = 1.52	
Familial Relationships	0	\bar{X} G1 = 1.4	S.D. = 1.50	
Total Test	17	\bar{X} G1 = 26	S.D. = 4.99	

Consideration of the language test results as a whole make it clear that Terry is seriously disabled in virtually every aspect of linguistic functioning. The severity of handicap as assessed in any given instance is a function both of the particular language process being assayed and the method of assessment employed. Thus, on the NSST Terry's performance on Comprehension is similar to that of a child of 3½ while on the TACL it is comparable to that of a child of almost age 6. Both of these rather disparate results may be taken as valid estimates of Terry's functioning vis a vis normal children on the specific tasks utilized in the two tests. Because of the extremely deviant (not merely delayed) development of Terry's language, it would be highly misleading to take any single language test score as representative of Terry's "general" or "overall" ability in a given area. This caveat will be discussed in greater detail below.

On the NSST Terry's Expressive Language score fell just below the 50th percentile for children age 4-0 to 4-11. On the Verbal Expression subtest of the ITPA he achieved an age equivalent of 4-8. Terry scored near the ceiling (ages 5+ to 6+) on both the Comprehension and Expression portions of the MPLI. Terry's performance on the ACLC was also at ceiling (about age 6).

On the Auditory-Vocal portion of the ITPA Terry's psycholinguistic age equivalent ranged from a low of 4-8 (Verbal Expression) to a high of 6-5 (Grammatical Closure). In general, performance on the Visual-Motor tests was somewhat better, ranging from an equivalency of 6-0 (Visual Association) to 9-0 (Visual Closure).

Terry obtained a score below that of average first graders (the youngest normative group) on all portions of the Wiig-Semel Test of Linguistic Concepts. Performance on the Carrow Elicited Language Inventory fell well below the 50th percentile for children age 4-0 to 4-11, but above the 50th percentile for children age 3-0 to 3-11.

Terry obtained an age equivalent of 3-4 for General Communicative Skills on the Porch Index of Communicative Abilities in Children-Advanced Format. His Developmental Sentence Score fell at approximately the 25th percentile for children from age 2 to 2 years, 6 months.

While the overall pattern of test results reveals severe impairment in virtually every aspect of Terry's linguistic functioning, these results are most meaningful when considered in comparison to Terry's performance in 1975. For most of the tests and subtests of verbal functioning which Terry was assessed on in both 1975 and at present, Terry displayed a gain of psycholinguistic functioning of approximately one year or more. To cite a particularly striking example: In 1975 Terry obtained a psycholinguistic age equivalent of 3 years, 10 months on the TAFL, while at the present testing he obtained an age equivalency of 5 years, 11 months--a gain of two years and one month. Such an advance is particularly impressive when it is considered that Terry obtained the first score when his chronological age was 11. That is, over the first 11 years of his life, Terry had achieved a comprehension of language comparable to a normal child of just less than age four, as assessed by this instrument. His rate of learning thus had been less than one-third that of a normal child. During the past one-year period of intensive language training, however, he gained the equivalent of two years of linguistic functioning as assessed by this instrument.

Although Terry's performance on the large battery of language tests administered was variable, as might be expected, the clear trend was in the direction of marked improvement. This trend is brought into evidence in the table below which compares Terry's

performance on all auditory and vocal language measures which were employed in both 1975 and 1976.

Instrument	1975		1976		Change in Psycho- Linguistic Age Equivalency
	Raw Score	Psycho- Linguistic Age Equiv.	Raw Score	Psycho- Linguistic Age Equiv.	
TACL	64	3-10	81	5-11	+2-1
NSST					
Receptive	17	3-0(est.)	24	3-6(est.)	+0-6(est.)
Expressive	10	3-0(est.)	24	4-4(est.)	+1-4(est.)
ITPA (Auditory-Vocal)					
Aud. Reception	2	2-4	24	5-10	+3-6
Aud. Association	10	4-1	20	5-9	+1-8
Ver. Expression	6	3-1	13	4-8	+1-7
Aud. Memory	26	7-2	20	5-6	-1-6
Gram. Closure	7	4-2	19	6-5	+2-3
Composite PLA		5-3		6-7	+1-4

The overall pattern of change found in the test scores strongly suggests that Terry benefited markedly from the program of intensive language training in which he was involved. On a more sober note, however, it must be stated that the scores cited above grossly overestimate Terry's actual spontaneous linguistic functioning vis a vis normal children of a comparable "psycholinguistic age," especially with respect to expressive language functioning. This opinion is based on two considerations: (1) Terry's use of language in social situations; and (2) the nature of the assessment instruments.

With regard to the first factor, Terry uses speech most grudgingly. He tends to prefer to lead someone to where he wants them to go rather than tell them. He will never use two words where one will suffice. He will use methods for communicating which are entirely outside the repertoire of the normal child. For example, to end a lesson he may say "You did good" echoing the words he has heard a teacher use to end the lesson on another occasion, seemingly in the hope that the teacher will take the hint and be good enough to say them again. The inescapable impression is that the normal three-year-old uses language far more effectively than Terry. With respect to the nature of the instruments used, it should be noted, for example, that the expressive language portion of the NSST calls for the child to successfully repeat the appropriate phrase which the examiner has stated. To the extent that Terry has a linguistic "strength" it

lies in echolalia, and this assessment task does not, of course, closely parallel the demands of normal social speech. To take another example: on the test of verbal expressiveness of the ITPA the examiner shows the child an object and the child acquires points (achieves a higher psycholinguistic age) for each different quality which he uses in describing it. For instance, the examiner may show the child a small red rubber ball, and the child may describe it in the following manner: "It is red (1) and made of rubber (2) and you can throw it(3)." Terry could obtain an equally high score (an equivalent psycholinguistic age) by simply saying "Red. . .rubber. . . throw." In fact, Terry typically uses language in just such staccato fashion, and his obtained score on this subtest is, accordingly, misleadingly high if taken as representative of his general expressive ability.

The disparity between Terry's achievement on some tests of verbal expressiveness and his actual use of language in a "social" situation is highlighted by the results of the Developmental Sentence Analysis. In this test, a child's spontaneous language is tape-recorded as he responds to an interview given by an experienced speech clinician. A transcript is made from the tape and a sample of the child's utterances are selected for analysis and compared with normative data. This assessment, undertaken by Ms. Susan Mulhern, Clinical Supervisor at the Northwestern University Speech and Language Clinic, provided an extraordinarily sensitive picture of Terry's actual use of language in a social situation.

In this assessment, fifty of Terry's complete sentences were analyzed and scored with respect to their grammatic structure. Terry's score of 2.26 on the Developmental Sentence Scoring (DSS) falls below the 10th percentile for children age 2 years, zero months to 2 years, 11 months. Terry's "best" spontaneous language, then, was no more grammatically complex than that of a normal child of just barely age two. Further, in compiling this corpus of 50 sentences, some 80% of Terry's utterances had been eliminated in arriving at the sample because they were completely irrelevant to the situation, echoed, or unintelligible. The analysis revealed two striking characteristics of Terry's speech: (1) extremely limited grammatic usage and (2) a high frequency of semantic error. Semantic errors included confusions between such words as boy/girl, they/it, and comb/hair. Such numerous semantic errors are not at all typical of the language usage of even very young children. It was also noted that Terry spoke in a monotone and articulation became somewhat unclear as rate increased. Terry could not be induced to role play; that is, he could not respond to such questions as "What do you think the boy will say?" when looking at a picture of some activity. He never responded appropriately to "Why," "How about," "What if" or "What. . . for" questions, although in the examiners' experience children by the age of three, even if their expressive language usage is quite delayed, are able to do so.

Ms. Mulhern summarized her findings and recommendations as follows:

"(Terry) obviously has the articulation, auditory memory span and vocabulary to learn grammatical utterances. A question remains regarding his intent to communicate and his semantic knowledge. My basic feeling is that his needs in language learning at this point are receptive rather than expressive. Terry needs to learn about word meanings and what verbal communication is about. For this reason, I would see role playing and expansion of understanding of questions as imperative at this point in his treatment."

It should be noted that the decision to have Terry's speech evaluated via a Developmental Sentence Analysis was arrived at precisely because the evaluations produced by many of the other language measures employed seemed to grossly over-estimate the level of Terry's actual spontaneous language usage. The DSA confirmed this observation in an emphatic manner. This is not to say that the improvement in scores on the NSST, TACL, and ITPA does not reflect real growth in Terry's receptive and expressive language. It merely underlines the fact that an obtained "psycholinguistic age equivalent" on these instruments does not, for Terry, reflect a comparable expressive language performance in social language usage.

C. Perceptual, Motor, and Perceptual-Motor Functioning

1) Bender Gestalt: 4 errors (Koppitz scoring)

2) Childrens Embedded Figures Test (CEFT)

Score: 25 For boys age 11-12, \bar{X} = 18.9, S.D. = 5.5

(Score is number of correct identifications of imbedded figures out of 25 designs; Terry achieved a perfect score.)

3) Developmental Test of Visual-Motor Integration

UMI Raw Score: 14 Age Equivalent: 7-4

4) Perceptual Ambiguity Test

Score: 9 (\bar{X} for age $6\frac{1}{2}$ - $7\frac{1}{2}$ is 7-8 pts.)
 (\bar{X} for age 8 - $9\frac{1}{2}$ is 11-14 pts.)

5) Tenvad: Test of Nonverbal Auditory Discrimination

<u>Test</u>	<u>Raw Score</u>	<u>Expected Raw Score for Children Age Eight</u>
Pitch	*10	9
Loudness	*10	5
Rhythm	*10	9
Duration	*10	7
Timbre	*10	9

*All items correct

6) Draw-A-Man

7) Perceptual Integration Test

Score: 19 (9- and 10-year-olds: 16-21 pts.)

8) Frostig Developmental Test of Visual Perception

<u>Test</u>	<u>Raw Score</u>	<u>Age Equiv.</u>
I Eye-Motor Coordination	15	7-0
II Figure Ground	20	8-3 (ceiling score)
III Form Constancy	16	9-0
IV Position in Space	8	8-9 (ceiling score)
V Spatial Relations	7	8-3

In the assessment of last year, Terry had displayed a number of notable weaknesses in the perceptual motor area and an intensive training program had been introduced as a consequence. Results of the current evaluation suggest that there has been an important improvement in perceptual-motor functioning, although notable deficiencies remain.

A normal child of age 11 or 12 may be expected to make approximately 0-3 errors on the Bender Gestalt. In 1975, Terry made 9 errors while at the recent assessment the number of errors fell to 4.

Performance on the Frostig Developmental Test of Visual Perception also revealed major improvement in functioning as detailed in the table below:

Frostig Developmental Test of Visual Perception

Subtest	1976		1975	
	<u>Raw Score</u>	<u>Age Equiv.</u>	<u>Raw Score</u>	<u>Age Equiv.</u>
I Eye-Motor Coord.	15	7-0	13	6-3
II Figure-Ground	20*	8-3*	20*	8-3*
III Form-Constancy	16	9-0	11	7-6
IV Position in Space	8*	8-9*	5	5-6
V Spatial Relations	7	8-3	5	6-6

*test ceiling

It should be noted that extensive use was made of Pictures and Patterns: The Frostig Program for the Development of Visual Perception as training material over the past year, and this training in all likelihood contributed importantly to Terry's improved functioning in the tested areas.

Terry displayed no disability with respect to non-verbal auditory discrimination as assessed by the Tenvad. He scored near the ceiling on the Perceptual Integration Test but displayed difficulty with the Perceptual Ambiguity Test. He obtained an age equivalent score of only 7-4 on the Developmental Test of Visual-Motor Integration.

An especially interesting finding was Terry's achievement on the Children's Embedded Figures Test. In this test a child is asked to discern a simple geometric figure which is "imbedded" within a larger complex design. Terry obtained a perfect score and, according to the examiner, "spotted" the embedded figure virtually immediately in every case. Such performance is indicative of "field independence"--the ability to isolate or separate an item from an organized context. High scores of the CEPT are correlated significantly with composite scores for the WISC Block Design, Object Assembly and Picture Completion, subtests on which autistic children typically show strength but show no relation with WISC composite verbal-comprehension scores. It has also been found that field independent children are significantly less affected by approval or disapproval than children who are field dependent (Witkin, Oltman, Raskin & Karp, 1971). Terry's accomplishment on the CEFT was one of the very few instances in which his performance on a test was definitely superior to that of a normal child of his age. It is an interesting question

as to whether other autistic children would display a comparable advantage on this test.

D. Understanding of Basic Concepts and Academic Achievement

1) The Basic Concept Inventory

<u>Test Section</u>	<u>Errors</u>
Part One	16
Part Two: Statement Repetition	2
Part Two: Questions	6
Part Three	3
<u>Total:</u>	27

2) Boehm Test of Basic Concepts

Items correct on Form A: 25

Items correct on Form B: 32

Items correct on both Form A and Form B: 20

3) Peabody Individual Achievement Test (PIAT)

<u>Subtest</u>	<u>Raw Score</u>	<u>Grade Equiv.</u>
Mathematics	21	1.9
Reading Recognition	51	6.4
Reading Comprehension	34	3.6
Spelling	44	4.6
General Information	5	>0.1
Total Test	155	3.2

4) Wide Range Achievement Test (WRAT)

	<u>Level II</u>		<u>Level I</u>	
	<u>Raw Score</u>	<u>Grade Equiv</u>	<u>Raw Score</u>	<u>Grade Equiv.</u>
Spelling	12	4.3	43	5.3
Arithmetic	10	1.9	26	2.8
Reading	30	4.6	66	5.3

5) Cooperative Primary Tests

<u>Date</u>	<u>Test</u>	<u>Number Right</u>	<u>%ile</u>	<u>Norms Group</u>
7-21-76	Mathematics, 12A	30	20	Grade 1 (Spring)
7-19-76	Listening, 12A	22	8	Grade 1 (Spring)
7-31-76	Reading, 12A	31	79	Grade 1 (Spring)
7-20-76	Word Analysis, 13A	50	92	Grade 1 (Spring)
7-31-76	Writing Skills, 23A			Grade 2 (Spring)
	Spelling	24	94	
	Capital/Punct.	24	52	
	Total	45	75	

The Basic Concept Inventory assesses a child's understanding of some key concepts utilized in new learning situations in the first grade (e.g., the concept not) and the child's understanding of conventional statements. Terry has a propensity to respond to the last word of an utterance made to him without regard to the preceding words, that is, he ignores the context. Many of his errors on this test highlighted this tendency. When asked to "Find the ones that are not a bed" he (predictably) pointed to the bed. When asked to "Find the one that can see a chair" he pointed to a chair. Nonetheless, Terry made only half the number of errors on this test during the current assessment as he did in 1975. Many of the tested concepts are given particular attention in the Distar Language Program and Terry's training in this program probably was an important factor in his better performance.

The Boehm Test of Basic Concepts is a test of 50 basic concepts which virtually all normal children have mastered by age seven. In 1975 Terry's performance on this test did not exceed chance. At the current testing, however, he correctly identified 20 of the 50 concepts on both forms of the test. Chance alone is not likely to have accounted for more than about 5 or 6 such successes. These results suggest that Terry has begun to make real progress in his understanding of elementary concepts.

The results of the WRAT indicate that Terry has not advanced in his skills in spelling, arithmetic, and reading recognition. This may in part reflect the fact that relatively little attention has been given to these subjects in the past year.

Of special interest in the PIAT results is the disparity between achievement in Reading (word) Recognition and Reading Comprehension. Terry, in common with many autistic children, appears to be "hyperlexic" in that his ability to correctly "sound out" words far outstrips comprehension.

It is of interest that Terry's poorest achievement among the several Cooperative Primary Tests is on Listening where his performance ranks him with the 8th percentile of children beginning first grade. In contrast, his Reading score is at the 79th percentile, and writing skills are at the 75th percentile. These findings further underscore Terry's basic deficit in the comprehension of spoken language.

Summary and Recommendation

During the past year Terry has been involved in an intensive program of language training and motor-perceptual training. The present assessment was undertaken to determine the effects of this program and provide a guide for further work.

At the present testing, Terry scored appreciably higher than he did a year ago on two of the three non-verbal measures of intelligence. There was no change in his functioning on verbal IQ tests.

The current assessment provides strong evidence that Terry has made important progress in his comprehension of language, at least as regards very simple and elementary verbal concepts. There is evidence, too, of some progress in expressive language. However, Terry's use of language remains extremely primitive--indeed, his spontaneous, expressive language tends to be rather less effective than that of a normal child of age two and a half. Training to date has not permitted Terry to be more successful at relatively complex verbal tasks (e.g., the Comprehension subtest of the WISC-R).

Terry has apparently benefited considerably from the training in perceptual-motor skills in which he has been involved. There has been no significant change in Terry's academic abilities.

It is recommended that intensive language training continue, utilizing the Distar and Peabody language programs, as well as other formats. Emphasis should be placed on helping Terry to give meaningful answers to simple questions, and on role-playing. Perceptual training should be de-emphasized, although not completely discontinued. Greater time and attention should also now be given to basic arithmetic skills and reading comprehension.

APPENDIX III

Reports of Speech Pathologists

A. Evaluations by Ms. Susan T. Mulhern, Clinical Supervisor, Speech and Language Clinics, Northwestern University

1. First Evaluation--July 29, 1976

Enclosed are the results of the Developmental Sentence Analysis (DSA) of the language Terry offered during the evaluation and the results of the Carrow Elicited Language Inventory (CELI).

I had to make some decisions regarding Terry's language before applying the DSA procedures. First, I decided to score only complete sentences, that is, to do a Developmental Sentence Scoring (DSS) rather than a Developmental Sentence Type (DST) analysis. I did this because I felt sentences were representative of his most complex language usage and thus the most interesting. I also decided to eliminate any utterance which was not related to the stimulus materials or the situation. Thus, Terry's utterances "Are you sure you're happy?" or "Today I sleep. Tomorrow I will sleep." were not analyzed because the utterances did not appear to be directed to me and did not seem to be related in any way to the pictures he was looking at. When the same utterance occurred more than once it was included in the analysis only one time. All echoed and unintelligible utterances were also eliminated as per DSA procedures. Eighty percent of the utterances were eliminated in achieving the sample analyzed.

Enclosed is a copy of the 50 sentences analyzed. Terry received a DSS of 2.26. This score falls below the 10th percentile level for three-year-olds and approximately at the 25th percentile level for 2 to 2 years, 6 months old children. Only 40% of the sentences analyzed were completely correct. Two aspects of the sample are striking: 1) the extremely limited grammatic usage and 2) the frequency of semantic error. Information in parenthesis on the scoring form is an indication of semantic confusion or explanation of scoring.

Regarding grammatic usage: 72 percent of the verbs used were present progressive. The only other tenses used correctly were the copula are (1) irregular past tense (2) modal will (1) and obligatory do (1). Other verb attempts were uninflected or incorrect tense combinations such as are hurt or is open. Other than the one question and one future tense utterance no item scored higher than #3. There were no secondary verbs, or negatives and only one question elicited. Conjunction words only occurred between phrases. What is striking is that children at this very early stage of grammatic usage usually rely heavily on imperatives

and attempt many questions. These did not characterize Terry's language.

Regarding semantic usage: Terry appears to have a very limited vocabulary of verbs and his knowledge of the semantic characteristics appears limited. For example, Terry used the verb fall (down) whenever a picture depicted something moving vertically downward in space. He used this verb with both the object which was changing position and the person who caused the object to change position as subjects. This resulted in some very peculiar sentences, for instance, "The girl is falling down the fish." This sentence could be explained as a sequential error, that is, a confusion in word order with a reversal of the subject and object of the sentence. But the error was so common in the sample and occurred in situations where the sequential error is not obvious that I feel his error results from an incomplete knowledge of the semantic properties of verbs, i.e., fall (down) takes the object which is changing position as its subject, if one wishes to have the person who causes the change in position as subject one can't formulate an active voice sentence using fall but must use another verb such as drop. Either Terry's verb vocabulary is very limited or his knowledge of the verbs he uses is incomplete, resulting in usage errors. Another type of verb error based on a semantic error occurred in the sentence "The girls are lying the socks." In the picture Terry was describing two little girls who have mixed up their socks so that each child has on one red sock and one blue sock. The girls have made a mistake or done something wrong in the sense that people usually wear matching socks. The use of the verb lying to describe this error is incorrect in that the children are not trying to deceive anyone. The error reflects an incomplete knowledge of the meaning of lie and is similar to some of the usage errors reported by Piaget in his studies of young children. There were also semantic errors in noun usage: boy/girl, they/it, feet/shoes, drapes/bedspread, comb/hair. These numerous semantic errors are not at all typical of the language usage of even very young children.

Two other factors of this sample should be discussed: 1) prosody and 2) role taking. Terry's intonational usage in spontaneous utterances was very limited. He spoke in a monotone with almost equal stress on each word and a slight drop in pitch at the end of utterances. Rate was very rapid and articulation became mildly unclear as rate increased. When Terry echoed an utterance of mine he correctly duplicated my intonational usage, at times with some exaggeration. Rate remained rapid. Utterances which appeared to be some form of delayed echo, i.e., "The four horsemen of the apocalypse" also contained intonational variety, with changes in rate and at times staccato production.

I was unsuccessful in getting Terry to do any role playing during the session. He never responded to questions like "What do you think the mother will say to the little boy?". I was unable to get Terry to relate the activities in the pictures to experiences he might have had. Also, he never responded appropriately to "Why," "How about," "What if," or "What. . .for" questions. In my experience children by the age of three, even if their expressive language usage is quite delayed, easily take on roles, relate the pictures to their own experiences and respond to questions which require abstraction from the picture stimuli. Whether Terry's failure to do these is the result of receptive language problems or other factors is not known to this examiner.

The Carrow Elicited Language Inventory (CELI) was administered. The score on this test is the number of errors. It does not result in an age level score. Terry's performance on this test was above the level achieved on the DSS but considerably below the 7-year level, the ceiling of this test. He made 36 errors. I compared his performance to the 3-0 to 3-11 and 4-0 to 4-11 age groups. In comparison on the 3-0 to 3-11 group, Terry scored above the 50th percentile level on all error type subscores and on all grammatic category subscores except: Adjective (44th percentile), Pronoun (38th percentile) and Demonstratives (32nd percentile). In comparison to the 4-0 to 4-11 group, only the error type subscore for Reversals, and the Grammatic category subscores for Articles, Verbs, Contractions and Conjunctions were above the 50th percentile. Most errors were substitutions or omissions. A list of subscores is enclosed.

The CELI is a sentence repetition task. Terry's usage of intonation echoed mine, with occasional exaggeration. Rate was slightly rapid but articulatory precision was good. Although many errors resulted from grammatic simplification, sometimes Terry completely changed the meaning of an utterance, for example, "Where does she stand up"/"Why didn't she stand up?"

Looking at Terry's language has been fascinating. He obviously has the articulation, auditory memory span and vocabulary to learn grammatical utterances. A question remains regarding his intent to communicate and his semantic knowledge. My basic feeling is that his needs in language learning at this point are receptive rather than expressive. Terry needs to learn about word meanings and what verbal communication is about. For this reason I would see role playing and expansion of understanding of questions at this point in his treatment.

CELI

Percentile Ranks of Subscores

<u>Error Type Subscores</u>	<u>Comparison Groups</u>	
	3-0 to 3-11	4-0 to 4-11
Substitution	82	46
Omission	60	10
Addition	53.5	32
Transposition	51	23
Reversals	100	100
 <u>Grammar Subscores</u>		
Article	100	100
Adjective	55	19
Noun	44	8.2
Noun Plural	75	45
Pronoun	38	4.9
Verb	89.5	61.5
Negatives	64	19
Contraction	100	100
Adverb	8.1	4.9
Preposition	64	36
Demonstrative	32	9.8
Conjunction	86	55.7

NAME: Terry Egan RECORDING DATE: 7/29/76

BIRTH DATE:

C.A.:

D.S.S.: 2.26

	<u>Indef. Pro.</u>	<u>Pers. Pro.</u>	<u>Prim. Verb</u>	<u>Sec. Verb</u>	<u>Neg.</u>	<u>Conj.</u>	<u>Inter. Rev.</u>	<u>Wh-Q</u>	<u>Sent. Point</u>	<u>Total</u>
1-The boy is falling (boy/boxes)			1						0	1
2-The box is falling			1						1	2
3-It fell down	1		2						1	4
4-They're hurt somebody	3	3	-						0	6
5-The boy fell down (fell/will fall)			-						0	0
6-(Because) she'll hit him		2,2	4						1	9
7-(Because) you hurt somebody (hurt/could hurt)	3	1	-						0	4
8-Turn on the hose (imp)			1						1	2
9-She turn on the water		2	-						0	2
10-They fall down (they/it)	-		-						0	0
11-She is down the pail		2	-						0	2
12-The girl is turning a hose			1						0	1
13-You hear me no		1,1	-						0	2
14-Do they fall down?		3	4				6		1	14
15-Go home (imp)			1						1	2
16-The girl is putting on the shoe			1						1	2
17-The girl is putting on her shoe		2	1						1	4
18-The girl is stepping on the feet (feet/shoes)			1						0	1
19-The boy is falling down (boy/girl)			1						0	1
20-The girl is falling down			1						1	2
21-She is falling down		2	1						1	4

NAME: Terry Egan RECORDING DATE: 7/29/76

BIRTH DATE:

C.A.:

D.S.S.: 2.26

	<u>Indef. Pro.</u>	<u>Pers. Pro.</u>	<u>Prim. Verb</u>	<u>Sec. Verb</u>	<u>Neg.</u>	<u>Conj.</u>	<u>Inter. Rev.</u>	<u>Wh-Q</u>	<u>Sent. Point</u>	<u>Total</u>
22-The girl is carrying on the elephant (The girl is carried by the man)			-						0	0
23-The boy is throwing the peanut on the elephant (on/at)			1						0	1
24-The boy is eating the peanuts (boy/elephant)			1						0	1
25-The elephant is eating			1						1	2
26-The elephant is eating the bag			1						1	2
27-The elephant is felling down (elephant/peanuts)			-						0	0
28-The peanuts fell down			2						1	3
29-The man is holding the girl			1						1	2
30-The girl is holding the dog (girl/dog)			1						0	1
31-The dog is holding the boy (subject/object confusion)			1						0	1
32-The girl and the man are holding suitcase (suitcase/suitcases)			2			3			0	5
33-The man and the girl are putting the suitcase (putting/packing)			-			3			0	3
34-The girl is putting on her shoe		2	1						1	4

NAME: Terry Egan RECORDING DATE: 7/29/76

BIRTH DATE:

C.A.:

D.S.S.: 2.26

	<u>Indef. Pro.</u>	<u>Pers. Pro.</u>	<u>Prim. Verb</u>	<u>Sec. Verb</u>	<u>Neg.</u>	<u>Conj.</u>	<u>Inter. Rev.</u>	<u>Wh-Q</u>	<u>Sent. Point</u>	<u>Total</u>
35-The girls are opening the drapes (drapes/bedspread) (opening/picking up)			-						0	0
36-The boy is holding on her towel			1						0	1
37-The girl is opening the drawer			1						1	2
38-They're opening the window (opening/looking) (window/closet)		3	-						0	3
39-The girl is open the shoe			-						0	0
40-The girl is brushing her comb (comb/hair)		2	1						0	3
41-The girl is putting on the socks			1						1	2
42-The girls are behind the wall			2						1	3
43-The woman is earing a shirt			1						1	2
44-The girls are lying the socks (should be: mixed up the socks)			-						0	0
45-The girl is putting on the red shirt and the blue shirt (should be one or the other)			1			-			0	1
46-The man is painting the wall			1						1	2
47-The man is putting on the helmet (man/boy)			1						0	1
48-The boy is painting on the ceiling (boy/man)			1						0	1

NAME: Terry Egan RECORDING DATE: 7/29/76

BIRTH DATE:

C.A.:

D.S.S.: 2.26

	<u>Indef.</u>	<u>Pers.</u>	<u>Prim.</u>	<u>Sec.</u>			<u>Inter.</u>		<u>Sent.</u>	
	<u>Pro.</u>	<u>Pro.</u>	<u>Verb</u>	<u>Verb</u>	<u>Neg.</u>	<u>Conj.</u>	<u>Rev.</u>	<u>Wh-Q</u>	<u>Point</u>	<u>Total</u>
49-He is wearing on (wearing/ putting it)		2	-						0	2
50-The girl is falling down the fish (falling down/ dropping)			-						0	0

2. Second Evaluation--July 27, 1977

When Terry was seen on July 27th two testing procedures were used: Developmental Sentence Analysis (DSA) and the Carrow Elicited Language Inventory (CELI). Results of both procedures are reported below.

On the CELI Terry made twelve errors. This score falls at the 20th percentile level for seven-year-olds and at the 62nd percentile level for five-year-olds. I compared Terry's performance with the norms available for five-, six- and seven-year-olds. In comparison to all age groups used, his error type subscores for omissions and additions fell below the 50th percentile. Comparison by grammatic category yielded the following category scores below the 50th percentile level:

<u>Five Years</u>	<u>Six Years</u>	<u>Seven Years</u>
Article	Article	Article
Preposition	Pronoun	Pronoun
	Preposition	Preposition

A list of all subscores is enclosed. These scores are considerably better than those achieved one year ago. The most noticeable difference in Terry's performance this year, as compared to last year, was the ease of eliciting the language sample. In the approximately forty-five minutes of testing two hundred and seventy-two utterances; of which sixty-two percent were sentences, were elicited. Whereas last year eighty percent of the utterances were eliminated in achieving the sample, this year only thirty percent of the utterances had to be eliminated because of incompleteness, lack of intelligibility, duplication, echoing or a response unrelated to the materials or situation.

Enclosed is a copy of the fifty sentences analyzed. Terry received a Developmental Sentence Score of 3.02. This score, although almost one point higher than the score achieved last year, falls below the mean for two and one-half year olds. Fifty-eight percent of the sentences analyzed were grammatically correct. The frequency of semantic error had decreased from last year, but grammatic usage continued to be limited.

Grammatic Usage: All sentences analyzed were simple. Only one infinitive form was elicited. No questions were elicited. In the grammatically correct sentence, ninety percent of the verbs used were copula or auxiliary is or are. Sixty-two percent of all sentences analyzed contained these verb forms. The only other verb forms used were modals: can (1), could (1), might (1), will (1); obligatory do in don't (1), and the simple present tense verb has

(1). Other verb attempts were uninflected or incorrect tense combinations, such as is break. Article selection was occasionally inaccurate. One imperative utterance was elicited, but it was semantically incorrect. Sentences were almost exclusively declarative statements.

Semantic Errors: There were occasional errors in pronoun selection: you/it, you/she; and omission of pronoun forms. Verb selection was also occasionally inaccurate: break/crash, throw/kick and feed/eat, as in The dog is feeding the hot dog. Terry occasionally included prepositions inaccurately, such as She is holding with the doll. The most noticeable difficulty with semantics came in Terry's responses to questions and attempts at role playing. He had great difficulty with why and what if questions but the reasons he gave were either stereotypic, such as because you might hurt somebody, or confined to a simple interpretation of the visual stimulus. For instance, frequently during the testing Terry would note that someone in a picture was crying or mad. When asked why, he responded because her mouth is open. He responded most successfully to simple who, what and what. . .doing question forms. Terry usually resisted role taking requests. When he could be coaxed into saying what a character in the story would say, he responded exclusively with stereotypic admonitions, such as Don't be a good boy (probably a semantic error: good/bad) or Don't be so scared.

No change in prosodic features was noted. Terry continued to indicate adequate range and imitation of intonation, but limited usage. Articulation was generally good. Although obviously nervous, Terry stayed on task for most of the session. Only at the very beginning of the session and at the end did he "jargon" with movie and television names. A partly unintelligible recurrent phrase was used at one point in the testing, but Terry was able to stop using this phrase at the examiner's request.

Some changes have been noted since Terry was seen one year ago. He made fewer semantic errors, particularly in verb selection, and grammatic usage was somewhat more accurate. Grammatic usage continued to be very restricted. Spontaneous expressive language usage continued to fall below the three-year level. My feeling continues to be that this youngster's problems in language learning are receptive rather than expressive and are related at least in part to the intent or need to communicate.

CELI

<u>Subscores</u>	<u>Number of Errors</u>	<u>Percentile Ranks of Subscores Comparison Age Groups</u>		
		<u>5 years</u>	<u>6 years</u>	<u>7 years</u>
<u>Error Type Subscores</u>				
Omissions	5	18.8	9.0	2.5
Substitutions	5	94.8	83.5	77.5
Additions	2	31.3	13.2	5.0
Transpositions	0	100	100	100
Reversals	0	100	100	100
<u>Grammar Subscores</u>				
Articles	2	22.9	5.5	5.0
Adjectives	0	100	100	100
Nouns	0	100	100	100
Noun Plurals	0	100	100	100
Pronouns	2	52.1	28.6	17.5
Verbs	7	80.2	60.4	51.3
Negatives	0	100	100	100
Contractions	0	100	100	100
Adverbs	0	100	100	100
Prepositions	1	13.5	3.3	6.2
Demonstratives	0	100	100	100
Conjunctions	0	100	100	100

NAME: Terry Egan RECORDING DATE: 7/27/77

BIRTH DATE:

C.A.:

D.S.S.: 3.02

	<u>Indef. Pro.</u>	<u>Pers. Pro.</u>	<u>Prim. Verb</u>	<u>Sec. Verb</u>	<u>Neg.</u>	<u>Conj.</u>	<u>Inter. Rev.</u>	<u>Wh-Q</u>	<u>Sent. Point</u>	<u>Total</u>
1-The dog is sleeping			1						1	2
2-(Because) you might hurt somebody (you/it)	3	-	6						0	9
3-The doll is sleeping			1						1	2
4-The cat is running			1						1	2
5-The girl is open			-						0	0
6-He is a person		2	1						1	3
7-(Because) her mouth is open			1						1	2
8-The men are sitting in the chair			2						1	3
9-The girl is sweeping with a broom			1						1	2
10-The girl is holding with a doll			1						0	1
11-The dog is barking			1						1	2
12-He's barking		2	1						1	4
13-(Because) you can hear it (you/she)	1	-	4						0	5
14-The girl is riding the bicycle			1						1	2
15-The boy is riding the bicycle			1						1	2
16-They are riding the bicycle		3	2						1	6
17-The boy is riding the car			1						1	2
18-They are riding		3	2						1	6
19-They will break (break/crash)		3	-						0	3
20-It's break	1		-						0	1

NAME: Terry Egan RECORDING DATE: 7/27/77

BIRTH DATE:

C.A.:

D.S.S.: 3.02

	<u>Indef. Pro.</u>	<u>Pers. Pro.</u>	<u>Prim. Verb</u>	<u>Sec. Verb</u>	<u>Neg.</u>	<u>Conj.</u>	<u>Inter. Rev.</u>	<u>Wh-Q</u>	<u>Sent. Point</u>	<u>Total</u>
21-It would be hit (would/will)	1		-						0	1
22-He is pointing at a (car. . .) bicycle		2	1						1	4
23-"Don't be a good boy" (Imp)			4		4				1	9
24-The girl is riding a bicycle			1						1	2
25-The boy is riding a bicycle			1						1	2
26-The boy is stopping (-/them)			1						0	1
27-The boy is topping with his hand (-/them)		2	1						0	3
28-It will be hit by a dog (a/the)	1		4						0	5
29-(The boy) the boy is pulling the dog's leash			1						1	2
30-The girl is pouring the water in the pool			1						1	2
31-The boy is giving the soap to her		2	1						1	4
32-They are pulling the lease		3	2						1	6
33-They are pouring water in the pool		3	2						1	6
34-She is washing the dog's fur		2	1						1	4
35-The boy is patting the dog			1						1	2
36-The water splash			-						0	0
37-The dog splash the girl			-						0	0
38-The girl is crying			1						1	2
39-(Because) she has water (-/in her eyes)		2	2						0	4

NAME: Terry Egan RECORDING DATE: 7/27/77

BIRTH DATE:

C.A.:

D.S.S.: 3.02

	<u>Indef. Pro.</u>	<u>Pers. Pro.</u>	<u>Prim. Verb</u>	<u>Sec. Verb</u>	<u>Neg.</u>	<u>Conj.</u>	<u>Inter. Rev.</u>	<u>Wh-Q</u>	<u>Sent. Point</u>	<u>Total</u>
40-Her eyes are open (open/ closed)		2	2						0	4
41-(Because) they could splash (-/the dog)		3	6						0	9
42-(Because) they rinse him off (-/will)		3,2	-						0	5
43-They rinse the dogs (-/will) (-/fur)		3	-						0	3
44-The man is kicking the football (should be will)			-						0	0
45-The man is going to kick the football			1	2					1	4
46-The man is holding the ball			1						1	2
47-The man are holding the ball			-						0	0
48-He is kicking		2	1						1	4
49-He is throwing the shoe (throw/kick)			-						0	0
50-(It might) it might on the ground (-/be)	1		-						0	1

B. Evaluations by Ms. Jane Deiderich, Director, Speech Pathology and Audiology, Foster G. McGaw Hospital, Loyola University of Chicago (Ms. Diederich assessed Terry on specific tests at my request.)

1. First Evaluation--August 5, 1976

Terry Egan, age 12 years, 1 month, was seen at this Center on August 5, 1976 for administration of a selected number of speech and language screening and diagnostic tests.

The following tests were administered: the Northwestern Syntax Screening Test, the Illinois Test of Psycholinguistic Abilities, the Test for Auditory Comprehension of Language, and the Michigan Picture Language Inventory. Attention appeared good during most of the testing and Terry responded well.

On the receptive portion of the Northwestern Syntax Screening Test, which assesses a child's ability to understand progressively more complex syntactic structures, Terry obtained a raw score of 24. This score places him well below the 10th percentile for children ranging in age from 7 years 0 months to 7 years 11 months, the highest age for which this test was standardized. This score falls within one standard deviation below the 50th percentile for children ranging in age from 4 years 0 months, and 4 years 11 months. Terry's performance on this test indicated a lack of understanding of the preposition "in," the reflexive pronoun "himself," the regular past tense and future tense of verbs, and a possessive form. Terry also made errors on identification of passive verb forms, the wh-question word "where" and other question forms involving interrogative reversals of copula and auxiliary verbs, and lengthier sentences incorporating both direct and indirect objects.

On the expressive portion of this test, which assesses the ability to use progressively more complex syntactic structures, Terry obtained a raw score of 24. This score falls well below the 10th percentile for children ranging in age from 7 years 0 months to 7 years 11 months, the upper age limits for which this test was standardized. It falls slightly below the 50th percentile for children ranging in age from 4 years 0 months to 4 years 11 months. Terry had difficulty with expression of question forms including the interrogative reversal of the copula "is," "who," and "where" question words, and reversal of the auxiliary verb "have." In addition, he made errors on expression of the future verb tense, the present tense of the auxiliary verb "has," third person singular simple present verb tense, the reflexive pronoun "himself" and the irregular plural of the noun "fish." Terry tended to substitute the earlier developing present progressive verb tense for the simple present verb tense. It should be noted that Terry's

substitution of the present progressive for the simple present verb was inconsistent and appeared to be dependent on the syntactical complexity of the remainder of the target sentence. Terry also made an error on expression of the wh-question word "who".

On the Illinois Test of Psycholinguistic Abilities, Terry obtained the following raw scores and age scores on the subtests:

<u>SUBTEST</u>	<u>RAW SCORE</u>	<u>AGE SCORE</u>
Auditory Reception	24	5 years 10 months
Visual Reception	25	7 years 9 months
Auditory Association	20	5 years 9 months
Visual Association	20	6 years 0 months
Verbal Expression	13	4 years 8 months
Manual Expression	26	7 years 11 months
Grammatical Closure	19	6 years 5 months
Visual Closure	31	9 years 0 months
Auditory Sequential Memory	20	5 years 6 months
Visual Sequential Memory	22	8 years 4 months

Scaled scores could not be obtained because Terry's chronological age exceeded the highest age for which this test was standardized. Two errors were made during administration of the test. During the sampling procedure on the Auditory Sequential Memory Subtest, the examiner administered the next highest sampling item after Terry had already missed one prior sampling item. While Terry passed this next higher item, he missed several items prior to it, and it was not considered indicative of his overall performance. Therefore, credit was not given for this item. During administration of the Visual Sequential Memory Subtest, the examiner supplied an incorrect chip for one item. The item was readministered and scored as a first administration of that item.

It should be noted that Terry's performance on the visual subtests of this test was consistently higher than performance on the auditory subtests.

Terry's raw score total of 219 yielded a composite psycholinguistic age of 6 years 7 months.

On the Test for Auditory Comprehension of Language, a test designed to measure a child's auditory comprehension of linguistic structure, Terry obtained a raw score of 81 and an age equivalency of 5 years 11 months. This score falls at the 54th percentile for children ranging in age from 5 years 6 months to 5 years 11 months, and at the 18th percentile for children ranging in age from 6 years 6 months to 6 years 11 months, the highest age level for which this test was standardized.

Terry correctly identified all nouns, color adjectives, and adverbs on the vocabulary items of this test. Only one error was made with identification of verbs (coming), and this was probably a function of the picture stimulus rather than a lack of comprehension of this verb. Terry did not correctly identify pictures representing the following adjectives: a few, many, big, and fast.

Terry's performance on other portions of this test indicated lack of comprehension of NOUN + suffix "ist" structures (ex: bicyclist), neither-nor conjunctions, future and present perfect verb tenses, the third person singular simple present verb tense, and "when" and "what" wh-questions. He also did not correctly identify the preposition "in front of." Other errors were made with complex imperatives which may have been due to increased length as well as increased complexity of the sentence.

The Michigan Picture Language Inventory (MPLI), a test designed to measure both comprehension and expression of vocabulary and language structure, was also administered. On the vocabulary subtest Terry obtained an expression raw score of 22 which falls within one standard deviation below the mean for boys 6 years of age, the highest age level for which this test was standardized. He obtained a vocabulary comprehension raw score of 29 which falls between one and two standard deviations below the mean for boys 6 years of age. Terry missed no vocabulary items at the three-, four-, and five-year level. Consistently more errors were made as the level of vocabulary difficulty increased.

On the language structure portion of the MPLI, Terry obtained a language structure expression raw score of 51, placing him at the mean for boys 6 years of age (again, the highest age level for which this test was standardized). Errors occurred on higher level irregular plural forms, the personal pronoun "it," the demonstrative pronouns "that," "these," and "those," the preposition "off," and the future, third person singular simple present, and irregular past tenses of verbs.

On the comprehension portion of the language structure subtest, Terry obtained a raw score of 65, placing him between one and two standard deviations above the mean for boys 6 years of age. Terry made errors on identification of the irregular plural word "mice," the demonstrative pronouns "these" and "those," and a future verb tense.

2. Second Evaluation--August 10, 1977

Terry Egan, age 13 years 1 month, was seen at this Center on August 10, 1977 for readministration of the Illinois Test of Psycholinguistic Abilities (I.T.P.A.). Terry was originally seen at this Center on August 5, 1976 at the request of David Helm from the Loyola Guidance Center. Terry was accompanied to this Center by his mother and Mr. Helm. Separation was easily accomplished and Terry appeared to respond well during administration of the I.T.P.A. Attention span appeared good during most of the testing.

Terry obtained the following raw scores and age scores on the subtests:

<u>SUBTEST</u>	<u>RAW SCORE</u>	<u>AGE SCORE</u>	
Auditory Reception	32	7 years	6 months
Visual Reception	27	8 years	10 months
Auditory Association	22	6 years	2 months
Visual Association	31	10 years	3 months
Verbal Expression	18	5 years	6 months
Manual Expression	28	8 years	8 months
Grammatic Closure	22	7 years	3 months
Visual Closure	31	9 years	0 months
Auditory Sequential Memory	34	Beyond 10 years	3 months
Visual Sequential Memory	19	7 years	3 months

Scaled scores could not be obtained because Terry's chronological age exceeded the highest age for which this test was standardized.

Terry's Composite Psycholinguistic Age for the 10 subtests is 7 years 9 months in comparison to a Composite Psycholinguistic Age of 6 years 7 months one year ago.

The following chart compares Terry's present performance with performance one year ago:

<u>SUBTEST</u>	<u>RAW SCORE</u> <u>8/5/76</u>	<u>RAW SCORE</u> <u>8/10/77</u>	<u>CHANGE</u>
Auditory Reception	5-10	7-6	+20 months
Visual Reception	7-9	8-10	+13 months
Auditory Association	5-9	6-2	+ 5 months
Visual Association	6-0	10-3	+ 4 yrs 3 mos
Verbal Expression	4-8	5-6	+10 months
Manual Expression	7-11	8-8	+ 9 months
Grammatic Closure	6-5	7-3	+10 months
Visual Closure	9-0	9-0	None
Auditory Sequential Memory	5-6	Beyond 10-3	+ 4 yrs 9 mos
Visual Sequential Memory	8-4	7-3	-11 months

The above chart indicates overall improvement beyond a chronological age increase.

However, there is no specific pattern to the gains that Terry has made. Terry's scores indicate the largest gains on the Visual Association Subtest and the Auditory Sequential Memory Subtest. His performance on the Visual Sequential Memory Subtest indicates poorer performance in this area. It was the examiner's clinical impression that there were not fluctuations in attention during administration of the various subtests which would account for this pattern. It should be noted, however, that during administration of the Visual Sequential Memory Subtest, Terry performed the task quickly and would occasionally add two or three chips at a time. His failures on all items involved the transposition of only two chips.

C. Evaluations by Ms. Dorothy Wood, Speech Pathologist, College of Speech--Communicative Disorders Program, Marquette University

1. First Evaluation--July 26, 1976

The Porch Index of Communicative Abilities in Children, Advanced Format, was administered to Terry Egan under standard conditions. A discussion of the results follow.

On a scale of 15, the following scores were obtained:

<u>Modality</u>	<u>Score</u>	
Gestural	12.35	highs (averaged) 14.06
Verbal	11.70	lows (averaged) 9.90
Graphic	11.61	overall (averaged) 11.93
General		
Communicative	12.27	
Visual	12.65	
Auditory	12.70	

Looking at Terry's subtests individually, one can see that his lower scores tend to occur at the beginning of each subtest and occasionally toward the end. This indicates that Terry has some difficulty in processing the directions. In most of the subtests repeats and cues (scores of 8 and 9) were needed at the beginning. This caused a lowering of his score, even though the action was then performed correctly. This seems indicative of an auditory processing problem and/or an inability to shift set.

Terry scored three 10's, which are self-corrects. This is a very positive sign as it indicates that he is able to analyze information and adjust his response.

Terry's auditory storage is poor as indicated by subtests IV (long-term storage) and X (short-term storage).

Terry's visual decoding is strong as evidenced by subtests IX and XI, his two highest scoring subtests.

Recommendations for Speech Therapy

The two areas strongly indicated for speech and language therapy are auditory decoding and verbal expression. Terry could not easily shift from subtest to subtest partly because he could not respond readily to the different sets of directions, e.g., "tell me," "show me," "point to," etc. He should be able to do this without requiring repetitions or delaying in his responses. Therapy could include following directions and commands as in Simon Says or similar games.

Improving Terry's verbal expression is another good area for therapy. Describing, comparing, and contrasting are necessary skills in addition to vocabulary words.

Increasing Terry's auditory memory and recall would also be a valid goal. As these areas improve and develop, the other areas of language should also come up.

2. Second Evaluation--August 3, 1977

The Porch Index of Communicative Ability in Children, Advanced Format, was administered to Terry Egan under standard conditions. A discussion and comparison of results follow.

On a scale of 15, the following scores were obtained:

<u>Modality</u>	<u>Scores</u>	
	<u>1976</u>	<u>1977</u>
Gestural	12.35	12.64
Verbal	11.70	12.42
Graphic	11.61	13.71
General Communicative	12.27	12.06
Visual	12.65	14.40
Auditory	12.70	11.77
High	14.06	14.82
Low	9.90	11.08
Overall	11.93	12.92

Terry's most remarkable gains are in the graphic and visual areas (2 points), with minor gains in the verbal area (+.72) and the gestural area (+.92).

Some loss of communicative skill is seen in the auditory area (-.93), and in general communicative skills (-.21).

Terry is continuing to have auditory processing problems. Auditory memory is poor for both short-term memory tasks, as seen in Subtest X, and for long-term memory, as seen in Subtest IV.

Auditory perception and association seem to be another problem area for Terry, as evidenced by the number of repeats and cues required. This considerably lowered his scores in Subtests II, IV and X.

Terry's strongest areas are the visual and graphic. It is the examiner's opinion that Terry's verbal skills have increased over last year. This is based on observing Terry's speech before and after the testing.

Terry tends to perform consistently throughout a given Subtest, indicating that fatigue or auditory overloading are not factors affecting his scores. He either performs very well or very poorly throughout a specific task.

Recommendations for Speech Therapy

Terry would benefit from auditory memory tasks such as:

- (1) repeating 3 nouns after the therapist until he can do this with 95% accuracy, then 4 nouns, etc. up to 6 nouns. Then do this same activity with numbers or unrelated words.
- (2) looking at a row of picture cards using 4 or 5 cards per row, the therapist names the pictures out of sequence, Terry tells which was the 3rd card named; next row, the second last one named; next row, the first one named, etc.
- (3) the therapist tells a short story comprised of 3 or 4 sentences. Terry must retell it verbatim.
- (4) the therapist tells a short story comprised of 6 to 8 sentences. Terry will answer questions about it.
- (5) Terry and the therapist play a game such as "I'm going shopping and I'm going to buy a ____ and a _____, with items added with each turn.

APPENDIX IV

Ratings on the Fels Child Behavior Scales

Raters were provided an instruction sheet (reproduced below) and a brief oral introduction to the use of the rating forms. Modal ratings are presented in the following pages.

The Fels Child Behavior Scales

Please rate Terry on the following 18 Behavior Scales. Treat each scale as a smooth gradation from one extreme to the other. Use cue points merely as suggested points of reference in building up your overall idea of the quality being rated, rather than as specific items to be checked. Include all the information given (e.g., name of scale, brief description at top of sheet, and cues) in forming your concept of the behavior being rated.

Please first rate Terry as he is at the present time (first column, 9/76/ age 12-2) on the first Behavior Scale. Your entry on the rating line is a small "x" to be placed directly on the line at the point best representing your judgment of the location of Terry on that scale. This point is the "score." It may fall anywhere along the line from one extreme to the other, regardless of whether it falls opposite a cue point or somewhere between or beyond the cues.

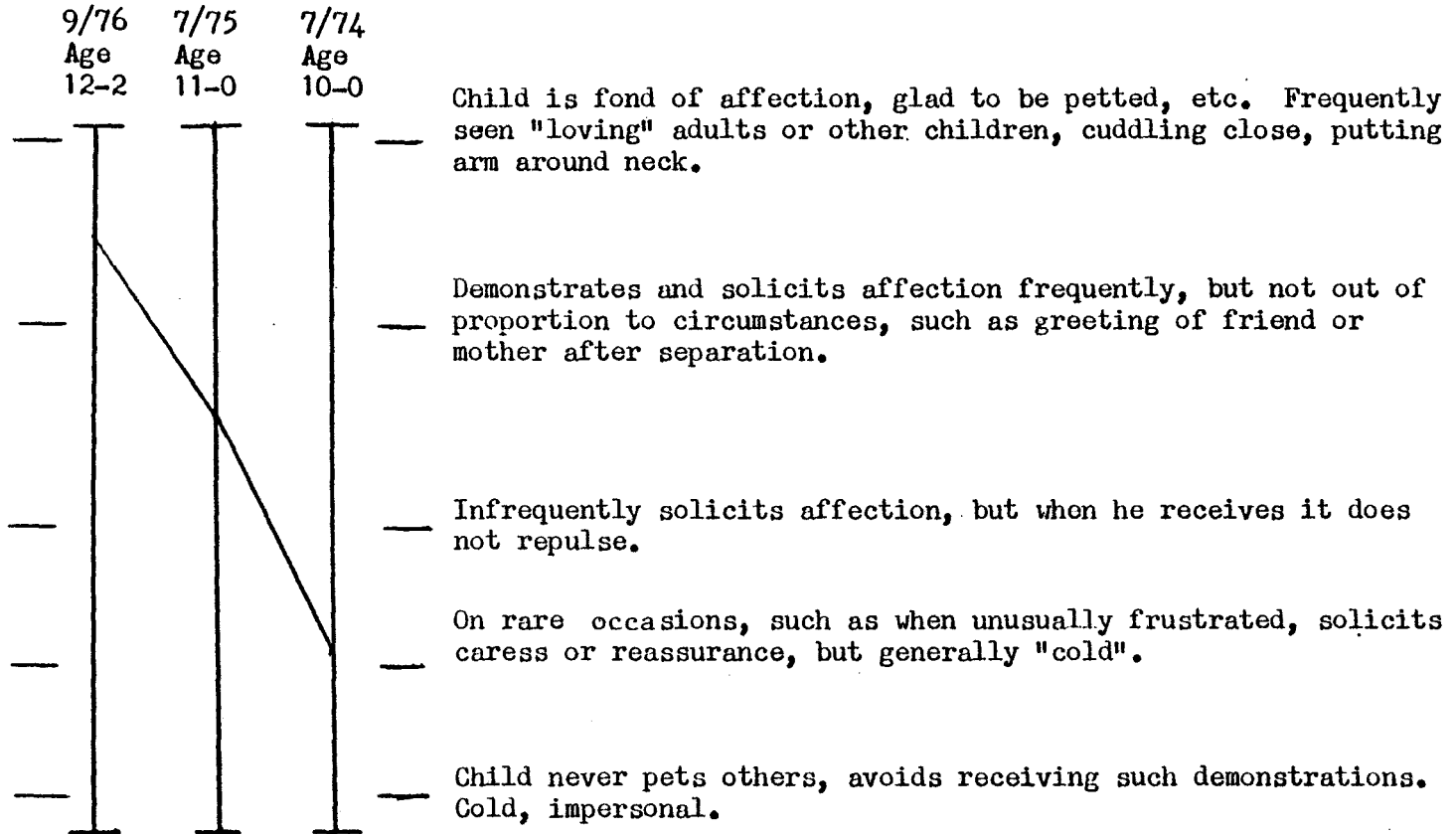
Next rate Terry as he was approximately a year ago, that is, at about the time of his eleventh birthday (July 1, 1975). Finally, rate Terry as he was about two years ago, that is, about the time of his tenth birthday, 7/1/74.

If there has been any appreciable change within the last year (between 7/75 and 9/76) in the behavior being rated, please briefly describe the change in general terms and also note one or two specific anecdotes, incidents, or behaviors which illustrate the change. Record this information on the sheet under Notes.

Thus, for each individual Behavior Scale the three ratings are made and Note written if warranted. At that point that particular Behavior Scale rating is complete, and Terry is then considered with respect to the next one. That is, all ratings on any particular scale are made at the same time.

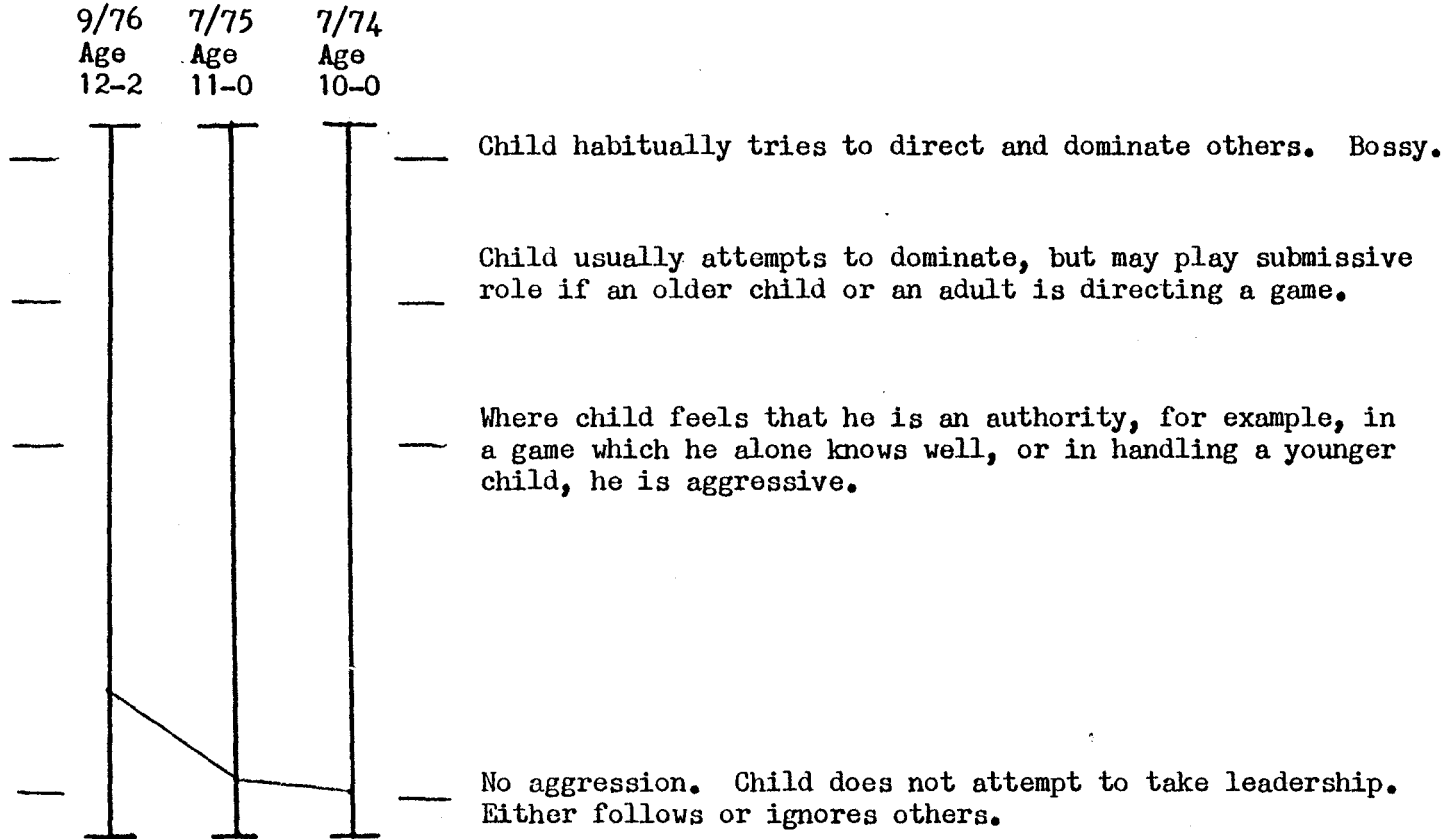
Affectionateness

Affectionate child indulges in frequent demonstrations, by kissing, fondling, hugging, caressing others. Do not confuse with bidding for attention or desire to ingratiate for other ends. Affectionate child enjoys demonstration itself.



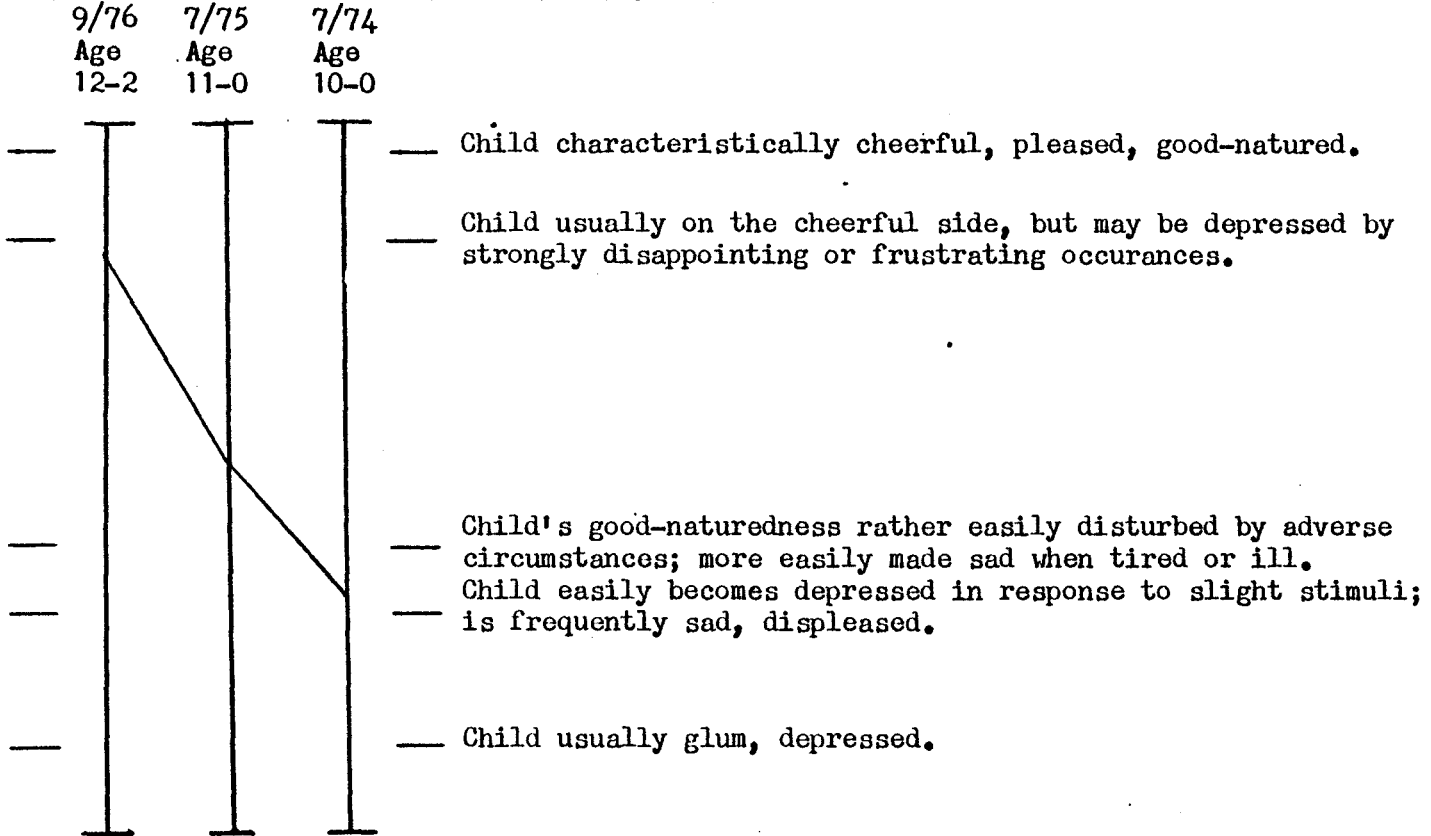
Aggressiveness

The behavior of the aggressive child is characterized by attempts to dominate social situations, to take the initiative, to plan activity of the group. He need not be successful as a leader; he attempts leadership.



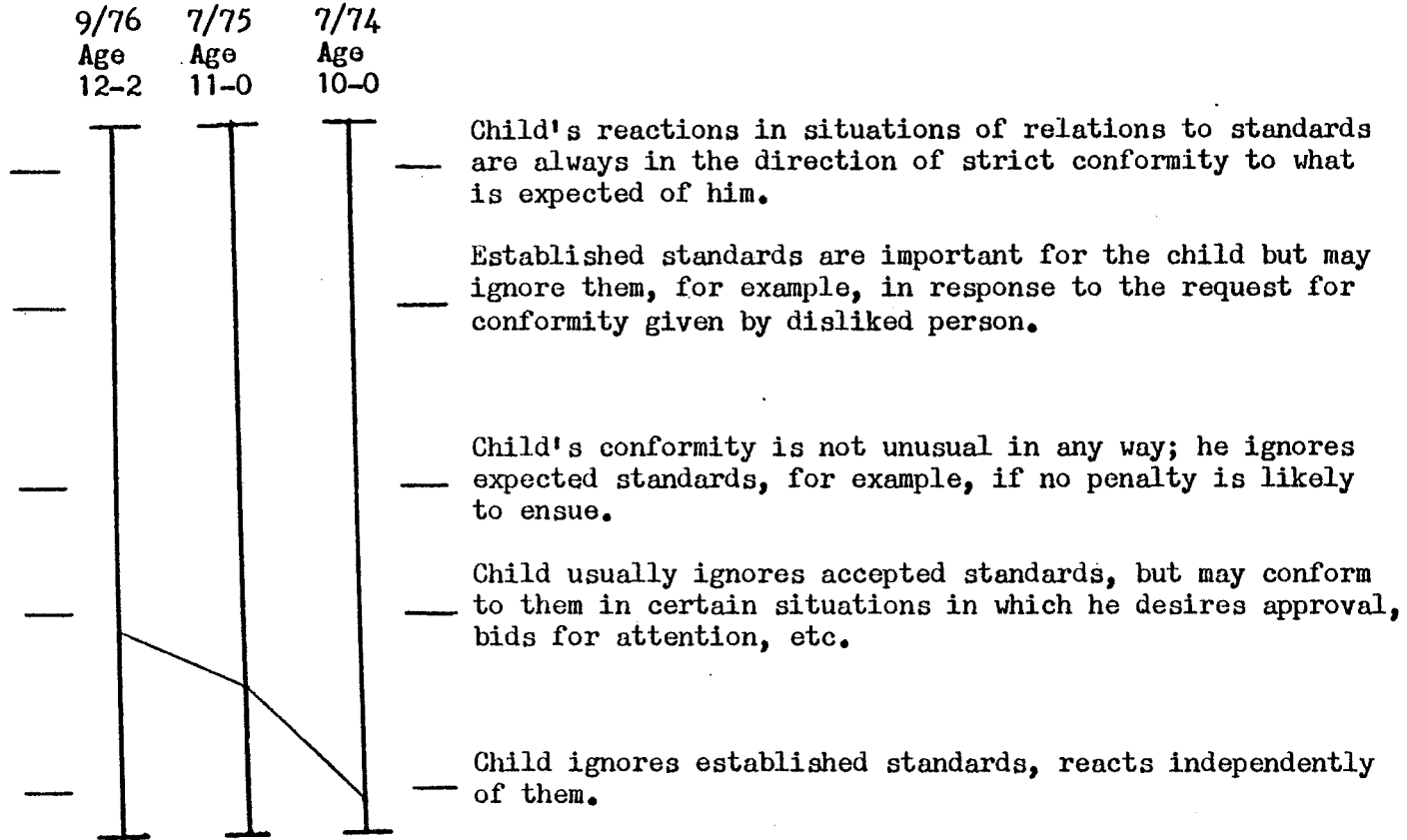
Cheerful-Depressed

This trait is characterized at the cheerful end by the child's being merry, happy, good-natured, laughing, pleased, and at the depressed end by his being morose, gloomy, discontent, unhappy, sad. Please disregard, on the one hand, the degree to which the child pleases you, and, on the other, the manifest enthusiasm he shows. Consider the degree to which the child probably enjoys himself.



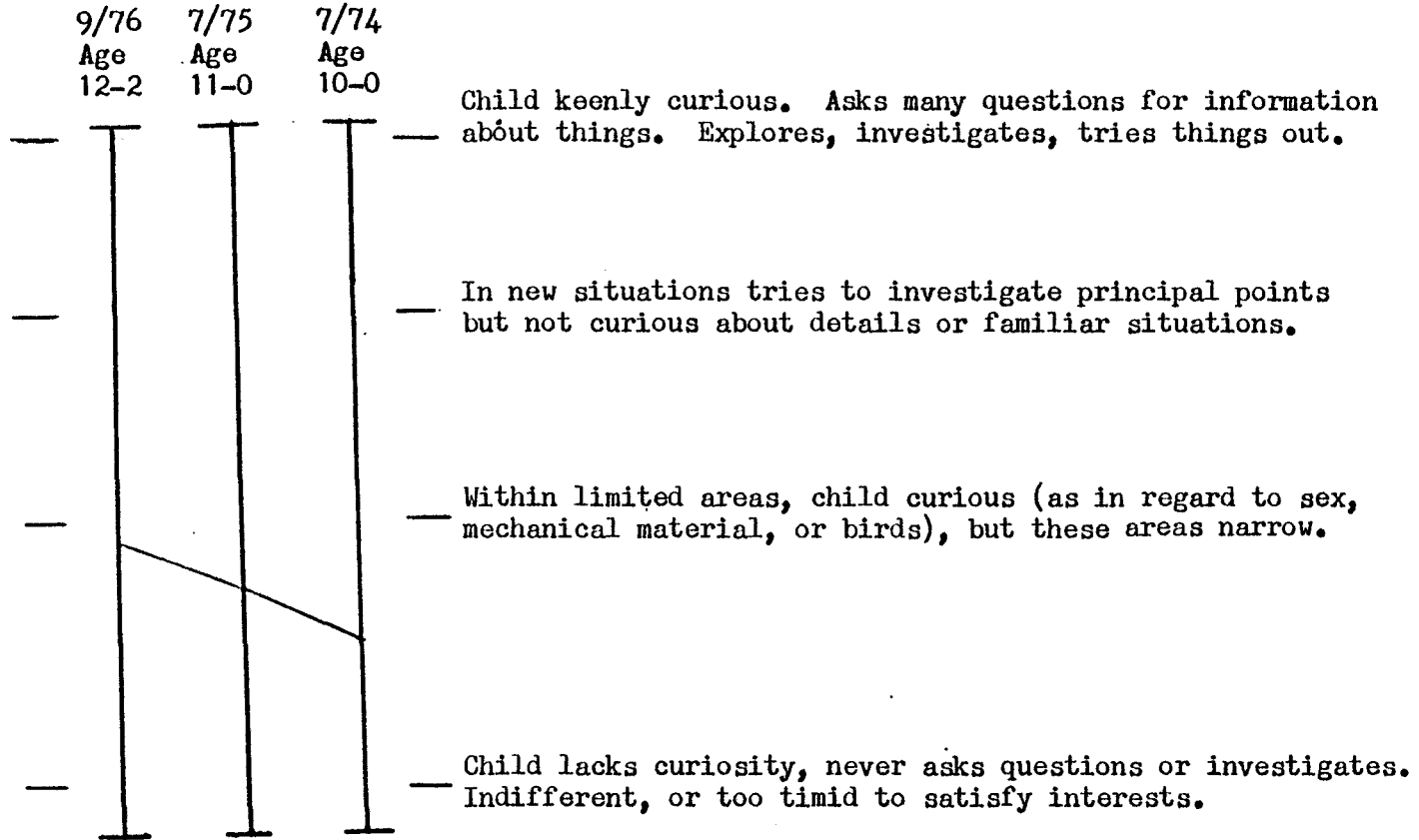
Conformity

The child who conforms reacts according to taught or accepted standards.



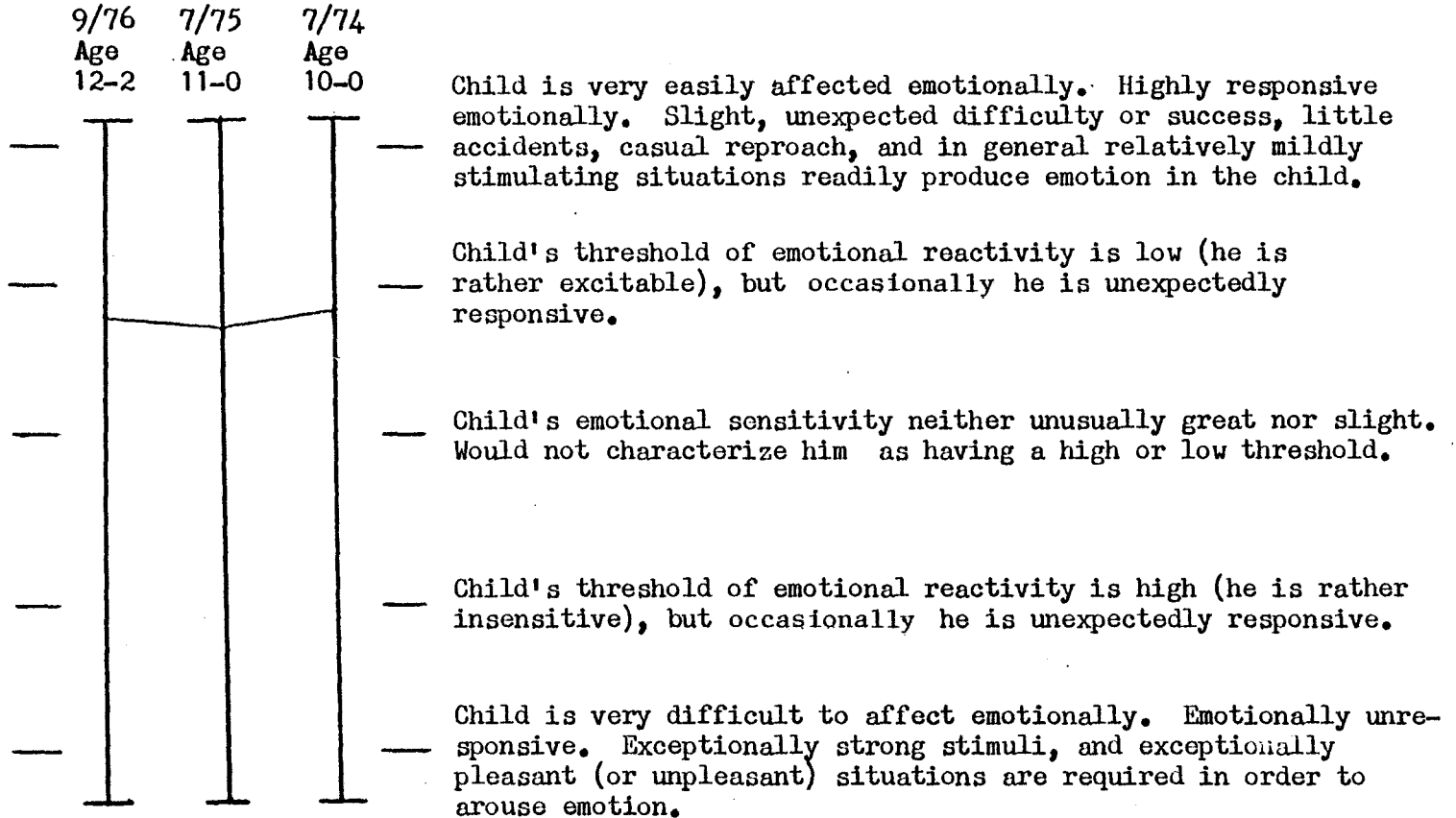
Curiosity

The curious or inquisitive child asks questions (to get answers, not merely attention). May also experiment—look around strange surroundings, explore, investigate pocketbooks, flowers, etc., to find out contents or composition.



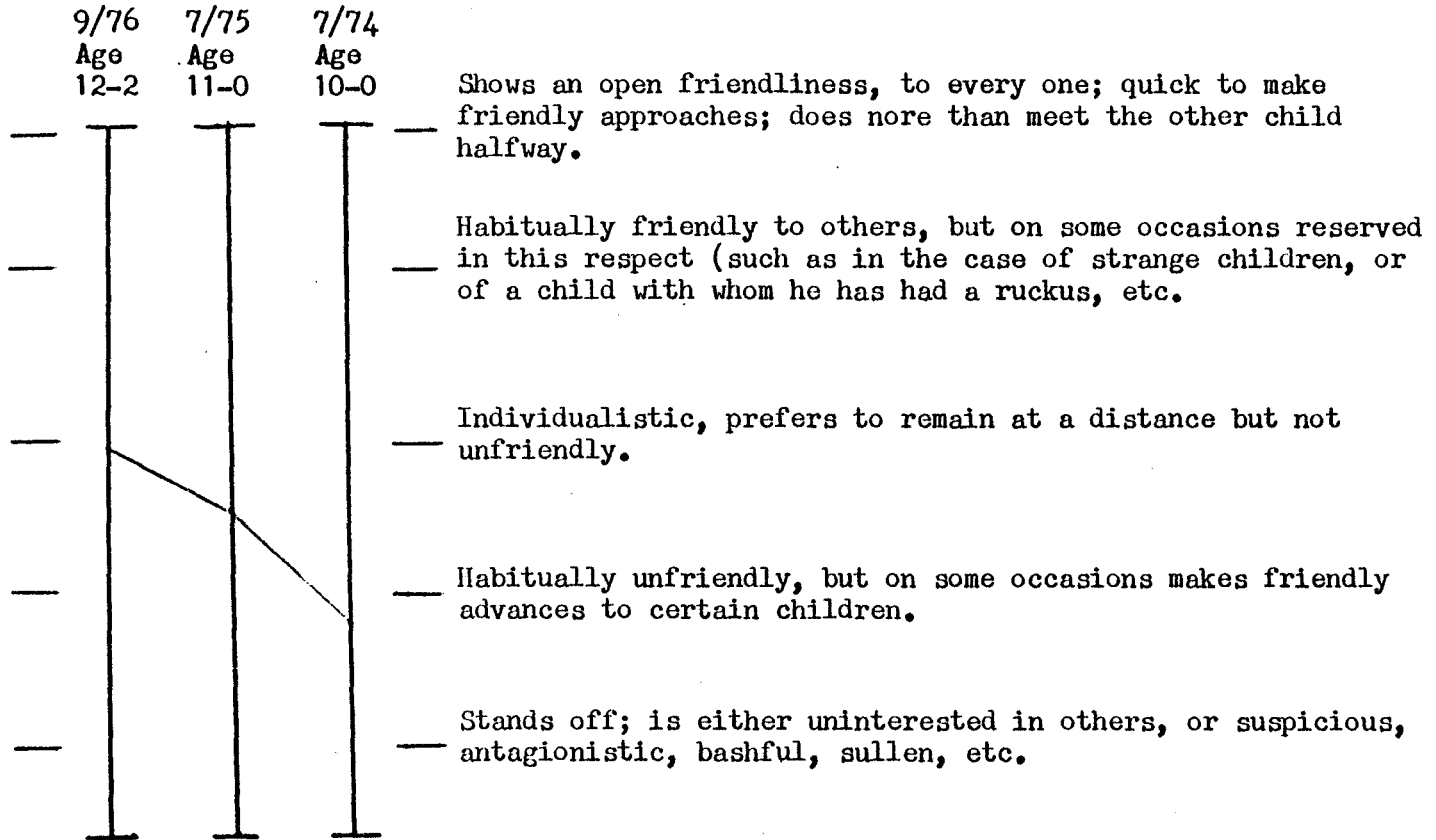
Emotional Excitability

This trait is characterized by a low threshold to emotional stimulation. The child reacts emotionally to many (frequent and varied) stimuli. Thus he is easily irritated, emotional, excitable.



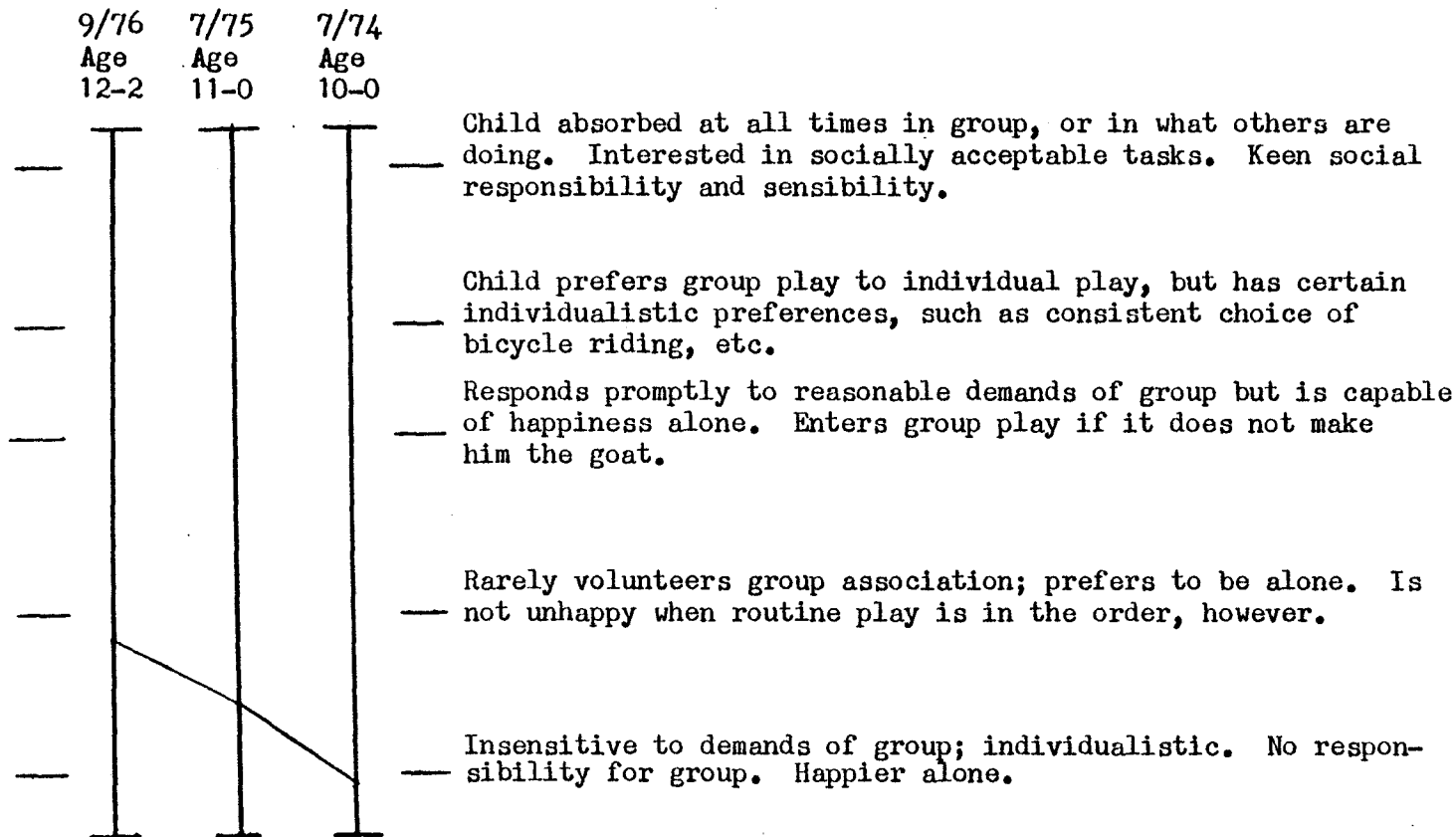
Friendliness

The friendly child tends to prefer company or to seek out and to react positively to other children or adults. Child's success in such contact is some criterion of friendship. Friendliness implies an adaptive response on the part of the child to advances of others.



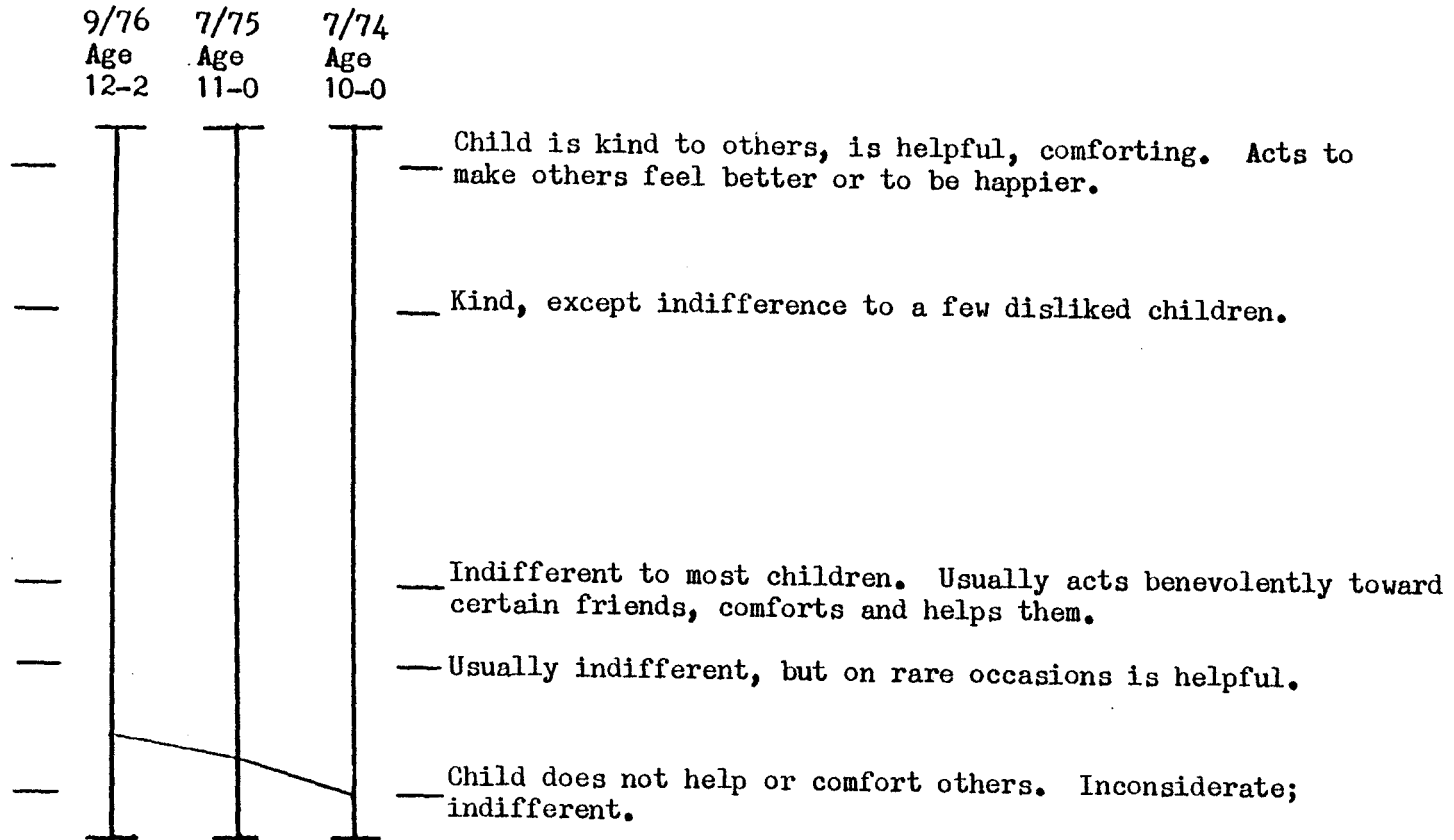
Gregariousness

This trait concerns primarily the degree to which the child's interests are directed toward others, the group, etc., or to individual activities which do not necessarily involve the group.



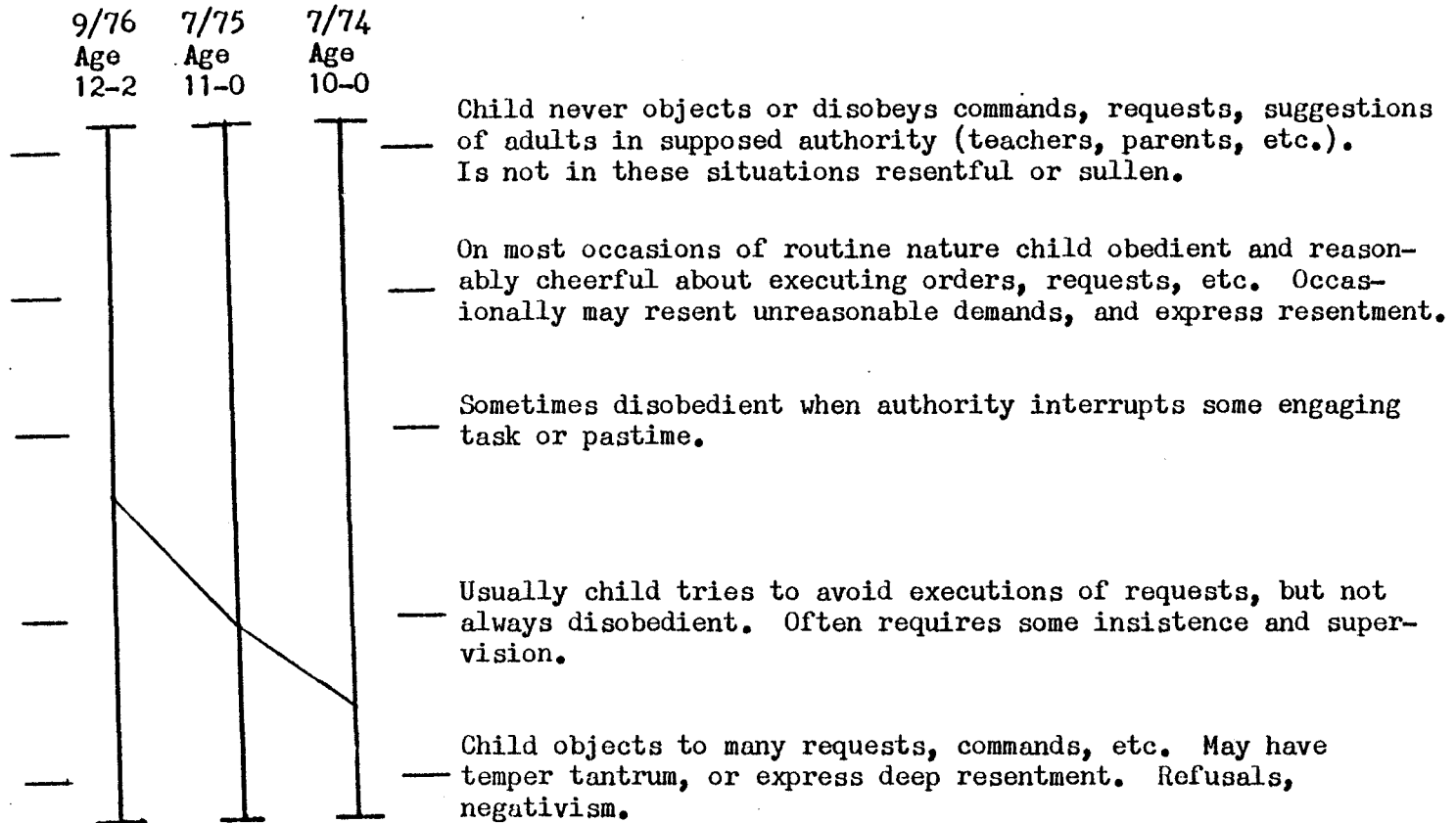
Kindness

The kind child expresses his sympathy in overt, social behavior conducive to the comfort of others. Considerate, helpful, thoughtful.



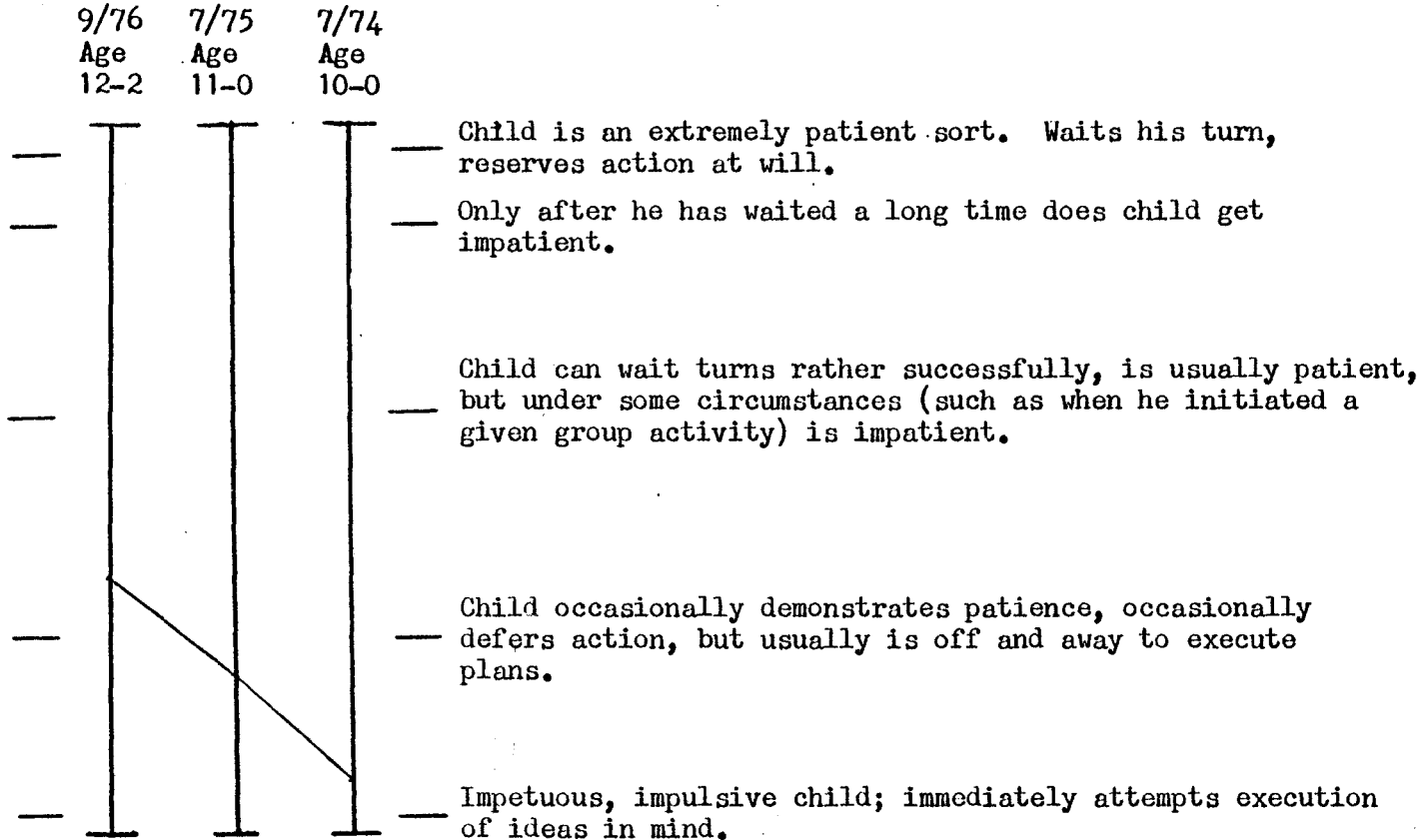
Obedience

The obedient child executes dutifully all requests, commands, etc., made by persons in supposed authority.



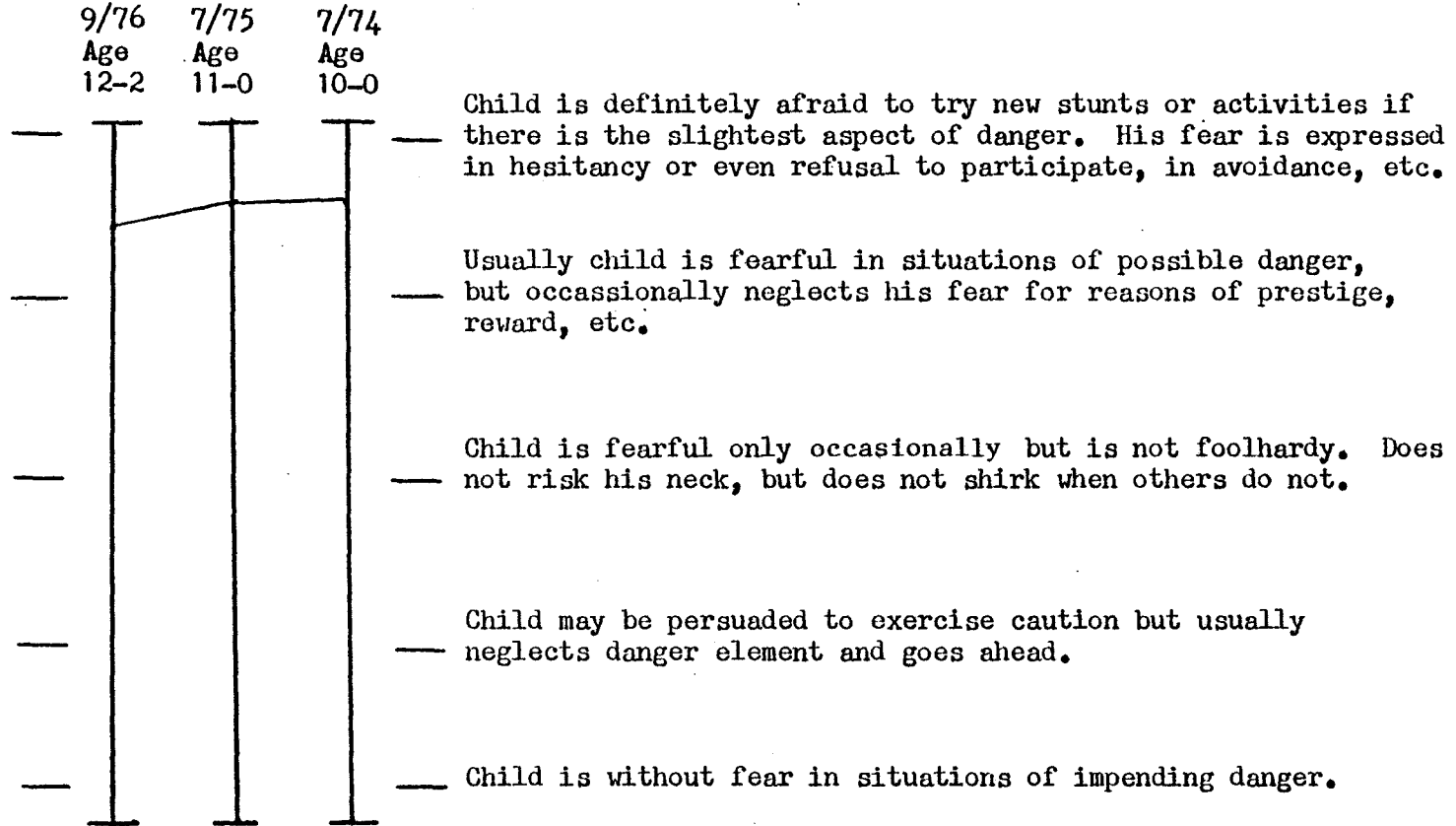
Patience

This trait refers to the patience of the child, his tendency to withhold immediate reaction for whatever reason. The child lacking this tendency is impatient, can't wait to do what he wants to do.



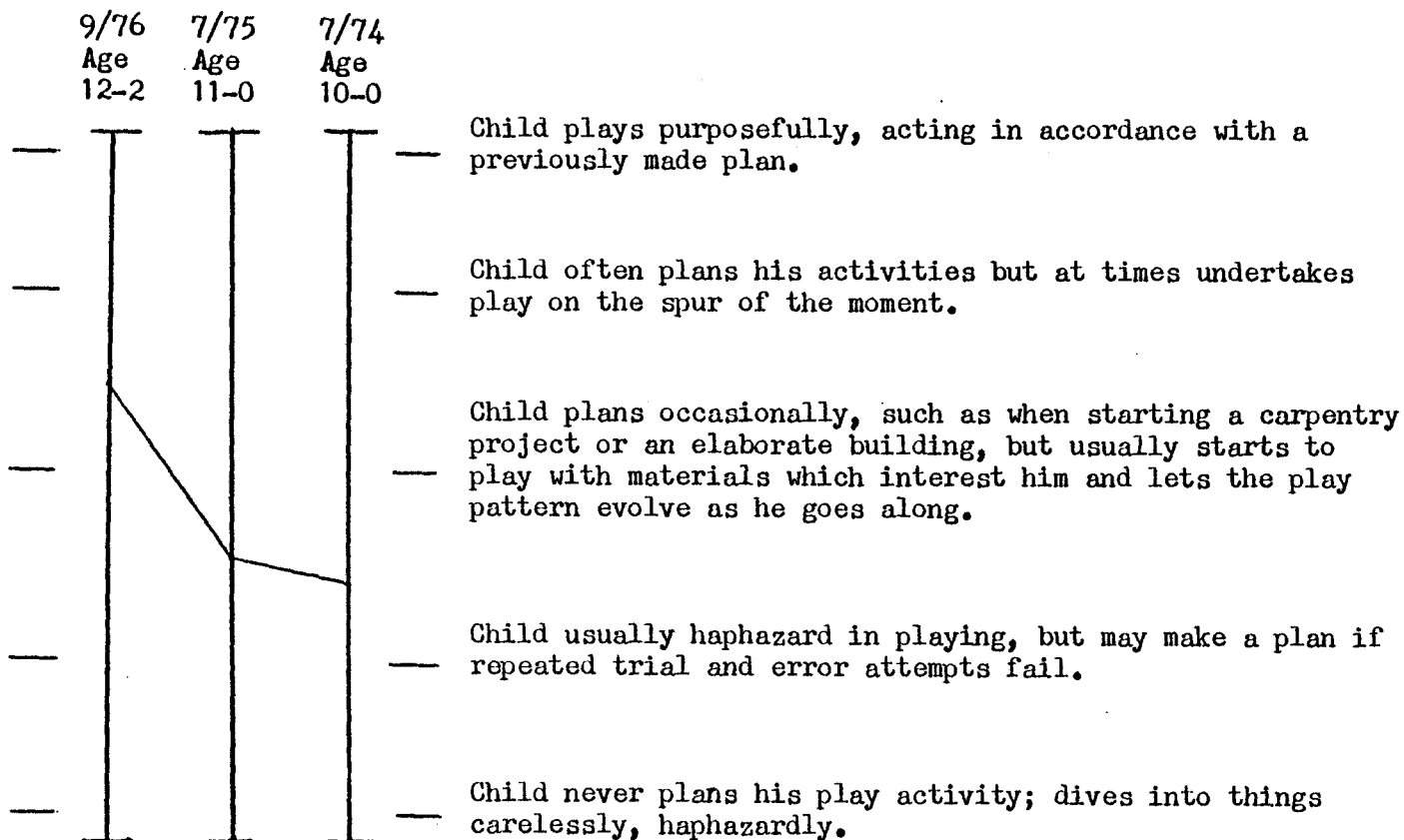
Physical Apprehensiveness

This trait is characterized by fear in situations of impending physical danger to the child (that is, from his point of view). He is fearful when trying the slide or jungle gym for the first time, or if an older child, when first on roller skates, first entering a dark hall, first seeing a new animal, first riding a two-wheeled bike. An older child may develop rationalized avoidance behavior of a subtle sort.



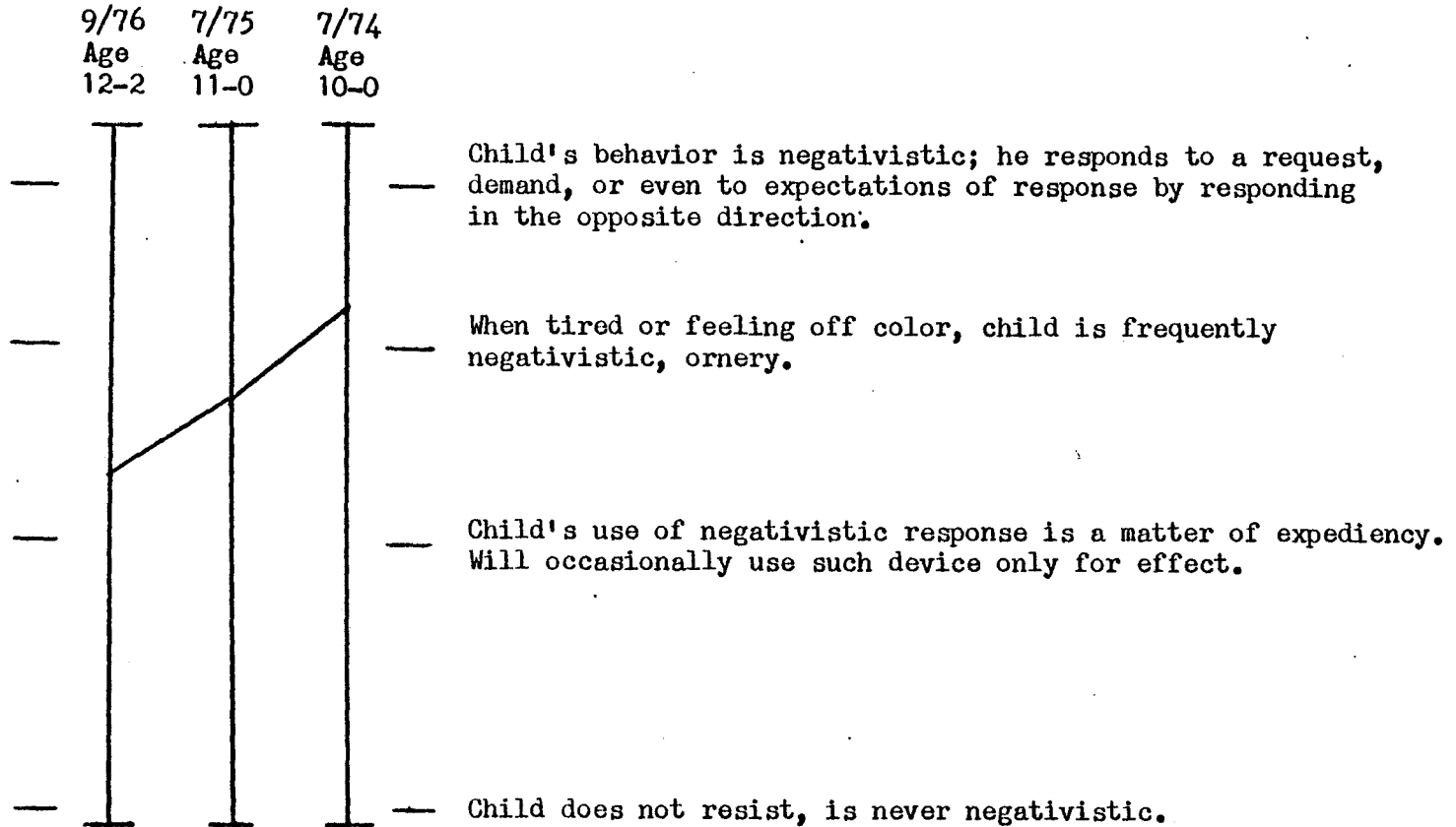
Planfulness

The planful child acts according to a previously conceived plan, and will withhold reaction until such a plan is developed.



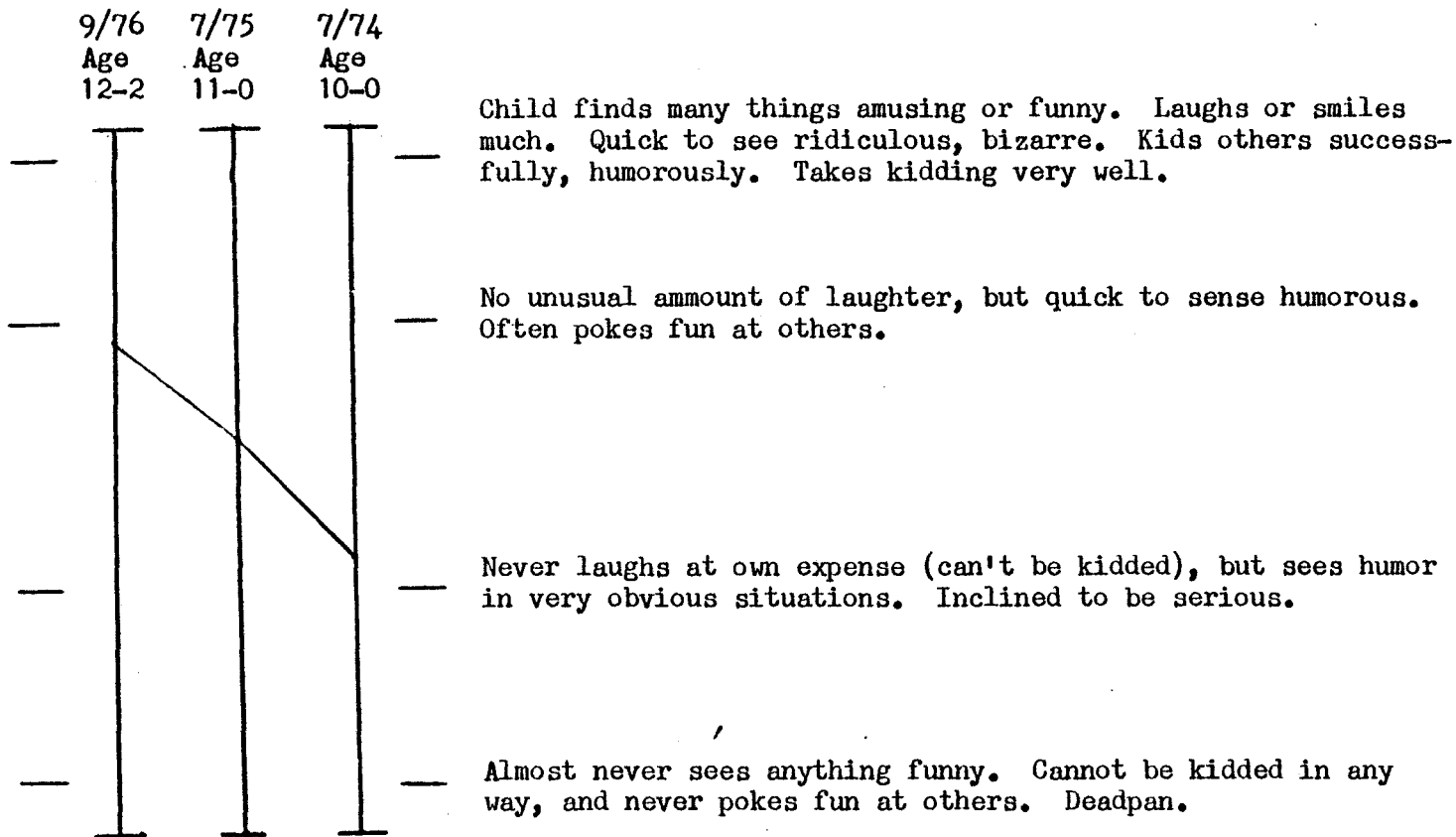
Resistance

This trait is defined as the tendency to react negativistically to demands, requests, or even to expectation of behavior.



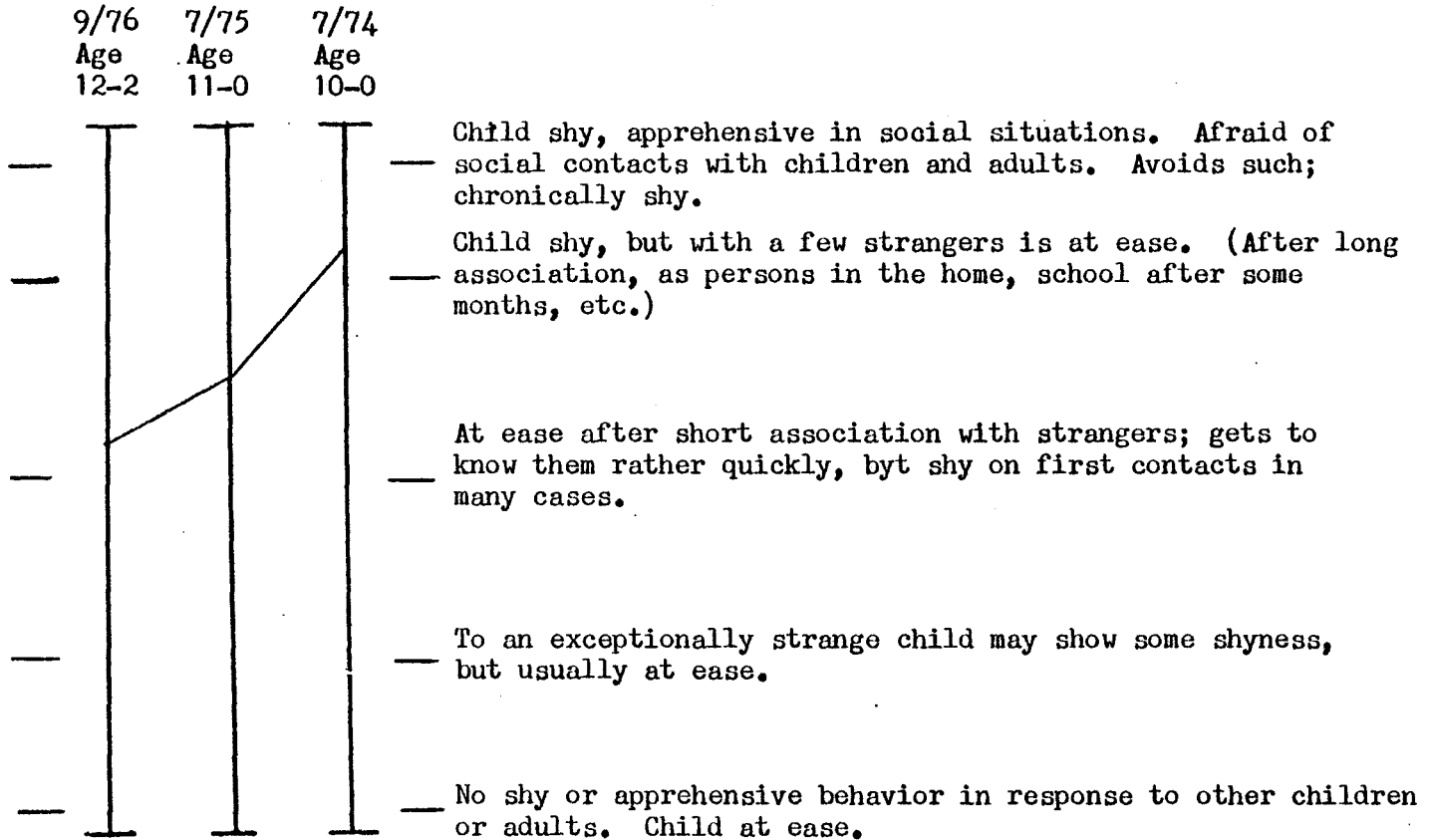
Sense of Humor

Child sensitive to unusual, bizarre, baroque; laughs and smiles often. May "kid" others and can be "kidded"; sees self in ridiculous light.



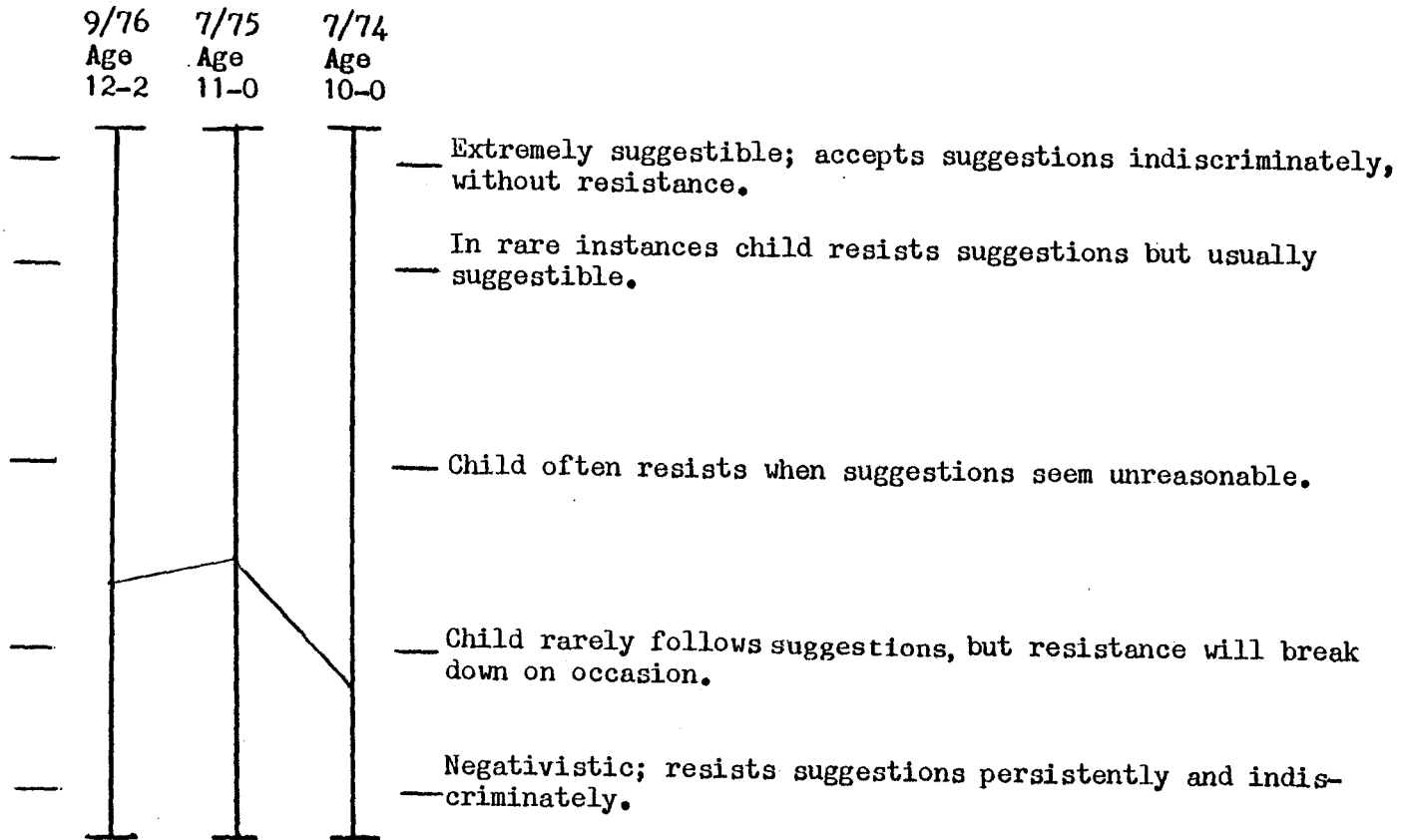
Social Apprehensiveness

Social apprehensiveness or shyness is characterized by hesitancy, by fearful behavior in response to social situations. The concept of awareness of physical danger does not directly enter here. The child is afraid of social situations.



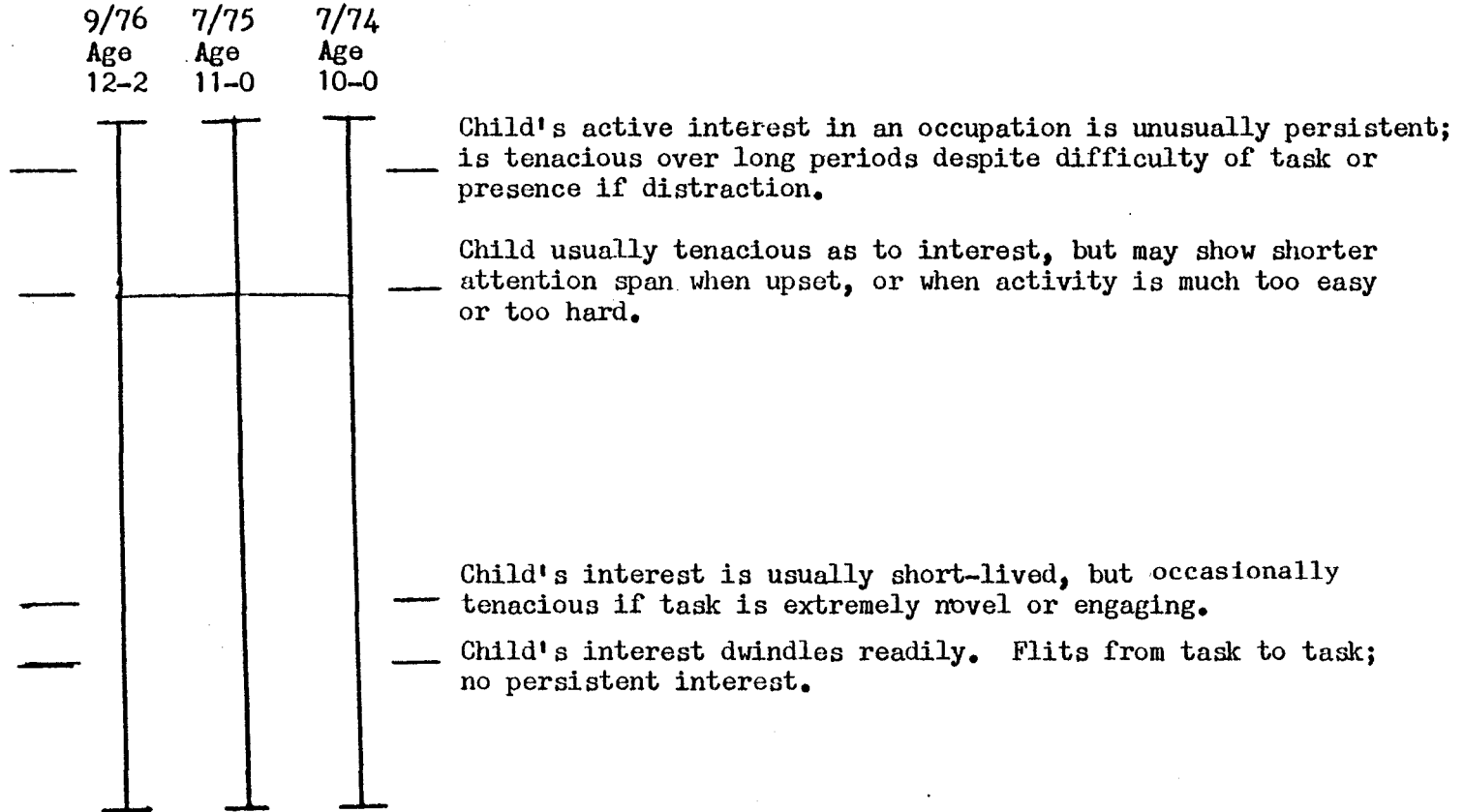
Suggestibility

The suggestible child is open to suggestion from others, reacts to the new, the different, to change.



Tenacity

This trait is concerned with the degree to which a child maintains a persistent interest.



APPENDIX V

Verbatim Descriptive Comments on Pictures

1. Comments on Poster Pictures: September, 1975 and May, 1978

Terry was shown the same set of 12 poster pictures (Teaching Pictures: Social Development, David Cook Publishing Co.) on 9/10/75, immediately prior to the introduction of intensive language training, and for the second time on 5/22/78. He was shown each poster and instructed "Tell me about that" and prompted "Tell me some more" if he had not used a sentence. Terry's responses and spontaneous elaborations were recorded and transcribed verbatim. David Helm presented the pictures the first time, while a graduate student in clinical psychology who had never worked with Terry presented the pictures on the later date. Below, each poster is briefly described and Terry's responses on the two occasions are juxtaposed, the 1975 responses being on the left.

1. A boy and girl stand on either side of a hamster cage. The girl is inserting a cup into the cage.

This is a . . . mouse in living cage.

The girl is feeding the squirrel.

2. Two boys walk along a sidewalk. One carries an apple and is handing a second apple to the other boy.

Running. Give me your apple, please.

The girl is handing the apple... the boy is giving the apple.

3. A complex scene of a playground. In the background three girls are swinging. In the foreground is a slide: a boy is coming off and another boy runs toward the ladder. One girl is starting up the ladder while a second girl nears the top.

First slide down. The boy. . . The girl is slide down here.

The boy is sliding down. The boy is running. The girls are swinging.

4. Two little girls work a puzzle on a table in the foreground. Another small girl works a puzzle on a table in the background.

He's puzzling together. She's putting her puzzle together.

The girl is going to puzzle... The girl is putting the puzzle together.

5. A girl is putting a number of toys away into a large box.

He's putting her toys together.

The girl is sliding. . .the girl
is putting the doll in the
book, in the box.

6. A teacher is showing a picture book to a group of five small children. The picture book displays an elephant and two giraffes.

He's two elephants in here.

The girl is pointing at the
book. . . pointing toward the
book.

7. A woman teacher is standing with hands raised over her head while two small boys and one small girl stand in front of her with arms similarly raised over their heads.

Up high.

The girl. . .the boys and the
girl are raising me. . . her
hands.

8. A small girl stands by a large dishwasher drying a knife with a dish towel.

Cut the apple. The cut. . .
cut his shirt.

The girl is washing the knife.

9. A small boy and girl, both dressed up in adult clothes are sitting opposite one another at a small table. The girl is pretending to pour the boy a cup of tea.

Cup. Please may I have a cup?

The girl. . .the boy and the
girl are sitting in the chair.
The girl is pouring the coffee.

10. Two small boys sit spread-eagled on the floor rolling a big ball between them. A small table with blocks and books on it, and two chairs, are in the background.

He's rolling the ball.

The boys are playing toy--on
ball.

11. A female teacher tapes a child's drawing to a wall. A small girl holds the tape and helps while a boy holds another picture.

He's paper. . . he's tape.

The girl is putting the paper on the wall.

12. A girl has had a spill on her tricycle and is sitting on the sidewalk crying. A small boy is behind her helping her up.

He's. . .cracked bicycle. . .
downy. . .he's crying.

The boy and the girl. . . The
boy is picking up the girl.

Although there is considerable variability in the quality of responses on both occasions, Terry's responses on the later date tend to be fuller, more communicative and cogent, and expressed in language that is closer to Standard English. On the first testing date Terry's confusion of thought and poor command of language could result in a highly idiosyncratic, autistic response, e.g., "Cut the apple. The cut. . . cut his shirt" (No. 8). It may be conjectured that Terry's association to the knife was cut and his association to a knife cutting was to an apple. (Terry often brought an apple to school for lunch and asked to have it cut.) The dish cloth or towel was deemed a shirt. Finally, he arrived at "cut his shirt." This response fails entirely in communicating in any intelligible way what was actually depicted--the common household task of washing and drying silver. At both assessments Terry's responses are extremely concrete and particularized, and usually do not begin to provide any kind of broader frame of reference. Pronouns are often misused in the first assessment while they are largely avoided during the second. Several of Terry's characteristic language peculiarities are displayed in these samples: creation of verbs from nouns ("puzzling," No. 4); confusion of boy/girl (No. 2); a much delayed response such that the verbalization is appropriate to an earlier stimulus rather than the one before him ("the girl is sliding" as the initial response to No. 5). The "tardy" response was a frequent occurrence in early language training, especially, with Terry occasionally soberly and earnestly holding and looking at one picture while his verbalization corresponded to the just previously presented stimulus, or even to a picture prior to the last one he had viewed.

Especially noteworthy is the extreme variability in quality of language, particularly evident in the 1975 sample. Terry's best response at this assessment ("She's putting her puzzle together") is on a par with those of the 1978 assessment, while his poorest responses have a primitive, cryptic quality that would be unfathomable to someone who was not aware of what he was trying to

communicate, (e.g., "he's tape" and "he's two elephants in here").

2. Comments on Language Training Pictures: February, 1976 and May, 1978

Terry was similarly shown a selection of 10 cards from the Visually Cued Language Cards--Series 3 (Consulting Psychologists Press, Inc., 1975) by David Helm in February, 1976, following the first five months of intensive language. A graduate student in clinical psychology who had never worked with Terry presented the cards for the second time shortly before Terry left the Loyola Day School in May, 1978. Conditions for presentation of cards and recording of comments are as described in Part 1. Below, the ten cards are identified by number and briefly described. Terry's responses are juxtaposed, with the 1976 responses on the left.

7. A small boy pulls a wooden duck toward himself.

This is a . . . pull the duck
into a boy.

The boy is pulling the duck. . .
toy. . . the boy is pulling a
duck. . . toy duck.

20. A small girl sits alone on the floor and plays a board game. She is placing a small card on the top of a pile.

The girls are playing cards.

The girl is putting the card down.

18. A cat is drinking milk from a saucer. The milk is spilling on the floor.

The cat is eating. . . the cat
is drinking milk.

The cat's drinking milk.

55. A boy and a girl are sitting on the floor and gift wrapping a box.

The girl and the boy are
taping.

The girl and the boy are putting
a present together.

41. A boy and a man are kneeling at the side of a pool and are placing a small toy sailboat into the water.

The boy and the man are rowing the boat.

The boy and the man are pushing the boat.

64. An older woman sits on a couch. A young boy stands before her and rings a large hand bell.

The boy is bell. The boy and the man are ringing.

The boy is ringing the bell.

42. A boy and a girl are sitting on the floor and watching television.

The girl and the boy are watching T.V.

The boy and the girl are watching T.V.

67. A man and a teenage girl are standing before a sink and drying dishes.

The boy. . .and the man are dishing.

The girl and the boy are washing dishes.

23. A boy is running in a field. He is holding a stick from which two kites are flying.

The boy are flying.

The boy is flying kites.

5. A black girl is riding a horse alongside a lake.

The boy are riding his horse.

The girl is riding a horse.

In this comparison of language samples, also, Terry's responses of May, 1979 tended to be much more grammatically correct and semantically accurate than those recorded earlier. In February, 1976, Terry made errorless responses on only 2 of 10 cards (No. 18 and No. 42) while in the assessment of 1979 his responses were error-free on 8 cards, and marginally correct on the remaining 2 (No. 55 and No. 41).

APPENDIX VI

TERRY'S HOME PROGRAM

Terry's Home Program has two broad basic goals: increased social skills; and improved communication skills. Separate sheets provide details on both of these areas while the following paragraphs provide an overview.

Social Skills

The social skills of immediate concern have been grouped into four categories: A. Personal hygiene; B. Craft and play skills; C. Social skills beyond the home; and D. Household tasks. With the exception of some degree of attention given to craft and play skills, none of the above skills are taught at school, nor can they be taught at school without sacrificing the current emphasis on language training and academic work. This means that if Terry is to learn these skills at all, he must do so at home. The skills in question, however, are traditionally taught at home and are most easily taught there. Terry will need systematic, consistent, and persistent instruction if he is to learn. That is, a 20- or 30-minute period should be scheduled each day, five to six days a week, to train Terry on the particular skill he is working on until he has mastered it. Such an approach will almost certainly be successful while a once-or-twice-a-week or once-in-a-while approach will almost certainly be unsuccessful. Terry needs far more structure and extended systematic training and practice than the typical child.

Communication Skills

At school Terry is receiving training which is helping him to understand language better and which, in a slow and laborious process, is helping him to learn to talk better. Terry enjoys many of his language lessons and seems to derive pleasure in his increasing linguistic competence, especially as regards his increased ability to understand. However, in common with most autistic youngsters, Terry shows a marked reluctance to use the new speech ability he has acquired. It is as if gestures and one- or two-word utterances are easiest for him and if they are sufficient that is all he will use. Typically, he will not use more elaborate speech if one or two words will get him by and serve successfully as a communication. An example: Last year, when we went to the Student Union, Terry used to approach a candy machine, stand staring in front of it, and say "Mars Bar, 20¢" as a signal for what he wanted. I taught him to, and demanded, that he look in my eye and phrase the request in a sentence, "May I please have a Mars Bar?" Subsequently, a change in a schedule caused Terry to be routinely taken to the Student Union by a volunteer rather than by myself. When, weeks later, I next took Terry to the S.U. he approached the candy machine and, staring at it, intoned, "Mars Bar, 20¢." I later learned from the volunteer that Terry had been treated to candy for that kind of performance.

The moral is that Terry will not acquire language if training and the demand for appropriate speech is restricted to the school. This is a virtually universal finding with autistic children. Language must be demanded from the child from all significant persons in his life, most significantly in his home. Terry will simply not acquire any degree of functional speech if this is not done. Language training must be a joint effort, home and school, if any degree of success is to be obtained. Initially, it will require a major effort to try to keep in mind the seven guidelines on the accompanying Communication Skills sheet. In time, however, the new ways will become "natural" and spontaneous. The greater extent that all family members are able to adopt the more demanding manner of communicating with Terry, the greater, the firmer, and surer his progress will be.

Terry's Home Program: COMMUNICATION SKILLS

1. REQUIRE EYE CONTACT when Terry speaks to you.
2. DON'T RESPOND TO ONE OR TWO-WORD "TELEGRAPHIC" MESSAGES; DEMAND APPROPRIATE LANGUAGE. If Terry tries to communicate in abbreviated fashion, respond with "What are you trying to say?", "Put it into words," "Say the whole thing," "Use a sentence," or some such prompt.
3. IF IN DOUBT, ASK TERRY FOR MORE INFORMATION; DON'T TRY TO SECOND-GUESS HIM. If you don't understand what Terry is trying to say, ask him to tell you more. That is, don't be too quick to make a guess about what Terry wants and suggest it to him--instead, make him do most of the work.
4. ALWAYS REQUIRE TERRY TO USE THE CORRECT PRONOUN, especially the troublesome pairs I-you, me-you, and my-your. If Terry uses one of these pronouns wrong always immediately stop him and make him correct himself. Often merely telling him "No" immediately after he has misused a pronoun will be sufficient for him to correct himself. It is sometimes helpful to join the pronoun with the corresponding proper name. For example, if Terry is asking Bill for something that belongs to Bill, Terry may sometimes understand better if he is prompted to say "Can I, Terry, have your (Bill's) such-and-such." On the other hand, do not use proper names as a substitute for pronouns. For example, if Bill wants to tell Terry he is leaving, he should not say "Bill is leaving now." He should say "I am leaving now" or if Terry needs clarification, "I, Bill, am leaving now."
5. PROMPT TERRY TO ASK QUESTIONS AND MAKE REQUESTS BY IMPOSING OBSTACLES. Terry especially needs experience in learning to ask questions. It will be helpful if he is made to ask for many things he customarily simply helps himself to. If, for example, he seizes your wrist to look at your watch, cover it, and prompt Terry (with as little help as possible) to phrase the sentence "What time is it?". The idea is to actually obstruct Terry momentarily until he phrases what he wants in the form of a question or request.
6. HELP TERRY TO NAME AND LABEL WHAT HE IS DOING. Especially when Terry is learning a new task it will help both his learning and his language if he is given a verbal sentence to accompany different parts of the task. For example, in hair washing, Terry might be taught to say the following words as he did the appropriate accompanying acts: -- "Turn on the water"; -- "Run the water 'til it's warm"; -- "Wet my hair"; -- "Put soap on my hair"; -- "Massage the soap into my hair"; -- "Rinse my hair"; -- "Put soap on my hair again"; -- "Massage the soap into my

hair"; -- "Rinse my hair"; -- "Dry my hair." Initially, Terry will have to have these phrases repeatedly modeled for him. Gradually, he will be able to say them spontaneously. As he begins to have a firm knowledge of what he is to say, he can be questioned, e.g., "What are you doing now? . . . What will you do next?" (While Terry is learning do not ask questions. Simply tell him what to say.)

7. ENGAGE TERRY IN CONVERSATION AND DON'T SETTLE FOR STEREOTYPED NONSENSE. STICK WITH HIM UNTIL HE PRODUCES A MEANINGFUL REPLY.

Terry's Home Program: SOCIAL SKILLS

A. Personal Hygiene

1. carries and uses a handkerchief
2. does a good, thorough job of brushing teeth
3. independently washes and combs hair
4. independently washes hands and face thoroughly
5. eats neatly
6. doesn't rock when sitting

B. Craft and Play Skills

1. learns to ride bicycle
2. skateboard
3. projects with wood, hammers, nails
4. small crafts
5. games with rules: Sorry, Checkers, etc.
6. basketball, softball
7. any play with other children
8. attend YMCA swim-gym class if at all possible (with Pat?)

C. Social Skills Beyond the Home

1. helps to shop
2. makes purchases
3. uses telephone
4. attends movies, sports activities, restaurants, etc.

D. Household Tasks

1. makes bed
2. learns to set table; clear table; put dishes in dishwasher; operates dishwasher; removes dishes; puts dishes away
3. prepares food: full range of food preparation and cooking activities
4. sweeps floor; uses dust pan; vacuums; washes floor
5. takes clothes from dryer and sorts, folds and puts away
6. carries out increasingly complex errands around the house
7. cleans the bathroom
8. mows lawn
9. washes windows
10. "picks up" and "straighten ups" house; dusts
11. sweeps walk
12. rakes leaves; does other gardening chores
13. washes the car
14. helps out on any and all other household chores

The goal is for Terry to learn to do a creditable job with all of the above tasks. Further, some of those tasks should become his to do routinely--his personal "chores." When Terry learns to carry out some of the chores routinely he might be given a very small amount of money as "pay" which he could then spend in any way he chose. (The hope here is that Terry will begin to make the standard social connections between work, pay, and reward.)

APPENDIX VII

Psychological Evaluation III (Summer, 1977)

Patient: Terrence Egan
B.D. 7-1-64 Testing Dates: Between 6-13-77 and 8-10-77

Age: 13-1 (approximate age at time of assessments)

Report Written by: David Helm

Purpose: Reassessment of cognitive, linguistic, perceptual, and motoric functioning to determine change, and to aid in curriculum planning for academic year 1976-77.

<u>Dates Examined and Tests Administered</u>	<u>Examiner</u>
1) 6-13-77 Leiter International Performance Scale	Lori D'Asta
2) 7-7-77 Wide-Range Achievement Test-Level II	Maxine Gierut
3) 7-11-77 Peabody Individual Achievement Test	Maxine Gierut
4) 7-13-77 Peabody Picture Vocabulary Test, Form B	Lori D'Asta
5) 7-13-77 Ammons Full-Range Picture Vocabulary Test, Form B	Lori D'Asta
6) 7-14-77 Raven Progressive Matrices--1938 Sets A,B,C,D, and E	Aaron Cooper
7) 7-14-77 Boehm Test of Basic Concepts	Aaron Cooper
8) 7-14-77 The Basic Concept Inventory	Aaron Cooper
9) 7-15-77 Wiig-Semel Test of Linguistic Concepts	Robert Cavanagh
10) 7-15-77 Bender-Gestalt	Robert Cavanagh
11) 7-15-77 Developmental Test of Visual-Motor Integration	Robert Cavanagh
12) 7-18-77 to 7-20-77 Cooperative Primary Tests	Maxine Gierut
13) 7-21-77 Wechsler Preschool and Primary Scale of Intelligence	Cheryl Rampage
14) 7-21-77 Detroit Tests of Learning Aptitude	Maxine Gierut

15)	7-22-77	Embedded Figures Test	Maxine Gierut
16)	7-26-77	Wechsler Intelligence Scale for Children-Revised	Jeane Keeley
17)	7-27-77	Perceptual Ambiguity Test	Frank Lani
18)	7-27-77	Developmental Sentence Analysis	Susan Mulhern
19)	7-27-77	Carrow Elicited Language Inventory	Susan Mulhern
20)	8-2-77	Stanford-Binet Intelligence Scale, Form L-M	Cheryl Rampage
21)	8-3-77	Porch Index of Communicative Ability	Dorothy Wood
22)	8-4-77	Northwestern Syntax Screening Test	Maxine Grier
23)	8-10-77	Illinois Test of Psycholinguistic Abilities	Joan Diederich

Testing Circumstances

Terry was tested by a number of different examiners in a variety of situations. One of the examiners, Maxine Gierut, was an experienced teacher who was enrolled in a Master's Program in Special Education and was doing a practicum in Terry's classroom at the Loyola Day School. Ms. Gierut had had previous training and experience with all of the instruments she administered. Six of the examiners (Lori D'Asta, Aaron Cooper, Robert Cavanagh, Jean Keeley, Frank Lani, and Cheryl Rampage) were advanced graduate students in clinical psychology serving an internship at the Loyola Guidance Center and Day School. None of the psychology trainees had ever worked directly with Terry, with the exception of their role in his assessment the previous summer. All of these examiners reported that Terry was cooperative and that test results would appear to provide a valid indicator of Terry's present functioning. Ms. Susan Mulhern, Clinical Supervisor of the Northwestern University Speech and Language Clinic examined Terry in a room at that clinic. Ms. Mulhern had tested Terry the year before and had also worked with him for one hour a week during February and March of 1977.

Ms. Joan Diederich, Director of Speech Pathology and Audiology of Foster G. McGaw Hospital of Loyola University of Chicago examined Terry at that setting. Ms. Diederich was known to Terry from her assessment of him of the previous year.

Ms. Dorothy Wood, Speech Pathologist of the College of Speech and Communicative Disorders of Marquette University, examined Terry at the Loyola Guidance Center in the presence of Mrs. Egan and

David Helm. This was Ms. Woods' second meeting with Terry.

The complete reports of the three speech specialists are appended to the close of this report.

With the exception of the examination by Ms. Woods, all assessments took place with only Terry and the examiner in the room.

Test Results:

Intellectual functioning. While Terry's current performance on the battery of intelligence measures administered is of importance and interest in its own right, the results are most meaningful when considered in the context of his performance on these same instruments during the assessments of the summer of 1976 and (where available) 1975. For this reason, and in the interest of avoiding redundancy, results for all three years (where available) will be presented side by side to facilitate comparisons and interpretation.

1) Raven Progressive Matrices

	<u>1938 Sets A,B,C,D,E</u>		<u>Colored Prog. Matrices</u>
	<u>1977</u>	<u>1976</u>	<u>1975</u>
Raw Score	33	27	24
Percentile	25th+	10-25th	25th
IQ Equivalent	app. 89	app. 86	app. 89

2) Leiter International Performance Scale

	<u>1977</u>	<u>1976</u>	<u>1975</u>
Mental Age	9-6	10-0	7-0
I.Q.	74	83	63
Adjusted I.Q.	79	88	68

3) Wechsler Intelligence Scale for Children-Revised (WISC-R)

<u>Test Category</u>	<u>1977</u>		<u>1976</u>		<u>1975</u>	
	Raw Score	Scale Score	Raw Score	Scale Score	Raw Score	Scale Score
<u>Verbal Tests</u>						
Information	7	1	4	1	4	1
Similarities	10	5	7	4	0	1
Arithmetic	6	2	2	1	3	1
Vocabulary	15	1	0	1	2	1
Comprehension	0	1	0	1	0	1
(Digit Span)*	(10)*	(7)*	(6)*	(3)*	(9)*	(7)*

<u>Performance Tests</u>	<u>1977</u>		<u>1976</u>		<u>1975</u>	
	Raw Score	Scale Score	Raw Score	Scale Score	Raw Score	Scale Score
Picture Completion	22	11	17	7	16	7
Picture Arrangement	22	7	11	4	16	6
Block Design	51	14	44	13	25	9
Object Assembly	24	10	26	12	21	9
(Coding)*	(20)*	(1)*	not administered		20	2
Mazes	22	9	25	12	(7)*	(3)*
	<u>S.S.</u>	<u>I.Q.</u>	<u>S.S.</u>	<u>I.Q.</u>	<u>S.S.</u>	<u>I.Q.</u>
Total Verbal	10	50	8	47	5	<45
Total Performance	51	101	48	96	33	77
Full Scale	61	73	56	70	38	57

*Sub-test not used in computing I.Q. scores.

4) Peabody Picture Vocabulary Test (PPVT)

	<u>FORM B</u>		<u>FORM A</u>
	<u>1977</u>	<u>1976</u>	<u>1975</u>
Raw Score	72	60	54
Mental Age	9-1	6-10	5-9
I.Q.	76	64	57

5) Ammons Full-Range Picture Vocabulary Test

	<u>FORM B</u>	<u>FORM A</u>
	<u>1977</u>	<u>1976</u>
Raw Score	43	28
Mental Age	11-0	7-3
I.Q.	85	60

6) Stanford-Binet Intelligence Scale, Form L-M

	<u>1977</u>	<u>1976</u>
Chronological Age	13-1	12-0
Mental Age	7-8	6-5
I.Q.	62	58

7) Wechsler Preschool and Primary Scale of Intelligence (WPPSI)

<u>Test</u>	1977		1976		<u>Change in Age. Equiv.</u>
	<u>Raw Score</u>	<u>Estimated Age Equiv.</u>	<u>Raw Score</u>	<u>Estimated Age Equiv.</u>	
Information	14	5-6	5	3-9	+1-9
Vocabulary	20	6-2	11	4-0	+2-2
Arithmetic	16	6-7+(S.S.=12)	9	5-0	+1-7(+)
Similarities	18	6-7+(S.S.=14)	13	6-5	+0-2(+)
Comprehension	6	4-0	4	3-11	+0-1
Sentences	14	5-6	10	4-6	+1-0

8) Detroit Tests of Learning Aptitude (DTLA)

<u>Test</u>	1977		1976		<u>Change in Age Equiv.</u>
	<u>Raw Score</u>	<u>Age Equiv.</u>	<u>Raw Score</u>	<u>Age Equiv.</u>	
Verbal Absurdities	0	<5-0	0	<5-0	0
Verbal Opposites	43	10-9	30	9-0	+1-9
Auditory Attention Span for Unrelated Words					
(Simple)	53	11-6	40	6-6	+5-0
(Weighted)	287	12-3	188	5-9	+6-6
Oral Commissions	14	6-9	9	5-6	+1-3
<u>Visual Attention</u>					
Span for Objects (Simple)	38	7-9	30	5-6	+2-3
(Weighted)	204	8-6	156	5-6	+3-0

	1977		1976		
	Raw Score	Age Equiv.	Raw Score	Age Equiv.	Change in Age Equivalent
Orientation	14	4-9	5	3-3	+1-6
Free Association	0	5-3	1	5-3	0
Memory for Designs	29	10-9	26	10-3	+0-6
Auditory Attention Span For Related Syllables	25	4-0	12	3-0	+1-0
Disarranged Pictures	0	5-6	1	5-6	0
Oral Directions	2	6-9	0	6-3	+0-6(+)
Likenesses and Differences	19	10-9	1	6-9	+4-0(+)

Terry's performance on the Progressive Matrices test remained relatively constant over the two-year period under study. He showed a sharp increment in performance on the Leiter in 1976 (20 points gained) but displayed a loss of about half of this increase at the current testing. His achievement on the Performance Scales of the WISC-R improved by over 20 points during the two-year period, with most of this improvement taking place by the end of the first year. After the initial assessment (1975) it was decided to replace the Coding subtest with the Mazes. This decision was made because of Terry's unshakeable determination to work very slowly and meticulously on any "printing" task. It was felt that the results of the Coding Test might be more reflective of obsessiveness in this regard, rather than his nonverbal intelligence per se. If Mazes had been substituted for Coding in the determination of the Performance I.Q. at the 1975 assessment, Terry's Performance I.Q. at that time would have been figured at 78. (This substitution was not made because it had not been decided upon in advance.) At the current testing it was decided to administer Coding as a supplementary test that would not be used in the determination of the I.Q. score per se. At this testing Terry performed in virtually the identical manner that he had at the initial assessment. While Terry displayed a gain in scaled score on all other performance subtests, there was an actual decrement in performance relative to normal peers on the Coding test, and his performance on this test was egregiously poorer than on any other performance measure. It should be noted, however, that the Coding subtest is the WISC-R subtest most sensitive to brain damage. The exquisite care with which Terry approaches the task is quite possibly a compensatory device for coping with a task

made more difficult because of neurological impairment. Whether Coding or Mazes is most appropriately used in assessing Terry's nonverbal intelligence is, at best, a moot point.

With respect to the Verbal portion of the WISC-R, a cursory inspection might suggest that there has been little sign of improvement over the two-year period of intensive training. At initial assessment, Terry's Verbal I.Q. was in the ill-defined category "less than 45." A year later it was established at 47, and most recently Terry achieved a verbal I.Q. of 50. Terry achieved advances in scale scores on only two of the verbal subtests, Similarities and Arithmetic. However, inspection of the raw scores reveals substantial gains also on the Information and Vocabulary subtests which are not reflected in an increased "I.Q." because the gains are taking place beneath the effective "floor" of the test. This suggests that Terry's verbal abilities are so much below those of his normal age peers that the Verbal portion of the WISC-R may be an insensitive instrument to measure his gains. It was with this consideration in mind that the verbal portion of the Wechsler Preschool and Primary Scale of Intelligence (WPPSI) was administered, first in 1976, and again in the present assessment.

Since Terry is far older than the population upon which the WPPSI was standardized, no true scale scores or I.Q. values can be obtained. Instead, Terry's raw score on a subtest was assigned an estimated age equivalent by determining for each raw score the age at which this raw score would represent average accomplishment. Thus, in 1976 Terry obtained a raw score on Vocabulary of 11. This corresponded to the mean value obtained by children age 4-0. Accordingly, Terry was assigned an age equivalency of 4-0 on this test.

Comparison of Terry's performance on the verbal portion of the WPPSI in 1976 and 1977 suggests that he made quite significant advances in his verbal ability during the past year. Gains on the Information, Vocabulary, and Arithmetic subtests range from one year and seven months to two years and two months. Such gains are particularly impressive when considered in the light of the fact that Terry's history is one of acquiring language at a far slower than normal rate.

Terry also made substantial gains on the Sentences and Similarities subtests, although the amount of improvement in this latter instance is obscured by the fact that Terry had initially scored very close to this test's ceiling. The one subtest on which Terry showed no improvement was Comprehension, which exactly paralleled the situation with the WISC-R. Success on the Comprehension test entails both social understanding and processing of language at a relatively complex level. Success at this sort of task is, at yet, completely beyond Terry.

Terry also did not show improvement on the Stanford-Binet over the last year. The global nature of the Binet I.Q., however, makes it difficult to derive a more detailed analysis.

I.Q. estimates from both the Ammons Full-Range Picture Vocabulary Test and the Peabody Picture Vocabulary Test (PPVT) showed a sharp increase this year of 25 and 12 points respectively. Over the full 2-year-period of intensive training the PPVT I.Q. estimate rose 19 pts., from 57 to 76. These test results provide further corroborating evidence that Terry's passive vocabulary--and hence his ability to comprehend language--increased at a pace over the past 2 years that far outstripped his previous rate of learning.

The last instrument to be considered is the Detroit Tests of Learning Aptitude (DTLA), which was first given in 1976. While Terry made no improvement on three of the selected tests (Verbal Absurdities, Free Associations, and Disarranged Pictures), he made gains on the other nine tests which ranged from moderate to the dramatic.

The greatest improvement was in Terry's performance on the Auditory Attention Span for Unrelated Words, a test in which he gained over 5 years in age equivalence. His achievement on the Visual Attention Span of Objects increased in age equivalency between 2 and 3 years. Thus, Terry displayed a very enhanced ability to recall both auditory and visual stimuli. His performance on the Auditory Attention Span for Related Syllables test increased 1 year in age equivalency, a very substantial achievement inasmuch as at age 12 (1976) Terry's age equivalency on this test was but 3-0. Test results again revealed a sharp disparity between Terry's memory for unrelated words, which is now close to age appropriate (11-6) and extremely poor ability, relative to his age peers, at recalling related words (4-0), a finding common with autistic children (Hermelin & O'Connor, 1967). When normal children hear a string of words that are meaningfully related (as in a sentence), this very meaning provides a skein which powerfully aids in recall. Terry's command and understanding of language is so poor that he gains no comparable advantage.

Terry enjoyed advances in age equivalency of 1 year and 9 months on the Verbal Opposites test, and a full 4 years on Likenesses and Differences. His improved performance on these tests probably owes much to his training in the Distar Language Program which offers intensive training on such tasks.

Strong gains of over a year of age equivalency were also registered on the Oral Commissions test and the Orientation test, while a modest improvement was obtained in Oral Directions.

Terry either completely failed to understand the directions--to get the "point" of what he was being asked to do--on the Verbal Absurdities, Free Association, and Disarranged Pictures tests, or these tasks were simply completely beyond him.

When the full array of findings cited above are considered together, they might be briefly summarized as follows: On Performance measures of intelligence, Terry now routinely functions in the dull-normal to normal range. The intensive training of the last two years would seem to have substantially contributed to Terry's ability in this regard. On verbal measures of intelligence Terry functions as a severely handicapped child. His ability varies strikingly as a function of the specific verbal task imposed, with greatest relative strength displayed in the area of vocabulary (the "naming" function) and greatest deficit in tasks requiring more global comprehension of meaning. Although not reflected in the WISC-R Verbal I.Q. score, or the Stanford-Binet, the other tests of verbal aptitude employed reveal major gains in verbal cognitive ability over the course of training. These gains reflect a rate of growth much greater than that which Terry displayed prior to the intensive program.

Linguistic functioning. In the following presentation of the results of the current evaluation, the findings from the assessments of 1975 and 1976, where available, will be juxtaposed as an aid to interpretation.

1) Northwestern Syntax Screening Test (NSST)

	1977		1976		1975	
	Raw Score	Est. Psycholing. Age	Raw Score	Est. Psycholing. Age	Raw Score	Est. Psycholing. Age
Receptive Language	35	6-7 ^a	24	3-7 ^c	17	less than 3-0 ^e
Expressive Language	30	5-5 ^b	24	4-4 ^d	10	less than 3-0 ^f

^aA score of 35 lies between the 50th (33) and the 75th (36) percentile for children age 6-0 to 6-11.

^bA score of 30 lies between the 50th (29) and the 75th (32) percentile for children age 5-0 to 5-11.

^cA score of 24 lies between the 50th (22) and the 75th (25) percentile for children age 3-0 to 3-11.

^dA score of 24 lies between the 75th (23) and the 90th (26) percentile for children age 3-0 to 3-11. It is just below the 50th (25) percentile for children age 4-0 to 4-11.

^eA score of 17 lies exactly at the 10th percentile for children age 3-1 to 3-11. No norms are provided for receptive language scores less than 17.

^fA score of 10 is less than the 10th (12) percentile for children age 3-0 to 3-11. No norms are provided for expressive language scores less than 12.

2) Test for Auditory Comprehension of Language (TACL)

	<u>1977</u>	<u>1976</u>	<u>1975</u>
Raw Score	93	81	64
Age Equivalency	6-10	5-11	3-10

3) Illinois Test of Psycholinguistic Abilities (ITPA)

Test Component	<u>1977</u>		<u>1976</u>		<u>1975</u>	
	Raw Score	Age Equiv.	Raw Score	Age Equiv.	Raw Score	Age Equiv.

Auditory-Vocal

A.) Representational Level

Auditory Reception	32	7-6	24	5-10	2	2-4
Auditory Association	22	6-2	20	5-9	10	4-1
Verbal Expression	18	5-6	13	4-8	6	3-1

B.) Automatic Level

Auditory Memory	34	10-3+	20	5-6	26	7-2
Grammatical Closure	22	7-3	19	6-5	7	4-2

	<u>1977</u>		<u>1976</u>		<u>1975</u>	
	Raw Score	Age Equiv.	Raw Score	Age Equiv.	Raw Score	Age Equiv.

Visual-MotorA.) Representa-
tional Level

Visual Reception	27	8-10	25	7-9	23	7-1
Visual Association	31	10-3	20	6-0	23	6-10
Manual Expression	28	8-8	26	7-11	29	9-2

B.) Automatic
Level

Visual Memory	19	7-3	22	8-4	14	5-4
Visual Closure	31	9-0	31	9-0	20	6-4
Composite Psycholing. Age	264	7-9	219	6-7	160	5-3

Change in Obtained Psycholinguistic Age Equivalence (ITPA)

<u>Test Component</u>	<u>Total Change 1975-1977</u>	<u>Change Between 1976-1977</u>	<u>Change Between 1975-1976</u>
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Auditory-VocalA.) Representa-
tional Level

Auditory Reception	+5-2	+1-8	+3-6
Auditory Association	+2-1	+0-5	+1-8
Verbal Expression	+2-5	+0-10	+1-7

<u>Test Component</u>	<u>Total Change 1975-1977</u>	<u>Change Between 1976-1977</u>	<u>Change Between 1975-1976</u>
<u>Auditory-Vocal</u>			
B.) Automatic Level			
Auditory Memory	+3-1(+)	+4-9	-1-8
Grammatical Closure	+3-1	+0-10	+2-3
<u>Visual-Motor</u>			
A.) Representational Level			
Visual Reception	+1-9	+1-1	+0-8
Visual Association	+3-5	+4-3	-0-10
Manual Expression	-0-6	+0-9	-1-3
B.) Automatic Level			
Visual Memory	+1-11	-1-1	+3-0
Visual Closure	+2-8	0	+2-8
Composite Psycholinguistic Age	+2-6	+1-2	+1-4

4) Wiig-Semel Test of Linguistic Concepts

<u>Test Portion</u>	1977		
	Score	Closest Equiv. Grade	\bar{X} and S.D. of Closest Equiv. Grade
Comparative Relationships	8	2	$\bar{X} = 8.10$ S.D. = 1.33
Passive Relationships	10	7-8	$\bar{X} = 9.00$ S.D. = 1.03
Temporal Relationships	5	1	$\bar{X} = 6.50$ S.D. = 1.50
Spatial Relationships	7	2	$\bar{X} = 7.23$ S.D. = 1.52
Familial Relationships	3	2	$\bar{X} = 5.23$ S.D. = 2.92
Total Test	33	2	$\bar{X} = 34.90$ S.D. = 4.76

<u>Test Portion</u>	1976		
	Score	Closest Equiv. Grade	\bar{X} and S.D. of Closest Equiv. Grade
Comparative Relationships	4	1	$\bar{X} = 7.70$ S.D. = 1.55
Passive Relationships	4	1	$\bar{X} = 6.60$ S.D. = 1.43
Temporal Relationships	4	1	$\bar{X} = 6.50$ S.D. = 1.50
Spatial Relationships	6	2	$\bar{X} = 7.23$ S.D. = 1.52
Familial Relationships	0	1	$\bar{X} = 1.43$ S.D. = 1.50
Total Test	17	1	$\bar{X} = 26.30$ S.D. = 4.99

5) Porch Index of Communicative Ability in Children, Advanced Format

	<u>1977</u>	<u>1976</u>
Normative Age for General Communicative Ability	3-4	3-4

6) Carrow Elicited Language Inventory (CELI)

	<u>1977</u>	<u>1976</u>
Total Errors:	12	36

7) Developmental Sentence Analysis (DSA)

	<u>1977</u>	<u>1976</u>
Developmental Sentence Score (DSS)	3.02	2.26

Terry performed substantially better during the current assessment on both the Receptive and Expressive Language scale of the Northwestern Syntax Screening Test (NSST) than he did last year. Although the NSST does not provide psycholinguistic age equivalents as such, estimates of such equivalents may be made from the normative data provided in the NSST Manual. In the light of this normative data, it would appear that Terry's performance in expressive language increased about the equivalent of one year, and receptive language ability increased over two years, during the last 12 months. Thus, Terry has continued to build on the gains first noted in the assessment of 1976. Terry's language ability, as assessed by this instrument, has shown an impressive growth over the two-year period of intensive training. In 1975 at age 11-0, his receptive language score placed him at the 10th percentile for children age 3-0 to 3-11, while by 1977 this score was above the 50th percentile for children age 6-0 to 6-11. His expressive language score in 1975 fell below the 10th percentile for children age 3-0 to 3-11, while in 1977 it fell at over the 50th percentile for children age 5-0 to 5-11. Thus, during the two-year period of intensive training Terry gained more than 2½ years in both receptive and expressive language facility as assessed by the NSST, a rate of language acquisition far greater than he experienced during his first eleven years.

Findings comparable to the above were also obtained on the Test for Auditory Comprehension of Language. On this test Terry displayed a gain of psycholinguistic age equivalence of 11 months since assessment a year ago, and a gain of 3 years since the inception of training in 1975.

Again, a very similar pattern of results is presented by Terry's performance on the Illinois Test of Psycholinguistic Abilities over the past two-year period. During the last year Terry made substantial gains (ranging from 10 months to over 4 years of psycholinguistic age) on 8 subtests. Taking all subtests into account, composite psycholinguistic age increased 1 year and 2 months. These gains followed upon substantial increases in functioning

recorded at the end of the first year of training. Over the two-year period of intensive language training Terry's Auditory-Vocal subtest scores displayed an increase in psycholinguistic age ranging from a minimum of 2 years and 1 month (Auditory Association) to a maximum of 5 years and 2 months (Auditory Reception). Performance on the Visual Motor subtests also showed a substantial increase in psycholinguistic age (with the exception of Manual Expression) ranging from 1 year and 9 months (Visual Reception) to 3 years and 5 months (Visual Association). Terry's Visual-Motor functioning tended to surpass his Auditory-Vocal functions at all assessments. Auditory-Vocal functions, however--which were the focus of the most intensive training--gained in relative strength over the two-year period.

During the early years of Terry's placement at the Loyola Day School he was considered to be untestable. The only formal testing result on record prior to 1975 was an I.Q. score of 65 on the Peabody Picture Vocabulary Test obtained in February, 1973. In February, 1975, 4 months before the initial comprehensive assessment of Terry began, all the children in Terry's room were tested on the ITPA by Mary Alice Rich, an experienced examiner. Terry was reported as participating cooperatively in his assessment, and the examiner was of the opinion that the results represented a valid estimate of Terry's current ability. These are the only formal test results of Terry's language functioning prior to the commencement of intensive language training which were obtained by an examiner other than David Helm. The results of this assessment and that of the initial assessment obtained by David Helm are presented below.

Comparison of ITPA Results of 2/1/75 and 8/1/75:

<u>Test Component</u>	8/1/75		2/1/75		Difference in Psycho-linguistic Age Between 2/1/75 and 8/1/75
	(Examiner: D. Helm)		(Examiner: M.A. Rich)		
<u>Auditory-Vocal</u>					
<u>Representational Level</u>	Raw		Raw		
	<u>Score</u>	<u>PLA</u>	<u>Score</u>	<u>PLA</u>	
Auditory Reception	2	2-4	0	2-1	+0-3
Auditory Association	10	4-1	5	3-3	+0-10
Verbal Expression	6	3-1	11	4-3	-1-2
<u>Automatic Level</u>					
Auditory Memory	26	7-2	25	6-10	+0-4
Grammatical Closure	7	4-2	4	3-3	+0-11

Test Component	8/1/75 (Examiner: D. Helm)		2/1/75 (Examiner: M.A. Rich)		Difference in Psycho-linguistic Age Between 2/1/75 and 8/1/75
	Raw Score	PLA	Raw Score	PLA	
<u>Visual Motor</u>					
<u>Representational Level</u>					
Visual Reception	23	7-1	16	5-7	+1-6
Visual Association	23	6-10	19	5-9	+1-1
Manual Expression	29	9-2	18	5-3	+3-11
<u>Automatic Level</u>					
Visual Memory	14	5-4	15	5-4	0
Visual Closure	20	6-4	18	5-10	+0-6
Composite Psycho- Linguistic Age	160	5-3	131	4-10	+0-5

The overall pattern of results suggest that Terry may well have made gains in language ability during this six-month period. However, 11 of the 29 additional total points (38%) which contributed to Terry's increase of 5 months in psycholinguistic age, are accounted for by a single test--Manual Expression. The age equivalent of 9-2 in Manual Expression found during the assessment of 8/1/75 must itself, however, be held in some question. The examiner (Helm) was administering the ITPA for the first time. Scoring of the Manual Expression test requires multiple decisions about whether numerous components of a mimed act are, or are not, presented by a child. When the particular action component is not presented in a clear and precise fashion there may be ambiguity about whether it was indeed presented. Inasmuch as no other examiner ever found Terry to perform at an age equivalent as high as 9-2 on this test, the possibility of examiner error--an over-lenient interpretation applied to an ambiguous situation--must be entertained.

In any case, whether the ITPA results of 2/75 or those of 8/75 are used as a base of comparison for those of 8/77, it is clear that Terry made very substantial gains during the period of intensive language training.

The Wiig-Semel Test employs relatively sophisticated linguistic concepts, and normal children continue to show improvement on this test through approximately Grade 6. Since the previous assessment of a year ago Terry registered no significant change on the Temporal Relationship and Spatial Relationships subtests. He gained over a year in psycholinguistic age on the Familial Relationships and Comparative Relationships subtests, although his performance on these subtests was still very much below his age level. There was a striking shift in Terry's achievement on the Passive Relationship subtest since last year. In 1976 his performance was two standard deviations below that of the mean for normal children of Grade 1, while in 1977 he achieved a perfect score of 10--a score which is one standard deviation above the mean for students of Grade 7-8. It would seem reasonable to attribute the extreme shift in performance on this subtest to the special intensive training in passive relationships which Terry received as a part of a "mini-study" designed to investigate the effects of language training as directed to specific linguistic tasks.

Terry displayed no improvement on the Porch Index of Communicative Ability in Children, Advanced Format, over the past year. Contributing importantly to Terry's poor performance at both assessments was his inability to immediately shift his response set as the nature of the task requirement changed. Terry, on both occasions, tended to initially persevere in what had become a successful response pattern on the immediately prior test and often needed repeated or additional instructions or "prompts" before he "caught on" to the demands of the new task.

Terry displayed substantial improvement on the Carrow Elicited Language Inventory (CELI). Although this test does not provide psycholinguistic age equivalents, an estimate of these may be made by considering Terry's errors in comparison to percentile equivalents of errors made by normal children at different ages. A score of 36 errors is far below the median for children age 4-0 to 4-11, while a score of 12 errors is well above the median for children age 5-0 to 5-11. Against these criteria, Terry gained well over 1 year of psycholinguistic age. It should be noted that in this test a child is called upon to repeat verbatim a stimulus sentence spoken by the examiner. Such a task is, for Terry, far less demanding than the use of comparable constructions in spontaneous speech.

The grammatical complexity of Terry's spontaneous utterances, as assessed by the Developmental Sentence Score, showed very little change over the course of the year. His score of 2.26 obtained in 1976 lies at just under the 10th percentile for children age 2 years 0 months to 2 years 11 months, while his score in 1977 lies at just above the 25th percentile for this same age group. A special advantage of the Developmental Sentence Analysis, however, derives

from the fact that the child's entire corpus of utterances during a structured interview with the speech clinician is tape recorded and transcribed. The child's language usage may then be considered from many vantage points beyond that of grammatical complexity. Analysis of Terry's language usage at the current testing revealed a number of clinically important improvements over the previous year. One striking finding was that whereas 80% of Terry's spontaneous utterances during the assessment of 1976 had to be eliminated from formal analysis because they were unrelated to the stimulus materials or situation, or were unintelligible or echolalic, only 30% of Terry's utterances needed to be eliminated from the current analysis.

In 1976 Terry never responded appropriately to "Why," "How about," "What if," or "What. . .for" questions. In 1977 Terry continued to have great difficulty with why and what if questions, but showed some success with simple who, what, and what. . . doing question forms. The frequency of semantic error had also decreased from the previous year. Terry still asked no spontaneous questions and had little success with role taking. Thus, at current testing Terry's speech remained markedly deviant and delayed. It was, however, far more task relevant, and contained fewer semantic errors. The examiner's impression continued to be that "(Terry's) problems in language learning are receptive rather than expressive and are related at least in part to the intent or need to communicate." (Mulhern, 1977, Appendix III).

Terry was not retested on the Michigan Picture Language Inventory and the Assessment of Children's Language Comprehension because of near ceiling performances in 1976.

When the full panoply of language test results are considered, they may be briefly summarized as follows: Terry gained substantially in language comprehension over the past year, registering a gain of 1 year or more of psycholinguistic age equivalency on the majority of tests tapping this area. Auditory memory substantially improved. Gains in expressive language were especially apparent with respect to a sharp decrease in non-communicative "static" (irrelevant utterances, echolalia, and unintelligible utterances) and decrease in semantic errors. Terry's expressive language remained, however, grossly deviant and primitive in quality.

Perceptual, Motor, and Perceptual-Motor Functioning

1) Bender-Gestalt

Score: 1 error (Koppitz scoring)

(At age 10-6 to 10-11, mean errors = 1.5; S.D. = 2.10)

2) Developmental Tests of Visual Motor Interaction (UMI)

Raw Score: 14 UMI Age Equivalent: 7-4

3) Embedded Figures Test

Score: Mean seconds per item = 28.7

For boys age 13 the mean seconds per item = 59.3; S.D. = 23.8

4) Perceptual Ambiguity Test

Score: $8\frac{1}{2}$ (Mean for age $6\frac{1}{2}$ - $7\frac{1}{2}$ is 7-8 points)

Terry's performance on the several perceptual measures administered did not differ appreciably from that of a year ago. While he made three fewer errors on the Bender-Gestalt than he had in 1976, the one error that he did make was a rotation--an error that is considered extremely suggestive of brain injury. Terry's score on the Embedded Figures Test (Adult Form) was more than one standard deviation away from the mean in the direction of field independence. This achievement parallels his performance on the Children's Embedded Figures Test of last year. Performances on the Developmental Test of Visual-Motor Integration and Perceptual Ambiguity Test were virtually identical to those of 1976. (The TENVAD, Frostig Developmental Test of Visual Perception, and Perceptual Integration Test were not administered in 1977 because of near-ceiling achievements in 1976.) While achievement plateaued on the tests of perception and motor-perception administered, it is a moot point as to whether Terry had, in effect, arrived at his personal ceiling in the tested areas or whether the lack of improvement reflected the fact that relatively little training time had been devoted to these areas during the past year.

Understanding of basic concepts and academic achievement.

Test results from 1976 will be juxtaposed with those of 1977 to facilitate comparison and interpretation.

1) The Basic Concept Inventory

<u>Test Section</u>	<u>1977</u>	<u>1976</u>
	<u>Number of Errors</u>	<u>Number of Errors</u>
Part One	5	16
Part Two: Statement Repetition	1	2
Part Two: Questions	2	6
Part Three	2	3
Total	10	27

2) Boehm Test of Basic Concepts

<u>Items correct (out of 50 total)</u>	<u>1977</u>	<u>1976</u>
Form A	49	25
Form B	49	32
Items correct on both Forms A and B	49	20

3) Peabody Individual Achievement Test (PIAT)

<u>Subtest</u>	<u>1977</u>		<u>1976</u>	
	Raw Score	Grade Equiv.	Raw Score	Grade Equiv.
Mathematics	24	2.2	21	1.9
Reading Recognition	53	7.0	51	6.4
Reading Comprehension	37	3.9	34	3.6
Spelling	50	6.2	44	4.6
General Information	24	3.5	5	0.1
Total Test	188	4.0	155	3.2

4) Wide-Range Achievement Test Level II (WRAT)

<u>Subtest</u>	<u>1977</u>		<u>1976</u>	
	Raw Score	Grade Equiv.	Raw Score	Grade Equiv.
Arithmetic	12	2.9	10	1.9
Reading (Recognition)	36	5.8	30	4.6
Spelling	14	4.9	12	4.3

5) Cooperative Primary Tests

<u>Subtest</u>	<u>Number Right</u>	<u>Percentile for Grade Spring</u>
Mathematics, 23A	28	37%ile
Listening, 23A	21	7%ile
Reading, 23A	25	42%ile

Terry made substantially fewer errors on the Basic Concept Inventory than he did last year, with most of the improvement coming in Part 1 and Part 2 (Questions). Correct understanding and usage of the words not, only, can, cannot, and neither, are important to success in the above-named test sections, and Terry had received special intensive training on these words in a "mini-study" conducted in the past year.

Terry's performance on the Boehm Test of Basic Concepts improved markedly since 1976, with only one error among the fifty tested concepts. Eighteen of the thirty concepts which Terry had missed in 1976 on one or both forms of the test had been the subject of special intensive training in a "mini-study" conducted 6 months prior to the current assessment. Terry had learned all 18 concepts during the course of the mini-study, and the present test results offer evidence of the retention of that learning.

Since last year, Terry's achievement in arithmetic advanced 1 year on the Wide-Range Achievement Test (WRAT), but only a quarter of a year on the Peabody Individual Achievement Test (PIAT). This difference may reflect the fact that the WRAT is essentially a test of computational skills while the PIAT employs a more conceptual approach to mathematical skills. A very modest gain in Reading Comprehension was recorded (PIAT), while skill at Reading Word Recognition increased about half-a-year on the PIAT and about 1 year on the WRAT. In spelling Terry gained approximately half-a-year and 1½ years on the WRAT and the PIAT, respectively. Terry's largest obtained gain on the PIAT was on General Information where he gained over 3½ years in grade equivalence.

On the Cooperative Primary Tests, Terry's performance in Mathematics and Listening stood in about the same relationship to the performance of normal second graders as his performance in 1976 stood in relationship to that of normal first graders. Terry did not display a comparable advance in reading.

Considerable variation among tests, both with respect to grade equivalents obtained and amount of recorded change makes interpretation difficult. However, the overall pattern of change was clearly in the direction of improved performance. Improvement in arithmetic, reading, recognition, and spelling may be estimated at about half a year or more. Reading comprehension improved by only a few months, and general information would seem to have increased by the equivalent of several years.

Further implications and discussion. Test findings have been presented in detail and the present section will be limited to a brief consideration of highlights and discussion of a few broad issues not covered in the report itself.

All tests given in 1975 were administered by myself, while all tests in 1976 and 1977 were administered by other persons, most of whom had little or no personal relationship with Terry. In assessing the effects of training it was important to determine whether Terry's new learning generalized both to new circumstances (the assessment procedure) and also to other person(s) who had not taken part in the training itself.

When I had tested Terry in the summer of 1975, he had always been on his best behavior with me, clearly trying to do his best. During 1976, Terry had come to work cooperatively for long stretches with a number of adults. For his assessment of the effects of training, Terry would, in effect, be handed over to a battery of strangers. If anything, Terry might have been expected to be a little less cooperative, consistent, and productive, under these circumstances than he had been with me the year before, and assessed gains, if any, might suffer because of this. By all accounts, however, Terry was serious-minded and cooperative with each of his many examiners and without exception examiners were of the opinion that obtained test results were valid.

Terry's marked improvement in nonverbal I.Q. as measured by the Leiter and WISC-R during the course of the study may well reflect his extensive experience with puzzles, design cubes, mazes, and so on. While initially resisting the use of such materials, he came to enjoy them and seek them out on his own. In this respect--during his eleventh year--Terry came to display behavior that is common to most normal children. His achievement on the WISC-R subtests of Mazes, Block Design, and Object Assembly, improved to the point that his performance was normal. His markedly inferior performance of 1975 would seem to be best interpreted as reflecting a functional inadequacy resulting from a life-long pattern of self-imposed cultural impoverishment. When Terry began to use such materials--to engage with them purposefully and meaningfully--there was a rapid and obvious gain in his ability to organize and plan his manipulation of

such objects. Further, Terry also showed marked improvement in attention span and in his rapport with adults over the course of the study and Kohlberg (1968) has found such changes to be correlated with increases in I.Q. scores among deprived children.

During the course of the study Terry displayed major improvement in his visual-motor performance as assessed on the Bender-Gestalt and the Frostig Developmental Test of Visual Perception. Terry's performance on the Embedded Figures Test was indicative of marked field independence--the ability to isolate or separate an item from an organized context. During the previous year Terry had similarly tested as markedly field independent on the Children's Embedded Figures Test (CEFT). High scores on the CEFT are correlated significantly with composite scores for the WISC Block Design, Object Assembly, and Picture Completion, subtests on which autistic children typically show strength, but show no relation with WISC composite verbal-comprehension scores. It has also been found that field independent children are significantly less affected by approval or disapproval than are children who are field dependent (Witkin, Oltman, Raskin, & Karp, 1971). Terry's accomplishment on the Children's Embedded Figures Test was one of the very few instances in which his performance on a test was definitely superior to that of a normal child of his age. It is an interesting question as to whether other autistic children would display a comparable advantage on this test.

Probably Terry's most remarkable gains were in auditory comprehension, and, to a lesser extent, verbal expression. At age 11, prior to the introduction of intensive language training, Terry's comprehension was akin to that of a child of barely age 3, while two years later his comprehension tested similarly to that of a child of about 6½. The training thus remarkably accelerated development in this area. Tests of verbal expression also registered sharp gains, although Terry's performance on such tests as the Northwestern Syntax Screening Test (NSST) and the Carrow Elicited Language Inventory (CELI) always tended to markedly over-estimate his actual oral expression in a social situation. The NSST and CELI require children to repeat words that the examiner has spoken and this task approximates the single verbal strength that Terry may be said to possess--the ability to echo or repeat back what he has just heard. The Developmental Sentence Analysis (DSA), in contrast, through its employment of a spontaneous language sample, provides a much more accurate and valid picture of Terry's expressive ability. The DSA revealed that over the last year of intensive training there was a major reduction in both noncommunicative verbalization and semantic error, although grammatic complexity remained constant.

During the course of the year Terry received training in the recall of random digits forward and backwards for a minute or two each day, and training in the recall of orally-presented short stories

about 15 minutes each day. This training was initiated in the hope that Terry's very poor auditory memory might improve and in the hope that such improvement, if effected, might contribute to an increase in auditory comprehension. It is interesting in this regard that marked improvement was indeed noted on every test of auditory recall that was used: Digit Span of the WISC-R, Sentences on the WPPSI, Oral Commissions and Auditory Attention for both related and unrelated words on the DTLA, Auditory Memory on the ITPA, and on those tests of grammar where the child must repeat the auditory stimulus verbatim (NSST, CELI). The gains observed are the more remarkable in that in the previous year (1976) Terry had actually shown a decrement in memory span on both the Digit Span of the WISC-R and the Auditory Memory of the ITPA relative to his performance in 1975. Indeed, this decrement had been a primary stimulus for the training. While it is impossible to determine the specific contribution of the memory training to his improved performance, or to assess the contribution of improved short-term auditory memory to his other demonstrated gains in cognitive and linguistic performance, the findings suggest that the training may well have made a significant contribution to his observed improvement. A controlled study of the effects of such training seems indicated.

The difficulty of interpreting the contribution of any given specific component of Terry's training (e.g., memory training) to improvements that he displayed is a general one. In this case study the primary goal and responsibility of the therapist-investigator was to effect clinical improvement. Assessments were used primarily to determine areas of need and to assess change as it had been effected by the total program in which Terry was involved. Since Terry was literally involved in dozens of different training procedures and conditions during the course of any given week, many of which were intentionally chosen to overlap in their training functions, it was impossible to differentially sort out the specific contribution of any particular training activity to the overall progress that was observed. Training components were utilized according to a clinical judgment about what seemed to be effective with Terry: Did the lessons seem to address Terry's needs at an appropriate level? Did the lessons appeal to Terry and hold his interest? Did he seem to be making progress and acquiring new skills? In this respect, inclusion of particular elements into Terry's program was based, finally, on intuition, observation, and experience.

Theoretically, each and every individual component of Terry's training program might have been studied in isolation in a time series design. Practically, this would have meant that much of Terry's training would have had to come to a standstill while a single isolated element was under study. It also would have meant that a very large proportion of Terry's time would have had to be devoted to assessment rather than training. Inevitably, the requirements of

research procedures designed to assess the differential contribution of the many different program elements employed would have conflicted with the clinical goal of effecting optimal improvement in the shortest possible time. This conflict was alluded to by Lovaas et al. (1973) who noted that their extensive efforts devoted to measurement and replication probably limited therapeutic progress to some extent. In the present instance--working with a single child--an attempt to assess each program component individually in a time series design would have been possible only at an unacceptable cost in terms of Terry's clinical progress. The two "mini-studies" were undertaken to provide some concrete documentation of the role of training, per se, in the progress that Terry was demonstrating. It is an unfortunate limitation of the present case study that the specific contribution of a given component of the training program (e.g., Distar Language I) cannot be determined. It is for this reason that clinical observations on those programs and procedures that seemed to be most helpful have been noted.

The multitude of tests that Terry was assessed upon provided a welter of data which sometimes presented difficulties in interpretation. The original decision to test Terry on a fairly large number of different I.Q. tests, language tests, tests of perceptual functioning, and so on, was made out of three considerations: (1) it was unclear which of the many alternative instruments would be most appropriate or "best" to use; (2) it was thought that results on a variety of different tests might contribute to a fuller understanding of Terry's functioning; and (3) at the time testing was initiated Terry had already shown marked change in his emotional-social behavior and it was hoped a large variety of different tests would provide a kind of "net" which would enhance the possibility that any future changes might be reflected somewhere in test performance.

The decision to employ multiple assessment instruments proved to have important advantages. Terry's learning and performance--especially during the first year of intensive training--was notoriously inconsistent. He could repeatedly demonstrate some new language acquisition and then--a day, or week, or month later--apparently "lose" the response and show no evidence of the training. Such inconsistency of response is quite common with autistic children. The effect of such inconsistency, of course, is to increase unreliability of measurement. Compounding the problem was the fact that some of the instruments employed are especially sensitive to small error variations such that a difference in performance on one or two items may markedly alter the obtained age equivalency or percentile obtained. Semel and Wiig (1975) pointed to this potential problem with the Northwestern Syntax Screening Test and the Assessment of Children's Language Comprehension. It holds equally true of the Peabody Picture Vocabulary Test and a number of other tests.

Significant inconsistency in a child's responses coupled with a test instrument for which one or two errors may make a large difference in obtained age equivalency can create a see-saw effect in which a child can apparently "gain" or "lose" a half-year or more of age equivalency over the course of a day or week. Having a fairly large number of assessment instruments, administered over a period of weeks increased the likelihood that a meaningful pattern of test data would result that would not be unduly affected by the idiosyncracies of Terry's response performance on a particular occasion.

The large variety of tests employed did, indeed, provide illumination with respect to Terry's functioning. Although conflicting results sometimes posed difficulties in interpretation, more often Terry's differential performance on the various instruments yielded valuable clues about his relative strengths and weaknesses. Even in those cases where conflicting results only contributed ambiguity (e.g., in 1977 was Terry's advance in spelling achievement the equivalent of $\frac{1}{2}$ grade (WRAT) or $1\frac{1}{2}$ grades (PIAT)?) the greater "clarity" provided through use of a single test would have been spurious.

With respect to test selection it may be useful to reiterate an important point made by Lovaas et al. (1973). Improvement in social or verbal behavior may occur at different levels. Assessment procedures must be sensitive and discriminative at the level at which the movement is taking place, or it may not be noted or documented. An example of this taken from the present study is Terry's apparent failure to improve his verbal cognitive abilities between 1976 and 1977 as suggested by his relatively unchanged WISC-R Verbal score, whereas examination of WISC-R raw scores and his marked improvement on the WPPSI Verbal scale during the same period revealed significant change had taken place, although at a level below that at which the WISC-R is discriminative.

Finally, some mention should be made of what seems to the author the two major weaknesses in the assessment procedures employed. Firstly, although the Developmental Sentence Structure procedure involves consideration of the entire corpus of a child's spontaneous language in a structured interview, it does not, of course, document a child's use of language in other social situations. The present study does not include spontaneous language samples taken over time in a variety of settings, with Terry speaking to a number of different persons. Such documentation would have been very valuable. The analysis of such language samples, however, if done in a comprehensive, formal, and reliable fashion, is a highly complex and time-consuming undertaking, for which standardized procedures are presently lacking. Institution of such procedures was beyond the scope of the present study.

A second major weakness of the study was a relative lack of

objective, reliable, documented assessment of the major social and emotional developments that Terry displayed. The Vineland Social Maturity Scale offers a very useful but still relatively crude assessment of social functioning. The Fels Child Behavior Scales, while more sensitive to the kinds of change observed, were employed retrospectively, and by untrained observers. Ideally, independent trained observers would have assessed Terry annually with respect to social-emotional development in a comprehensive fashion employing an instrument that was sensitive over a wide range of development. In this regard the Behavior Rating Instrument for Autistic Children (BRIAC) (Ruttenberg, Dratman, Fraknoi, & Wenar, 1966) would seem to hold considerable promise. The BRIAC involves assigning a child a position on a variety of scales such as Relationship, Social Functioning, Body Movement, and Psychosexual Development (Wenar & Ruttenberg, 1976) which permits observed change to be translated into meaningful clinical terms. A drawback to the use of the BRIAC is that at the present time only examiners who have received special training are permitted its use. In any case, it would have been very valuable to have additional objective behavioral measures of Terry's social-emotional development to buttress the picture provided by clinical observation.

APPROVAL SHEET

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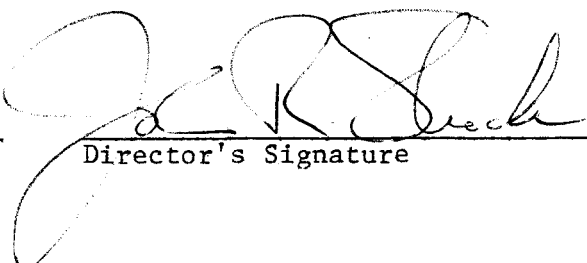
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The final copies have been examined by the Director of the dissertation and the signature which appears below verifies the fact that any necessary changes have been incorporated and that the dissertation is now given final approval by the Committee with reference to content and form.

The dissertation is therefore accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

11/4/50
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